



**BHARATI VIDYAPEETH
(DEEMED TO BE UNIVERSITY), PUNE**

**Faculty of Medical Sciences
MBBS
New Syllabus**



**Bharati Vidyapeeth Deemed to be University,
Pune**

Faculty of Medical Sciences

**Curriculum for MBBS
As per Guidelines of
National Medical Commission**



Bharati Vidyapeeth (Deemed to be University) Pune, India.



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Chancellor

Prof. Dr. Vivek A. Saoji
M.B.B.S., M.S.(Surg.)
Vice Chancellor

Founder Chancellor : Dr. Patangrao Kadam
MEDICAL COLLEGE, PUNE

★ Accredited with 'A+' Grade (2017) by NAAC ★
★ Category-I University Status by UGC ★

"Social Transformation Through Dynamic Education"

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Pro Vice Chancellor

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Principal

Ref. No. : BVDU / MC / 3457/23-24

Date : 23/09/2023

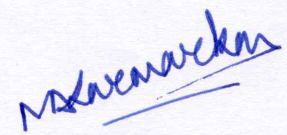
MBBS Curriculum:

In 2019, NMC has released the new CBME curriculum, the university has adopted the same in totality. Over and above of the mandate of NMC, our university is following some unique practices (best practices)

Institution is emphasizing on active and interactive learning by ensuring that, the didactic lectures are not exceeding one third of the schedule; two third of the schedule includes interactive sessions, practical's, clinical or/and group discussions. We also ensure that the learning experience is more of clinical, problem oriented and community based.

- 1. Orientation to General Practice** – BVDU Medical college has entered in a memorandum of understanding (MOU) with Indian Medical Association, Pune branch. under this, our undergraduate students (in III MBBS Part I) are posted with eminent general practitioners of Pune city in the evenings, five days a week for 4 weeks. This activity is totally voluntary and outside college hours and no incentives in terms of marks are awarded to participating students. Students get to learn the nuances of general practice like doctor patient relationship and communication skills.
- 2. ICMR STS projects** – Students' participation in STS projects of Indian Council of Medical Research is encouraged by college and is considered as part of formative assessments.

- 3. Value added courses** – Research methodology course is offered to undergraduate students. Basic Life Support (BLS) and Advance Cardiac Life Support (ACLS) course, Acute Care course are offered to interns.
- 4. Electives** - NMC has made electives mandatory during commencement of III MBBS Part II. We offer electives in all preclinical, para-clinical, clinical and superspeciality departments. In addition to these we offer certain unique electives in collaboration with school of Audiology and Speech Languages Pathology, Bharati School of Physiotherapy, BV Institute of Biotechnology and Interactive Research School for Health Affairs (IRSHA).
- 5. Learner-doctor method of clinical training (Clinical Clerkship):** During their Final M.B.B.S, the students are exposed to Learner-doctor method of clinical training so that they will understand longitudinal patient care, and Hands-on care of patients in outpatient and inpatient setting. This will make them a part of the health care team.
- 6. Skills Training/Simulation Lab:** The state of art simulation laboratory at Bharati Hospital is assisting students to develop and practice various mandatory skills in a non-threatening environment.
- 7. Log Book:** Maintenance of log book has been made one of the mandatory component of Internal assessment for documentation of certifiable competencies, skills, AETCOM and SDL.


PRINCIPAL
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(Deemed to be University)
Medical College
Pune - 411043.

Dean
Faculty of Medical Sciences
Bharati Vidyapeeth
(Deemed to be University) Pune



Bharati Vidyapeeth (Deemed To be University) **Medical College, Pune**

Programme Codes:

Sr. No.	Faculty

Faculty of Medical Sciences	
1	Bachelor of Medicine & Bachelor of Surgery (MBBS)

Course Codes:

	Program	Code
	Bachelor of Medicine & Bachelor of Surgery (MBBS)	

Professional Year-Part	Course/Subject	Code
I	Human Anatomy + AETCOM	AN
	Physiology + AETCOM	PY
	Biochemistry + AETCOM	BI

II	Pathology + AETCOM	PA
	Pharmacology + AETCOM	PH
	Microbiology + AETCOM	MI

III-Part 1	Community Medicine + AETCOM	CM
	Ophthalmology + AETCOM	OP
	Otorhinolaryngology (ENT) + AETCOM	EN
	Forensic Medicine & Toxicology	FM

III-Part 2	General Medicine + AETCOM	IM
	Paediatrics + AETCOM	PE
	Respiratory Medicine	CT
	Psychiatry	PS

	Dermatology, Venerology & Leprosy	DR
	General Surgery	SU
	Obstetrics & Gynecology + AETCOM	OG
	Orthopaedics	OR
	Physical Medicine & Rehabilitation	PM
	Anaesthesiology	AS
	Radiodiagnosis	RD
	Radiotherapy	RT
	Dentistry	DE

	Internship	INT

	Value-Added Courses	Code
1	Certificate Course in Basic Research Methodology for UG	VAC 1
2	Acute Care Training	VAC 2
3	Basic Life Support, Advance Cardiac Life Support	VAC 3

Programme Outcome Codes:

Program Outcome Code	Outcome Statement
PO 1	Demonstrate understanding of basic medical and allied sciences relevant to practice of medicine.
PO 2	Diagnose and manage with competence common health problems of individuals across the lifespan in different delivery settings.
PO 3	Practice with competence preventive, promotive, curative and rehabilitative medicine with respect to the commonly encountered health problems.
PO 4	Appreciate the rationale for different therapeutic modalities and are familiar with the administration of essential drugs and their common side effects.
PO 5	Appreciate the psychosocial, cultural, economic and environmental factors affecting health.
PO 6	Demonstrate humane attitudes towards patients in their professional responsibilities.
PO 7	Possess the attitude for continued self-learning and pursue research in any chosen area of medicine and documentation skills.
PO 8	Demonstrate familiarity with the essential requirements for the implementation of the National Health Programmes.
PO 9	Possess basic management and administrative skills.
PO 10	Identify community health problems and work to resolve these by designing and instituting corrective steps and evaluating outcome of such measures.
PO 11	Develop ability to work in healthcare teams and proficiency in communication skills.
PO 12	Possess personal characteristics and attitudes required for professional life such as empathy, integrity, etiquettes and ethics.

Program Outcome Code	Outcome Statement	Year I		
		AN	PY	BI
PO 1	Demonstrate understanding of basic medical and allied sciences relevant to practice of medicine.	Y	Y	Y
PO 2	Diagnose and manage with competence common health problems of individuals across the lifespan in different delivery settings.			
PO 3	Practice with competence preventive, promotive, curative and rehabilitative medicine with respect to the commonly encountered health problems.			
PO 4	Appreciate the rationale for different therapeutic modalities and are familiar with the administration of essential drugs and their common side effects.			
PO 5	Appreciate the psychosocial, cultural, economic and environmental factors affecting health.			
PO 6	Demonstrate humane attitudes towards patients in their professional responsibilities.	Y	Y	Y
PO 7	Possess the attitude for continued self-learning and pursue research in any chosen area of medicine and documentation skills.		Y	Y
PO 8	Demonstrate familiarity with the essential requirements for the implementation of the National Health Programmes.			
PO 9	Possess basic management and administrative skills.			
PO 10	Identify community health problems and work to resolve these by designing and instituting corrective steps and evaluating outcome of such measures.			
PO 11	Develop ability to work in healthcare teams and proficiency in communication skills.		Y	Y
PO 12	Possess personal characteristics and attitudes required for professional life such as empathy, integrity, etiquettes and ethics.	Y	Y	Y

Professional Year/Part	Course/Subject	Code
I	Human Anatomy + AETCOM	AN
	Physiology + AETCOM	PY
	Biochemistry + AETCOM	BI

Program Outcome Code	Outcome Statement	Year II		
		PA	PH	MI
PO 1	Demonstrate understanding of basic medical and allied sciences relevant to practice of medicine.	Y	Y	Y
PO 2	Diagnose and manage with competence common health problems of individuals across the lifespan in different delivery settings.	Y	Y	Y
PO 3	Practice with competence preventive, promotive, curative and rehabilitative medicine with respect to the commonly encountered health problems.			
PO 4	Appreciate the rationale for different therapeutic modalities and are familiar with the administration of essential drugs and their common side effects.		Y	
PO 5	Appreciate the psychosocial, cultural, economic and environmental factors affecting health.			
PO 6	Demonstrate humane attitudes towards patients in their professional responsibilities.	Y	Y	Y
PO 7	Possess the attitude for continued self-learning and pursue research in any chosen area of medicine and documentation skills.	Y	Y	Y
PO 8	Demonstrate familiarity with the essential requirements for the implementation of the National Health Programmes.			
PO 9	Possess basic management and administrative skills.			
PO 10	Identify community health problems and work to resolve these by designing and instituting corrective steps and evaluating outcome of such measures.			
PO 11	Develop ability to work in healthcare teams and proficiency in communication skills.			
PO 12	Possess personal characteristics and attitudes required for professional life such as empathy, integrity, etiquettes and ethics.	Y	Y	Y

Professional Year/Part	Course/Subject	Code
II	Pathology + AETCOM	PA
	Pharmacology + AETCOM	PH
	Microbiology + AETCOM	MI

Program Outcome Code	Outcome Statement	Year III Part 1			
		CM	OP	EN	FM
PO 1	Demonstrate understanding of basic medical and allied sciences relevant to practice of medicine.	Y	Y	Y	Y
PO 2	Diagnose and manage with competence common health problems of individuals across the lifespan in different delivery settings.		Y	Y	
PO 3	Practice with competence preventive, promotive, curative and rehabilitative medicine with respect to the commonly encountered health problems.		Y	Y	
PO 4	Appreciate the rationale for different therapeutic modalities and are familiar with the administration of essential drugs and their common side effects.	Y	Y	Y	Y
PO 5	Appreciate the psychosocial, cultural, economic and environmental factors affecting health.	Y			
PO 6	Demonstrate humane attitudes towards patients in their professional responsibilities.	Y	Y	Y	Y
PO 7	Possess the attitude for continued self-learning and pursue research in any chosen area of medicine and documentation skills.	Y	Y	Y	Y
PO 8	Demonstrate familiarity with the essential requirements for the implementation of the National Health Programmes.	Y			
PO 9	Possess basic management and administrative skills.	Y			Y
PO 10	Identify community health problems and work to resolve these by designing and instituting corrective steps and evaluating outcome of such measures.	Y			
PO 11	Develop ability to work in healthcare teams and proficiency in communication skills.	Y	Y	Y	Y
PO 12	Possess personal characteristics and attitudes required for professional life such as empathy, integrity, etiquettes and ethics.		Y	Y	

Professional Year/Part	Course/Subject	Code
III-Part 1	Community Medicine + AETCOM	CM
	Ophthalmology + AETCOM	OP
	Otorhinolaryngology (ENT) + AETCOM	EN
	Forensic Medicine & Toxicology	FM

[illegible]

PO 10	Identify community health problems and work to resolve these by designing and instituting corrective steps and evaluating outcome of such measures.													
PO 11	Develop ability to work in healthcare teams and proficiency in communication skills.	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
PO 12	Possess personal characteristics and attitudes required for professional life such as empathy, integrity, etiquettes and ethics.	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y

Professional Year/Part	Course/Subject	Code		
III-Part 2	General Medicine + AETCOM	IM		
	Paediatrics + AETCOM	PE		
	Respiratory Medicine	CT	Assessment with IM	
	Psychiatry	PS	Assessment with IM	
	Dermatology, Venerology & Leprosy	DR	Assessment with IM	
	General Surgery	SU		
	Obstetrics & Gynecology + AETCOM	OG		
	Orthopaedics	OR	Assessment with SU	
	Physical Medicine & Rehabilitation	PM	Assessment with SU	
	Anaesthesiology	AS	Assessment with SU	
	Radiodiagnosis	RD	Assessment with SU	
	Radiotherapy	RT	Assessment with SU	
	Dentistry	DE	Assessment with SU	

Program Outcome Code	Outcome Statement	Internship
		INT
PO 1	Demonstrate understanding of basic medical and allied sciences relevant to practice of medicine.	Y
PO 2	Diagnose and manage with competence common health problems of individuals across the lifespan in different delivery settings.	Y
PO 3	Practice with competence preventive, promotive, curative and rehabilitative medicine with respect to the commonly encountered health problems.	Y
PO 4	Appreciate the rationale for different therapeutic modalities and are familiar with the administration of essential drugs and their common side effects.	Y
PO 5	Appreciate the psychosocial, cultural, economic and environmental factors affecting health.	Y
PO 6	Demonstrate humane attitudes towards patients in their professional responsibilities.	Y
PO 7	Possess the attitude for continued self-learning and pursue research in any chosen area of medicine and documentation skills.	Y
PO 8	Demonstrate familiarity with the essential requirements for the implementation of the National Health Programmes.	Y
PO 9	Possess basic management and administrative skills.	Y
PO 10	Identify community health problems and work to resolve these by designing and instituting corrective steps and evaluating outcome of such measures.	Y
PO 11	Develop ability to work in healthcare teams and proficiency in communication skills.	Y
PO 12	Possess personal characteristics and attitudes required for professional life such as empathy, integrity, etiquettes and ethics.	Y

Professional Year/Part	Course/Subject	Code
	Internship	INT

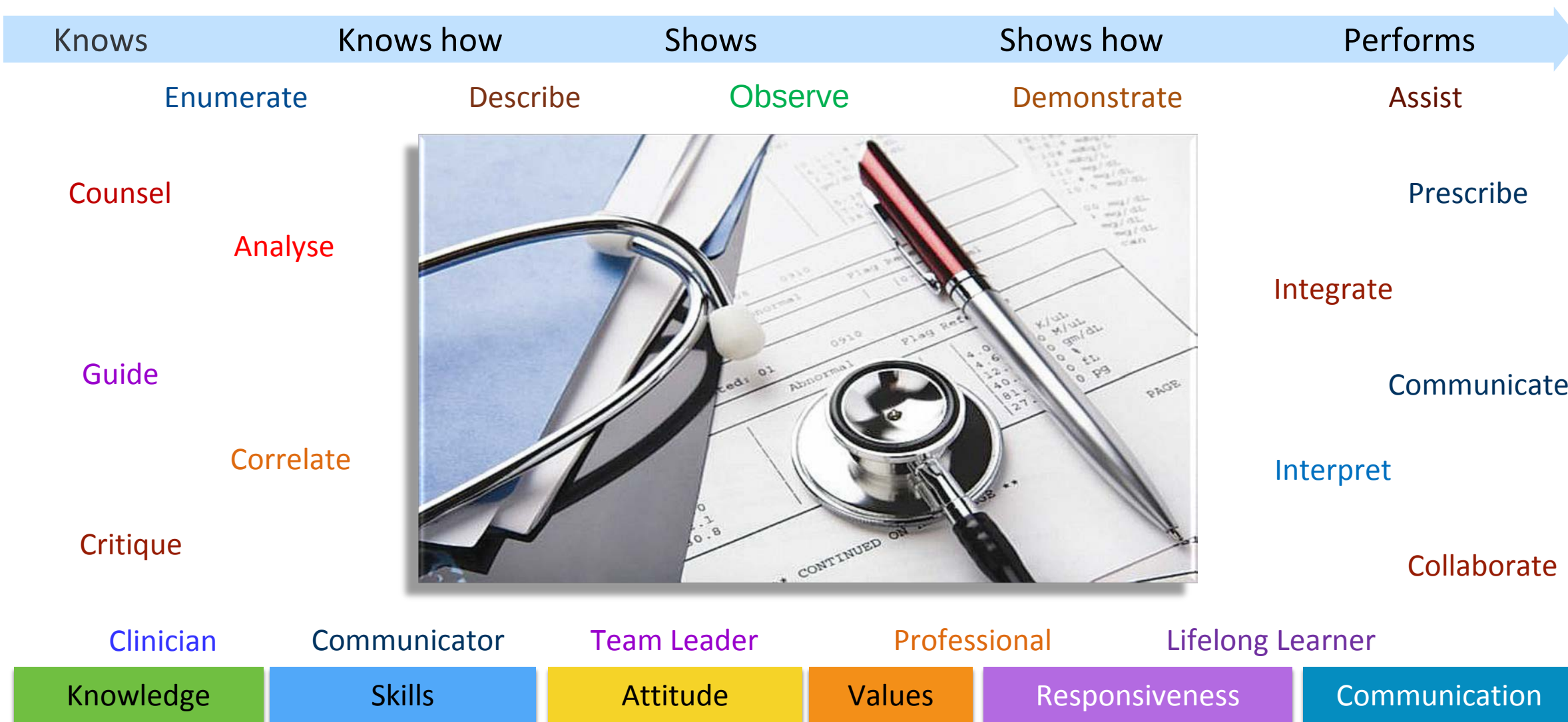
Program Outcome Code	Outcome Statement	Internship		
		VAC 1	VAC 2	VAC 3
PO 1	Demonstrate understanding of basic medical and allied sciences relevant to practice of medicine.		Y	Y
PO 2	Diagnose and manage with competence common health problems of individuals across the lifespan in different delivery settings.		Y	Y
PO 3	Practice with competence preventive, promotive, curative and rehabilitative medicine with respect to the commonly encountered health problems.			
PO 4	Appreciate the rationale for different therapeutic modalities and are familiar with the administration of essential drugs and their common side effects.		Y	Y
PO 5	Appreciate the psychosocial, cultural, economic and environmental factors affecting health.			
PO 6	Demonstrate humane attitudes towards patients in their professional responsibilities.		Y	Y
PO 7	Possess the attitude for continued self-learning and pursue research in any chosen area of medicine and documentation skills.	Y	Y	Y
PO 8	Demonstrate familiarity with the essential requirements for the implementation of the National Health Programmes.			
PO 9	Possess basic management and administrative skills.		Y	Y
PO 10	Identify community health problems and work to resolve these by designing and instituting corrective steps and evaluating outcome of such measures.			
PO 11	Develop ability to work in healthcare teams and proficiency in communication skills.		Y	Y
PO 12	Possess personal characteristics and attitudes required for professional life such as empathy, integrity, etiquettes and ethics.		Y	Y

	Value-Added Courses	Code
1	Certificate Course in Basic Research Methodology for UG	VAC 1
2	Acute Care Training	VAC 2
3	Basic Life Support, Advance Cardiac Life Support	VAC 3



MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



VOLUME-II (2018)

**COMPETENCY BASED UNDERGRADUATE CURRICULUM
FOR THE
INDIAN MEDICAL GRADUATE
2018**



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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड

BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

FOREWORD

The Medical Council of India, aware of its responsibilities in creation of trained health manpower, has been engaged for the past few years in updating the medical curriculum for undergraduates and postgraduates to be in consonance with the changing health needs of the country. The task of updating and reorganization of the postgraduate curriculum in nearly 50 broad specialty disciplines to the competency pattern was accomplished by the Academic Cell of the Council with the help of subject experts and members of its Reconciliation Board and have been uploaded on the Council Website for use of the medical fraternity.

The Council visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. The student should be trained to effectively communicate with patients and their relatives in a manner respectful of the patient's preferences, values, beliefs, confidentiality and privacy and to this purpose, a book on Attitude, Ethics & Communication was prepared by the Medical Council of India; the teaching faculty of medical colleges have been receiving training on this module since 2015.

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BOARD OF GOVERNORS
IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

-2-

Competency based Medical Education provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies. Keeping this objective as the core ingredient, the Medical Council of India with the help of panel of experts drawn from across the country, laid the basic framework for the revised undergraduate medical curriculum. Over the past four years, a group of highly committed medical professionals working as Members of the MCI Reconciliation Board developed this information into a document incorporating appropriate teaching-learning strategies, tools and techniques of teaching, and modes of assessment which have culminated in the current competency based undergraduate curriculum. We understand that maximum efforts were made to encourage integrated teaching between traditional subject areas using a problem-based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both the understanding and resolution of the problem. All efforts have been made to de-emphasize compartmentalisation of disciplines so as to achieve both horizontal and vertical integration in different phases. We are proud of their work accomplishment and congratulate them in the onerous task accomplished.

It gives us great satisfaction to state that the '**competency based undergraduate curriculum**' that has been prepared by the Medical Council of India would definitely serve the cause of medical education and in creating a competent Indian Medical Graduate to serve the community.

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The Competency based Undergraduate Curriculum for MBBS students prepared by subject experts was scrutinized by members of the Reconciliation Board and Academic Cell. The contents, embodied in this document, have received Copyright from the Register of Copyrights, Copyright Office, Government of India with Registration Number L-63913/2016.

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COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Preamble

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide health care to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using “broad competencies”; instead, the reports have written end of phase subject (sub) competencies. These “sub-competencies” can be mapped to the global competencies in the Graduate Medical Education Regulations.

A significant attempt has been made in the outcome driven undergraduate curriculum to provide the orientation and the skills necessary for life-long learning to enable proper care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged. In the pre-internship years,- the highest level of skill acquisition is a show how (SH) in a simulated or guided environment; few skills require independent performance and certification - these are marked with P (for performance). Opportunity to ‘perform’ these skills will be available during internship.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above, an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self directed learning and co-curricular activities.

Formative and internal assessments have been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened, increasing the involvement of Curriculum Committee and Medical Education Departments/Units.

The curriculum document in conjunction with the new Graduate Medical Education Regulations (GMR), when notified, must be seen as a “living document” that should evolve as stakeholder requirements and aspirations change. We hope that the current GMR does just that. The Medical Council of India is

grateful to all the teachers, subject experts, process experts, patients, students and trainees who have contributed through invaluable inputs, intellectual feedbacks and valuable time spent to make this possible. This document would not have been possible without the dedicated and unstinting intellectual, mental and time-consuming efforts of the members of the Reconciliation Board of the Council and the Academic Cell of MCI.

How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. They must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

2. Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession fulfill his/her social obligations towards realization of this goal.
- (b) learn every aspect of National policies on health and devote herself/himself to its practical implementation.
- (c) achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

- (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH);
 - (ii) Sanitation and water supply;
 - (iii) Prevention and control of communicable and non-communicable diseases;
 - (iv) Immunization;
 - (v) Health Education;
 - (vi) Indian Public Health Standards (IPHS) at various level of service delivery;
 - (vii) Bio-medical waste disposal; and
 - (viii) Organizational and or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, General and hospital management, principal inventory skills and counseling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2. 3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

- 3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- 3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - i) Disease prevention,
 - ii) Health promotion and cure,
 - iii) Pain and distress alleviation, and
 - iv) Rehabilitation and palliation.

- 3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

- 3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- 3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- 3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- 3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. *Communicator with patients, families, colleagues and community*

- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically reevaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. *Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession*

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise outcomes

Section 2 contains subject-wise outcomes so called “sub-competencies” that must be achieved at the end of instruction in that subject. These are organised in tables and have two parts. The core subject outcomes are in first part. The second part in the same document (titled Integration) contains outcomes/competencies in other subjects which have been identified by experts in those subjects as requiring alignment or integration with the core subject.

Outcomes (competencies) in each subject are grouped according to topics number-wise. It is important to review the individual outcomes (competencies) in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section “definitions used in this document”. The suggested number of times a skill must be performed independently for certification in the learner’s log book is also given. Last two columns indicate subjects within the same phase and other phases with which the topic can be taught - together - aligned (temporal coordination), shared, correlated or nested.

The number of topics and competencies in each subject are given below:

Topics & outcomes in Pre-clinical & Para-clinical subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Human Anatomy	82	409
2.	Physiology	11	137
3.	Biochemistry	11	89
4.	Pharmacology	05	85
5.	Pathology	36	182
6.	Microbiology	08	54
7.	Forensic Medicine & Toxicology	14	162
	Total	167	1118

Topics & outcomes in Medicine and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Community Medicine	20	107
2.	General Medicine	26	506
3.	Respiratory Medicine	02	47
4.	Pediatrics	35	406
5.	Psychiatry	19	117
6.	Dermatology, Venereology & Leprosy	18	73
7.	Physical Medicine & Rehabilitation	09	43
	Total	129	1299

Topics & outcomes in Surgery and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	General Surgery	30	133
2.	Ophthalmology	09	60
3.	Otorhinolaryngology	04	76
4.	Obstetrics & Gynaecology	38	126
5.	Orthopedics	14	39
6.	Anesthesiology	10	46
7.	Radiodiagnosis	01	13
8.	Radiotherapy	05	16
9.	Dentistry	05	23
	Total	116	532

Section 3

Sample topics used for alignment & integration

Section 3 contains a sample selection of topics that run across the phases which can be used for alignment and integration. These are suggestions and institutions can select their own set of topics which can run across phases.

It is important to design the curriculum with a view to ensure with several broad outcomes in mind: a) achievement of the broad competencies by the learner at the end of the MBBS program, b) retain the subject - wise character of learning and assessment and ensure that phase-wise subject outcomes are met and assessed, c) teaching topics that are similar together thereby reducing redundancy and allowing the learner to integrate the concept as the most important step in integration (alignment or temporal coordination) (see document on integration), and d) align learning and assessment experiences to the outcome and the level of achievement specified.

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H	I	J
No.	Competencies	Domain	K/KH/SH/P	Core	Suggested Teaching Learning Method	Suggested Assessment method	No. required to certify (P)	Vertical Integration	Horizontal Integration
Physiology									
Summary Name of Topic: General Physiology Number of Competencies: (08)									
PY1.1	Describe the structure and functions of a	K	KH	Y	Lectures, Small group discussion	Written/Viva			Biochemistry
IM25.4	Elicit <i>document</i> and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	Skill assessment		Community Medicine	

Unique number of the competency. First two alphabets represent the subject (see list); number following alphabet reflects topic number, following period is a running number.

Description of competency

Identifies the domain or domains addressed
 K - Knowledge
 S - Skill
 A - Attitude
 C - Communication

Identifies the level of competency required based on the Miller's pyramid
 K - Knows
 KH - Knows How
 S - Skill
 SH - Show How
 P - Perform independently

Identifies if the competency is core or desirable.
 Y indicates Core;
 N-non-core

Identifies the suggested learning method.
 DOAP - Demonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
 Skill assessment - Clinics, Skills lab, Practicals etc.

no of times a skill needs to be done independently to be certified for independent performance;
 Rarely used in UG

Subject (s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject (s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

PA42.1*	At the end of the session the phase II student must be able to enumerate the most common causes of meningitis correctly
PA42.2*	At the end of the session the phase II student must be able to enumerate the components of CSF analysis correctly
PA42.3*	At the end of the session the phase II student must be able to describe the CSF features for a given etiology of meningitis accurately
PA42.4*	At the end of the session the phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters

Audience - who will do the behavior

Behavior - What should the learner be able to do?

Condition - Under what conditions should the learner be able to do it?

Degree – How well must it be done

Objective: Statement of what a learner should be able to do at the end of a specific learning experience
***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning methods from competencies

Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Lecture	small group discussion
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Related objectives can be combined into one teaching session	
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given etiologic of meningitis accurately		
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	small group discussion, practical session	

*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies-1

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the ~~Phase II student~~ must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given aetiology of meningitis accurately	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document

Deriving assessment methods from competencies-2

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

MI2.4*	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine	Pathology

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the morphology of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects -teachers from both subjects usually not needed. Ensure redundancy and duplication by reviewing both subjects



Horizontally aligned and integrated with pathology

Vertically integrated with General Medicine



Integrate concept - not necessarily teachers Plan session with teachers from both phases. Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient). Using teachers from both phases is rarely required

The concept of integration

Concept of integration used in the Manual

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application. The GMR 2018 applies these principles to the extent that will retain the strengths of silo - based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind, the Regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be thought separately but during the same time frame (Figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to Share (Figure 1b) topics or Correlate (Figure 1c) topics by using an integration session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. Care must be taken to ensure that achievement phase - based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasized that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may be involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting (Figure 1d) (Harden). Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year.

Assessment will continue to be subject based. However, efforts must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application.

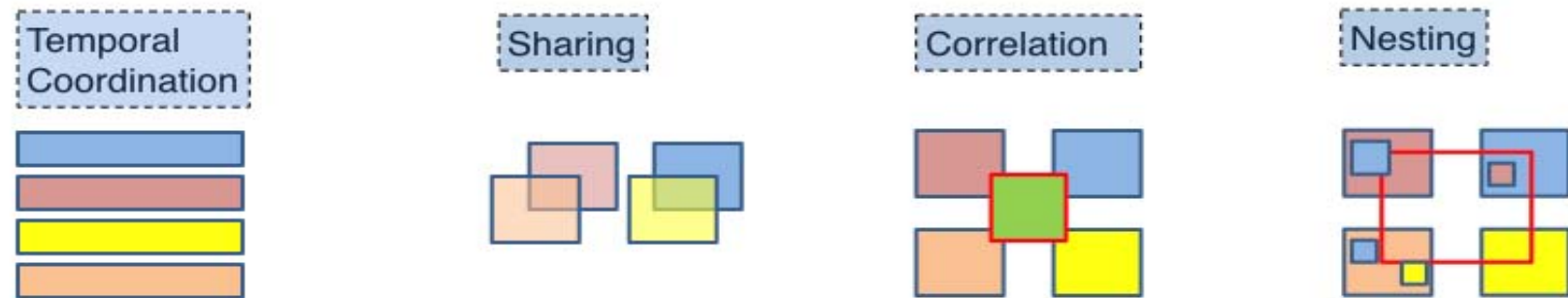


Figure 1 : Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Definitions used in the Manual

- 1. Goal:** A projected state of affairs that a person or system plans to achieve.
In other words: Where do you want to go? or What do you want to become?
- 2. Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.
In other words: What should you have? or What should have changed?
- 3. Objective:** Statement of what a learner should be able to do at the end of a specific learning experience.
In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Interpret	
Elicit		
Report		

Note:

1. Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.
2. The word ‘perform’ or ‘do’ is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
3. Most tasks that require performance during undergraduate years will be performed under supervision.
4. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

Lecture	Any instructional large group method including traditional lecture and interactive lecture
Small group discussion	Any instructional method involving small groups of students in an appropriate learning context
DOAP (Demonstration- Observation - Assistance - Performance)	A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently
Skill assessment	A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands
Core	A competency that is necessary in order to complete the requirements of the subject (traditional must know)
Non-Core	A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified.

Volume II

Competency based Undergraduate Curriculum

in

Medicine and Allied subjects

COMMUNITY MEDICINE (CODE: CM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
COMMUNITY MEDICINE									
Topic: Concept of Health and Disease Number of competencies: (10) Number of procedures that require certification:(NIL)									
CM1.1	Define and describe the concept of Public Health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.2	Define health; describe the concept of holistic health including concept of spiritual health and the relativeness & determinants of health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.3	Describe the characteristics of agent, host and environmental factors in health and disease and the multi factorial etiology of disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.4	Describe and discuss the natural history of disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.5	Describe the application of interventions at various levels of prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.6	Describe and discuss the concepts, the principles of Health promotion and Education, IEC and Behavioral change communication (BCC)	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.7	Enumerate and describe health indicators	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.8	Describe the Demographic profile of India and discuss its impact on health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.9	Demonstrate the role of effective Communication skills in health in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		AETCOM	
CM1.10	Demonstrate the important aspects of the doctor patient relationship in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Relationship of social and behavioural to health and disease Number of competencies: (5) Number of procedures that require certification: (NIL)									
CM2.1	Describe the steps and perform clinico socio-cultural and demographic assessment of the individual, family and community	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment			
CM2.2	Describe the socio-cultural factors, family (types), its role in health and disease & demonstrate in a simulated environment the correct assessment of socio-economic status	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment			
CM2.3	Describe and demonstrate in a simulated environment the assessment of barriers to good health and health seeking behavior	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment			
CM2.4	Describe social psychology, community behaviour and community relationship and their impact on health and disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM2.5	Describe poverty and social security measures and its relationship to health and disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
Topic: Environmental Health Problems Number of competencies: (8) Number of procedures that require certification: (NIL)									
CM3.1	Describe the health hazards of air, water, noise, radiation and pollution	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, ENT	
CM3.2	Describe concepts of safe and wholesome water, sanitary sources of water, water purification processes, water quality standards, concepts of water conservation and rainwater harvesting	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce			
CM3.3	Describe the aetiology and basis of water borne diseases /jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Microbiology, General Medicine, Pediatrics	
CM3.4	Describe the concept of solid waste, human excreta and sewage disposal	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM3.5	Describe the standards of housing and the effect of housing on health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM3.6	Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Microbiology	
CM3.7	Identify and describe the identifying features and life cycles of vectors of Public Health importance and their control measures	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment		Microbiology	
CM3.8	Describe the mode of action, application cycle of commonly used insecticides and rodenticides	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pharmacology	
Topic: Principles of health promotion and education Number of competencies: (3) Number of procedures that require certification: (NIL)									
CM4.1	Describe various methods of health education with their advantages and limitations	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM4.2	Describe the methods of organizing health promotion and education and counselling activities at individual family and community settings	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM4.3	Demonstrate and describe the steps in evaluation of health promotion and education program	S	SH	Y	Small group session, DOAP session	Written / Viva voce/ Skill assessment			
Topic: Nutrition Number of competencies: (08) Number of procedures that require certification: (NIL)									
CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	
CM5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	
CM5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors.	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	
CM5.6	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pediatrics	
CM5.7	Describe food hygiene	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Microbiology
CM5.8	Describe and discuss the importance and methods of food fortification and effects of additives and adulteration	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pediatrics	
Topic: Basic statistics and its applications Number of competencies: (04) Number of procedures that require certification: (NIL)									
CM6.1	Formulate a research question for a study	K	KH	Y	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	
CM6.2	Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Y	Small group, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	
CM6.3	Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM6.4	Enumerate, discuss and demonstrate Common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	
Topic: Epidemiology Number of competencies: (09) Number of procedures that require certification: (NIL)									
CM7.1	Define Epidemiology and describe and enumerate the principles, concepts and uses	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.2	Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.3	Enumerate, describe and discuss the sources of epidemiological data	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.4	Define, calculate and interpret morbidity and mortality indicators based on given set of data	S	SH	Y	Small group, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.5	Enumerate, define, describe and discuss epidemiological study designs	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.6	Enumerate and evaluate the need of screening tests	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.7	Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	Microbiology
CM7.8	Describe the principles of association, causation and biases in epidemiological studies	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.9	Describe and demonstrate the application of computers in epidemiology	S	KH	Y	Small group discussion, DOAP sessions	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Epidemiology of communicable and non- communicable diseases Number of competencies:(7) Number of procedures that require certification:(NIL)									
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
CM8.2	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for Non Communicable diseases (diabetes, Hypertension, Stroke, obesity and cancer etc.)	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM8.3	Enumerate and describe disease specific National Health Programs including their prevention and treatment of a case	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM8.4	Describe the principles and enumerate the measures to control a disease epidemic	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM8.5	Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM8.6	Educate and train health workers in disease surveillance, control & treatment and health education	S	SH	Y	DOAP sessions	Skill assessment			
CM8.7	Describe the principles of management of information systems	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Demography and vital statistics Number of competencies: (07) Number of procedures that require certification: (NIL)									
CM9.1	Define and describe the principles of Demography, Demographic cycle, Vital statistics	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.2	Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Y	Lecture, Small group discussion, DOAP sessions	Skill assessment		Obstetrics & Gynaecology, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM9.3	Enumerate and describe the causes of declining sex ratio and its social and health implications	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.4	Enumerate and describe the causes and consequences of population explosion and population dynamics of India.	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.5	Describe the methods of population control	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology	
CM9.6	Describe the National Population Policy	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.7	Enumerate the sources of vital statistics including census, SRS, NFHS, NSSO etc	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Reproductive maternal and child health Number of competencies:(09) Number of procedures that require certification: (NIL)									
CM10.1	Describe the current status of Reproductive, maternal, newborn and Child Health	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.2	Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Pediatrics, Obstetrics & Gynaecology	
CM10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Pediatrics, Obstetrics & Gynaecology	
CM10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.5	Describe Universal Immunization Program; Integrated Management of Neonatal and Childhood Illness (IMNCI) and other existing Programs.	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Pediatrics	
CM10.6	Enumerate and describe various family planning methods, their advantages and shortcomings	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM10.7	Enumerate and describe the basis and principles of the Family Welfare Program including the organization, technical and operational aspects	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM10.8	Describe the physiology, clinical management and principles of adolescent health including ARSH	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM10.9	Describe and discuss gender issues and women empowerment	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Occupational Health Number of competencies: (05) Number of procedures that require certification: (NIL)									
CM11.1	Enumerate and describe the presenting features of patients with occupational illness including agriculture	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.2	Describe the role, benefits and functioning of the employees state insurance scheme	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.3	Enumerate and describe specific occupational health hazards, their risk factors and preventive measures	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.4	Describe the principles of ergonomics in health preservation	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.5	Describe occupational disorders of health professionals and their prevention & management	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Geriatric services Number of competencies: (04) Number of procedures that require certification: (NIL)									
CM12.1	Define and describe the concept of Geriatric services	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	
CM12.2	Describe health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	
CM12.3	Describe the prevention of health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM12.4	Describe National program for elderly	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	
Topic: Disaster Management Number of competencies: (04) Number of procedures that require certification: (NIL)									
CM13.1	Define and describe the concept of Disaster management	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.2	Describe disaster management cycle	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.3	Describe man made disasters in the world and in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.4	Describe the details of the National Disaster management Authority	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
Topic: Hospital waste management Number of competencies: (03) Number of procedures that require certification: (NIL)									
CM14.1	Define and classify hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written / Viva voce			Microbiology
CM14.2	Describe various methods of treatment of hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written / Viva voce			Microbiology
CM14.3	Describe laws related to hospital waste management	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Microbiology
Topic: Mental Health Number of competencies: (03) Number of procedures that require certification: (NIL)									
CM15.1	Define and describe the concept of mental Health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Psychiatry	
CM15.2	Describe warning signals of mental health disorder	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Psychiatry	
CM15.3	Describe National Mental Health program	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Health planning and management		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
CM16.1	Define and describe the concept of Health planning	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM16.2	Describe planning cycle	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM16.3	Describe Health management techniques	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM16.4	Describe health planning in India and National policies related to health and health planning	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
Topic: Health care of the communtiy		Number of competencies:(05)			Number of procedures that require certification: (NIL)				
CM17.1	Define and describe the concept of health care to community	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM17.2	Describe community diagnosis	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM17.3	Describe primary health care, its components and principles	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM17.4	Describe National policies related to health and health planning and millennium development goals	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM17.5	Describe health care delivery in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
Topic: International Health		Number of competencies: (2)			Number of procedures that require certionat(NIL)				
CM18.1	Define and describe the concept of International health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM18.2	Describe roles of various international health agencies	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Essential Medicine		Number of competencies: (3)			Number of procedures that require certification: (NIL)				
CM19.1	Define and describe the concept of Essential Medicine List (EML)	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
CM19.2	Describe roles of essential medicine in primary health care	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
CM19.3	Describe counterfeit medicine and its prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
Topic: Recent advances in Community Medicine		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
CM20.1	List important public health events of last five years	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM20.2	Describe various issues during outbreaks and their prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM 20.3	Describe any event important to Health of the Community	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM 20.4	Demonstrate awareness about laws pertaining to practice of medicine such as Clinical establishment Act and Human Organ Transplantation Act and its implications	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Intergration									
Physiology									
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Biochemistry									
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables.(macro-molecules & its importance)	K	KH	Y	Lectures, Small group discussions	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
Pathology									
PA12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Community Medicine
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
Microbiology									
MI1.3	Describe the epidemiological basis of common infectious diseases	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	Community Medicine
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.6	Describe the basics of Infection control	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	General Surgery	Community Medicine
MI8.16	Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)	K	K	Y	Lecture	Written / Viva voce			
Pharmacology									
PH1.55	Describe and discuss the following National Health programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filariasis, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, Cancer and Iodine deficiency	K	KH	Y	Lecture	Written / Viva voce			Community Medicine
Forensic Medicine & Toxicology									
FM2.33	Demonstrate ability to use local resources whenever required like in mass disaster situations	A & C	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Community Medicine	
Dermatology, Venereology & Leprosy									
DR9.1	Classify, describe the epidemiology, etiology, microbiology pathogenesis and clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussions	Written / Viva voce		General Medicine	Microbiology, Community Medicine
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on national guidelines	K	KH	Y	Lecture, Small group discussions	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on the WHO guidelines	K	KH	Y	Lecture, Small group discussions	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
Ophthalmology									
OP9.4	Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)	K	KH	Y	Lecture, Small group discussions	Written / Viva voce			Community Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Psychiatry									
PS19.1	Describe the relevance, role and status of community psychiatry	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PS19.2	Describe the objectives strategies and contents of the of the National Mental Health Programme	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PS19.4	Enumerate and describe the salient features of the prevalent mental health laws in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PS19.5	Describe the concept and principles of preventive psychiatry and mental health promotion (positive mental health); and community education	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
General Medicine									
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pathology, Physiology, Community Medicine	
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g. Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM9.15	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pharmacology, Community Medicine	
IM12.12	Describe and discuss the iodisation programs of the government of India	K	KH	Y	Lecture, Bedside clinic	short note		Community Medicine	
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lectures, Small group discussions	short note/ Viva voce		Pathology, Community Medicine	
IM24.18	Describe the impact of the demographic changes in ageing on the population	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic diseases (e.g. Leptospirosis, Rabies) and non-febrile infectious disease (e.g. Tetanus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.2	Discuss and describe the common causes, pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.4	Elicit document and present a medical history that helps delineate the aetiology of these diseases that includes the evolution and pattern of symptoms, risk factors, exposure through occupation and travel	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Community Medicine	
IM25.13	Counsel the patient and family on prevention of various infections due to environmental issues	C	SH	Y	DOAP session	Skill assessment		Community Medicine, General Medicine	
Obstetrics & Gynaecology									
OG1.1	Define and discuss birth rate, maternal mortality and morbidity	K	KH	Y	Lecture, Small group discussions	Short notes		Community Medicine	
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussions	Short notes		Community Medicine	Pediatrics
OG8.1	Enumerate describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors	K	KH	Y	Small group discussions, Bedside clinics, Lecture	Written / Viva voce/ Skill assessment		Community Medicine	
OG19.2	Counsel in a simulated environment, contraception and puerperal sterilisation	S/A/C	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG21.1	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications; selection of patients, side effects and failure rate including OC, male contraception, emergency contraception and IUCD	K	KH	Y	Lecture, Small group discussions, Bedside clinics	Written / Viva voce/ Skill assessment		Community Medicine	
OG33.3	Describe and demonstrate the screening for cervical cancer in a simulated environment	K/S	SH	Y	DOAP session	Skill assessment		Community Medicine	
Pediatrics									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE3.5	Discuss the role of the child developmental unit in management of developmental delay	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE3.7	Visit a Child Developmental unit and observe its functioning	S	KH	Y	Lecture, Small group discussion	Log book Entry		Community Medicine	
PE8.1	Define the term Complementary Feeding	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE8.2	Discuss the principles the initiation, attributes , frequency, techniques and hygiene related to complementary feeding including	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PE8.3	Enumerate the common complimentary foods	K	K	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PE8.4	Elicit history on the Complementary Feeding habits	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Community Medicine	
PE8.5	Counsel and educate mothers on the best practices in Complimentary Feeding	A/C	SH	Y	DOAP session	Document in Log Book		Community Medicine	
PE9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Biochemistry	
PE9.2	Describe the tools and methods for Assessment and classification of Nutritional status of infants, children and adolescents	K	KH	Y	Lecture, Small group discussion,	Written / Viva voce		Community Medicine	
PE9.4	Elicit, Document and present an appropriate nutritional history and perform a dietary recall	S	SH	Y	Bedside clinic, Skill Lab	Skill Assessment		Community Medicine	
PE9.5	Calculate the age related Calorie requirement in Health and Disease and identify gap	S	SH	Y	Bedside clinics, Small group discussion	Skill assessment		Community Medicine	
PE9.6	Assess and classify the nutrition status of infants, children and adolescents and recognize deviations	S	SH	Y	Bedside clinic, Small group discussion	Skill Assessment		Community Medicine	
PE9.7	Plan an appropriate diet in Health and disease	S	SH	N	Bedside clinic, Small group discussion	Document in logbook		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE10.4	Identify children with under nutrition as per IMNCI criteria and plan referral	S	SH	Y	DOAP session	Document in log book		Community Medicine	
PE17.1	State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCH A+, RBSK, RKSK, JSSK mission Indradhanush and ICDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE17.2	Analyse the outcomes and appraise the monitoring and evaluation of NHM	K	KH	Y	Debate	Written/ Viva voce		Community Medicine	
PE18.1	List and explain the components, plans, outcomes of Reproductive child health (RCH) program and appraise the monitoring and evaluation	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.2	Explain preventive interventions for Child survival and safe motherhood	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bedside clinics	Skill station		Community Medicine	Obstetrics & Gynaecology
PE18.4	Provide intra-natal care and conduct a normal Delivery in a simulated environment	S	SH	Y	DOAP session, Skills lab	Document in Log Book		Community Medicine	Obstetrics & Gynaecology
PE18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bedside clinics, Skill Lab	Skill Assessment		Community Medicine	Obstetrics & Gynaecology
PE18.8	Observe the implementation of the program by Visiting the Rural Health Centre	S	KH	Y	Bedside clinics, Skill Lab	Document in log book		Community Medicine	Obstetrics & Gynaecology
PE19.1	Explain the components of the Universal immunization Program and the sub National Immunization Programs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, preterm , organ transplants, those who received blood and blood products, splenectomised children, Adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Microbiology	
PE19.8	Demonstrate willingness to participate in the National and sub national immunisation days	A	SH	Y	Lecture, Small group discussion	Document in Log Book		Community Medicine	
PE19.12	Observe the Administration the UIP vaccines	S	SH	Y	DOAP session	Document in Log Book		Community Medicine	
PE29.5	Discuss the National anaemia Control program	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
General Surgery									
SU7.1	Describe the Planning and conduct of Surgical audit	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
SU7.2	Describe the principles and steps of clinical research in surgery	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
Respiratory Medicine									
CT1.1	Describe and discuss the epidemiology of tuberculosis and its impact on the work, life and economy of India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Microbiology, Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT1.15	Prescribe an appropriate antituberculosis regimen based on the location of disease, smear positivity and negativity and co-morbidities based on current national guidelines including directly observed tuberculosis therapy (DOTS)	K	SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment		Pharmacology, Community Medicine	
CT1.16	Describe the appropriate precautions, screening, testing and indications for chemoprophylaxis for contacts and exposed health care workers	K	KH	Y	Bedside clinic, Small group discussion	Written		Community Medicine	
CT1.18	Educate health care workers on national programs of Tuberculosis and administering and monitoring the DOTS program	C	SH	Y	DOAP session	Skill assessment		Community Medicine	
CT2.24	Recognise the impact of OAD on patient's quality of life, well being, work and family	A	KH	Y	Small group discussion, Bedside clinic	Observation by faculty		Community Medicine	
CT2.25	Discuss and describe the impact of OAD on the society and workplace	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
CT2.26	Discuss and describe preventive measures to reduce OAD in workplaces	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
CT2.27	Demonstrate an understanding of patient's inability to change working, living and environmental factors that influence progression of airway disease	A	KH	Y	Small group discussion, Bedside clinic	Observation by faculty		Community Medicine	

GENERAL MEDICINE (CODE: IM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
GENERAL MEDICINE									
Topic: Heart Failure		Number of competencies: (30)			Number of procedures that require certification : (01)				
IM1.1	Describe and discuss the epidemiology, pathogenesis clinical evolution and course of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Written		Pathology, Physiology	
IM1.3	Describe and discuss the aetiology microbiology pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.5	Describe ,discuss and differentiate the processes involved in R Vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.6	Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrhythmias, anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.8	Describe and discuss the pathogenesis and development of common arrhythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.9	Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.10	Elicit document and present an appropriate history that will establish the diagnosis, cause and severity of heart failure including: presenting complaints, precipitating and exacerbating factors, risk factors exercise tolerance, changes in sleep patterns, features suggestive of infective endocarditis	S	SH	Y	Bedside clinic	Skill assessment			
IM1.11	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and estimate its severity including: measurement of pulse, blood pressure and respiratory rate, jugular venous forms and pulses, peripheral pulses, conjunctiva and fundus, lung, cardiac examination including palpation and auscultation with identification of heart sounds and murmurs, abdominal distension and splenic palpation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.12	Demonstrate peripheral pulse, volume, character, quality and variation in various causes of heart failure	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.13	Measure the blood pressure accurately, recognise and discuss alterations in blood pressure in valvular heart disease and other causes of heart failure and cardiac tamponade	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.14	Demonstrate and measure jugular venous distension	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.15	Identify and describe the timing, pitch quality conduction and significance of precordial murmurs and their variations	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.16	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment			
IM1.17	Order and interpret diagnostic testing based on the clinical diagnosis including 12 lead ECG, Chest radiograph, blood cultures	K	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.18	Perform and interpret a 12 lead ECG	S	P	Y	Bedside clinic, DOAP session	Skill assessment	3		
IM1.19	Enumerate the indications for and describe the findings of heart failure with the following conditions including: 2D echocardiography, brain natriuretic peptide, exercise testing, nuclear medicine testing and coronary angiogram	S	KH	N	Lecture, Small group discussion, Bedside clinic	Skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.20	Determine the severity of valvular heart disease based on the clinical and laboratory and imaging features and determine the level of intervention required including surgery	C	SH	Y	Small group discussion, Lecture, Bedside clinic	Written/ Skill assessment			
IM1.21	Describe and discuss and identify the clinical features of acute and subacute endocarditis, echocardiographic findings, blood culture and sensitivity and therapy	K	KH/SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment			
IM1.22	Assist and demonstrate the proper technique in collecting specimen for blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM1.23	Describe, prescribe and communicate non pharmacologic management of heart failure including sodium restriction, physical activity and limitations	S/C	SH	Y	Lecture, Small group discussion	Skill assessment			
IM1.24	Describe and discuss the pharmacology of drugs including indications, contraindications in the management of heart failure including diuretics, ACE inhibitors, Beta blockers, aldosterone antagonists and cardiac glycosides	K	KH	Y	Lecture, Small group discussion	Viva voce/written		Pharmacology	
IM1.25	Enumerate the indications for valvuloplasty, valvotomy, coronary revascularization and cardiac transplantation	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Viva voce/written			
IM1.26	Develop document and present a management plan for patients with heart failure based on type of failure, underlying aetiology	S	SH	Y	Bedside clinic, Skill assessment, Small group discussion	Bedside clinic/ Skill assessment/written			
IM1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Written		Microbiology, Pharmacology	
IM1.28	Enumerate the causes of adult presentations of congenital heart disease and describe the distinguishing features between cyanotic and acyanotic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment/written			
IM1.29	Elicit document and present an appropriate history, demonstrate correctly general examination, relevant clinical findings and formulate document and present a management plan for an adult patient presenting with a common form of congenital heart disease	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.30	Administer an intramuscular injection with an appropriate explanation to the patient	S	SH	Y	Bedside clinic, Skill assessment	Log book documentation of completion		Pharmacology	
Topic: Acute Myocardial Infarction/ IHD Number of competencies: (24) Number of procedures that require certification : (02)									
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Community Medicine	
IM2.2	Discuss the aetiology of risk factors both modifiable and non modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
IM2.4	Discuss and describe the pathogenesis natural history, evolution and complications of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.5	Define the various acute coronary syndromes and describe their evolution, natural history and outcomes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM2.6	Elicit document and present an appropriate history that includes onset evolution, presentation risk factors, family history, comorbid conditions, complications, medication, history of atherosclerosis, IHD and coronary syndromes	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.7	Perform, demonstrate and document a physical examination including a vascular and cardiac examination that is appropriate for the clinical presentation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.8	Generate document and present a differential diagnosis based on the clinical presentation and prioritise based on “cannot miss”, most likely diagnosis and severity	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.9	Distinguish and differentiate between stable and unstable angina and AMI based on the clinical presentation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.10	Order, perform and interpret an ECG	S	P	Y	Bedside clinic, DOAP session	Skill assessment	3		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM2.11	Order and interpret a Chest X-ray and markers of acute myocardial infarction	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.12	Choose and interpret a lipid profile and identify the desirable lipid profile in the clinical context	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Biochemistry	
IM2.13	Discuss and enumerate the indications for and findings on echocardiogram, stress testing and coronary angiogram	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.14	Discuss and describe the indications for admission to a coronary care unit and supportive therapy for a patient with acute coronary syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.15	Discuss and describe the medications used in patients with an acute coronary syndrome based on the clinical presentation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM2.16	Discuss and describe the indications for acute thrombolysis, PTCA and CABG	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.17	Discuss and describe the indications and methods of cardiac rehabilitation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Biochemistry	
IM2.19	Discuss and describe the pathogenesis, recognition and management of complications of acute coronary syndromes including arrhythmias, shock, LV dysfunction, papillary muscle rupture and pericarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.20	Discuss and describe the assessment and relief of pain in acute coronary syndromes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM2.21	Observe and participate in a controlled environment an ACLS program	S	KH	N	DOAP session	NA			
IM2.22	Perform and demonstrate in a mannequin BLS	S	P	Y	DOAP session	Skill assessment	1		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM2.23	Describe and discuss the indications for nitrates, anti platelet agents, gpIIb IIIa inhibitors, beta blockers, ACE inhibitors etc in the management of coronary syndromes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM2.24	Counsel and communicate to patients with empathy lifestyle changes in atherosclerosis / post coronary syndromes	C/A	SH	Y	DOAP session	Skill assessment		AETCOM	
Topic: Pneumonia		Number of competencies: (19)			Number of procedures that require certification: (NIL)				
IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM3.2	Discuss and describe the aetiologies of various kinds of pneumonia and their microbiology depending on the setting and immune status of the host	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Microbiology	
IM3.4	Elicit document and present an appropriate history including the evolution, risk factors including immune status and occupational risk	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.5	Perform, document and demonstrate a physical examination including general examination and appropriate examination of the lungs that establishes the diagnosis, complications and severity of disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.6	Generate document and present a differential diagnosis based on the clinical features, and prioritise the diagnosis based on the presentation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM3.8	Demonstrate in a mannequin and interpret results of an arterial blood gas examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.9	Demonstrate in a mannequin and interpret results of a pleural fluid aspiration	S	SH	Y	DOAP session	Skill assessment			
IM3.10	Demonstrate the correct technique in a mannequin and interpret results of a blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.13	Select, describe and prescribe based on culture and sensitivity appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum.	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.14	Perform and interpret a sputum gram stain and AFB	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM3.15	Describe and enumerate the indications for hospitalisation in patients with pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM3.16	Describe and enumerate the indications for isolation and barrier nursing in patients with pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM3.17	Describe and discuss the supportive therapy in patients with pneumonia including oxygen use and indications for ventilation	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM3.18	Communicate and counsel patient on family on the diagnosis and therapy of pneumonia	C/A	SH	Y	DOAP session	Skill assessment			
IM3.19	Discuss, describe, enumerate the indications and communicate to patients on pneumococcal and influenza vaccines	S/C	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
Topic: Fever and febrile syndromes Number of competencies: (26) Number of procedures that require certification : (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM4.1	Describe and discuss the febrile response and the influence of host immune status, risk factors and comorbidities on the febrile response	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.2	Describe and discuss the influence of special populations on the febrile response including: the elderly, immune suppression, malignancy and neutropenia, HIV and travel	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g.Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM4.4	Describe and discuss the pathophysiology and manifestations of inflammatory causes of fever	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	Written		Pathology, Microbiology	
IM4.6	Discuss and describe the pathophysiology and manifestations of malaria	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.7	Discuss and describe the pathophysiology and manifestations of the sepsis syndrome	K	K	Y	Lecture, Small group discussion	Written			
IM4.8	Discuss and describe the pathophysiology, aetiology and clinical manifestations of fever of unknown origin (FUO) including in a normal host, neutropenic host, nosocomial host and a host with HIV disease	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.9	Elicit document and present a medical history that helps delineate the aetiology of fever that includes the evolution and pattern of fever, associated symptoms, immune status, comorbidities, risk factors, exposure through occupation, travel and environment and medication use	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM4.10	Perform a systematic examination that establishes the diagnosis and severity of presentation that includes: general skin mucosal and lymph node examination, chest and abdominal examination (including examination of the liver and spleen)	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM4.11	Generate a differential diagnosis and prioritise based on clinical features that help distinguish between infective, inflammatory, malignant and rheumatologic causes	K	SH	Y	Bedside clinic, DOAP session	Written/ Viva voce			
IM4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bedside clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM4.13	Perform and interpret a sputum gram stain	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.14	Perform and interpret a sputum AFB	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.15	Perform and interpret a malarial smear	S	SH	Y	DOAP session	Log book/ documentation/ Skill assessment		Microbiology	
IM4.16	Enumerate the indications and describe the findings in tests of inflammation and specific rheumatologic tests, serologic testing for pathogens including HIV, bone marrow aspiration and biopsy	K	KH	N	Lecture, Small group discussion	Written		Pathology	
IM4.17	Observe and assist in the performance of a bone marrow aspiration and biopsy in a simulated environment	S	SH	N	Skills lab	Log book/ documentation/ DOAP session		Pathology	
IM4.18	Enumerate the indications for use of imaging in the diagnosis of febrile syndromes	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
IM4.19	Assist in the collection of blood and wound cultures	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM4.20	Interpret a PPD (Mantoux)	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.21	Develop and present an appropriate diagnostic plan based on the clinical presentation, most likely diagnosis in a prioritised and cost effective manner	K	KH	Y	Bedside clinic, Skill assessment	Skill assessment			
IM4.22	Describe and discuss the pharmacology, indications, adverse reactions, interactions of antimalarial drugs and basis of resistance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM4.23	Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and national programs	S	SH	Y	Small group discussion	Skill assessment		Microbiology, Pharmacology	
IM4.24	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment			
IM4.25	Communicate to the patient and family the diagnosis and treatment	C	SH	Y	DOAP session	Skill assessment		AETCOM	
IM4.26	Counsel the patient on malarial prevention	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
Topic: Liver disease Number of competencies: (18) Number of procedures that require certification : (NIL)									
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, Physiology	
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM5.3	Describe and discuss the pathologic changes in various forms of liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM5.5	Describe and discuss the pathophysiology and clinical evolution of alcoholic liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.6	Describe and discuss the pathophysiology, clinical evolution and complications of cirrhosis and portal hypertension including ascites, spontaneous bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pharmacology	
IM5.8	Describe and discuss the pathophysiology, clinical evolution and complications cholelithiasis and cholecystitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
IM5.9	Elicit document and present a medical history that helps delineate the aetiology of the current presentation and includes clinical presentation, risk factors, drug use, sexual history, vaccination history and family history	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM5.10	Perform a systematic examination that establishes the diagnosis and severity that includes nutritional status, mental status, jaundice, abdominal distension ascites, features of portosystemic hypertension and hepatic encephalopathy	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM5.11	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology for the presenting symptom	K	KH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM5.12	Choose and interpret appropriate diagnostic tests including: CBC, bilirubin, function tests, Hepatitis serology and ascitic fluid examination in patient with liver diseases.	S	KH	Y	Bedside clinic, DOAP session	Skill assessment		Pathology	
IM5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	K	K	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Radiodiagnosis	General Surgery
IM5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	S	SH	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.15	Assist in the performance and interpret the findings of an ascitic fluid analysis	S	KH	Y	DOAP session	documentation in log book			
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group discussion	Skill assessment/ Written/ Viva voce		Pharmacology	General Surgery
IM5.17	Enumerate the indications, precautions and counsel patients on vaccination for hepatitis	K/C	SH	Y	Written, Small group discussion	Written/ Viva voce		Microbiology	
IM5.18	Enumerate the indications for hepatic transplantation	K	K	Y	Written, Small group discussion	Written/ Viva voce			General Surgery
Topic: HIV Number of competencies: (23) Number of procedures that require certification : (NIL)									
IM6.1	Describe and discuss the symptoms and signs of acute HIV seroconversion	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM6.2	Define and classify HIV AIDS based on the CDC criteria	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.3	Describe and discuss the relationship between CDC count and the risk of opportunistic infections	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.4	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related opportunistic infections	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.5	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related malignancies	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Pathology, Microbiology	
IM6.6	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related skin and oral lesions	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Pathology, Microbiology	
IM6.7	Elicit document and present a medical history that helps delineate the aetiology of the current presentation and includes risk factors for HIV, mode of infection, other sexually transmitted diseases, risks for opportunistic infections and nutritional status	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM6.8	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology for the presenting symptom	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment			
IM6.9	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	K	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment		Pathology, Microbiology	
IM6.10	Choose and interpret appropriate diagnostic tests to diagnose opportunistic infections including CBC, sputum examination and cultures, blood cultures, stool analysis, CSF analysis and Chest radiographs	S	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment			
IM6.11	Enumerate the indications and describe the findings for CT of the chest and brain and MRI	K	K	N	Small group discussion, Lecture, Bedside clinic	Written/ Viva voce		Radiodiagnosis	
IM6.12	Enumerate the indications for and interpret the results of: pulse oximetry, ABG, Chest Radiograph	K	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment			
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM6.14	Perform and interpret AFB sputum	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM6.15	Demonstrate in a model the correct technique to perform a lumbar puncture	S	SH	Y	Simulation	Skill assessment		Microbiology	
IM6.16	Discuss and describe the principles of HAART, the classes of antiretrovirals used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.17	Discuss and describe the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.18	Enumerate the indications and discuss prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM6.19	Counsel patients on prevention of HIV transmission	C	SH	Y	DOAP session	Skills assessment		AETCOM	
IM6.20	Communicate diagnosis, treatment plan and subsequent follow up plan to patients	C	SH	Y	DOAP session	Skills assessment		AETCOM	
IM6.21	Communicate with patients on the importance of medication adherence	C	SH	Y	DOAP session	Skills assessment		AETCOM	
IM6.22	Demonstrate understanding of ethical and legal issues regarding patient confidentiality and disclosure in patients with HIV	K/A	SH	Y	DOAP session, Small group discussion	Viva voce/ Written/ Skill Assessment		AETCOM	
IM6.23	Demonstrate a non-judgemental attitude to patients with HIV and to their lifestyles	A	SH	Y	Small group discussion	observation by teacher		AETCOM	
Topic: Rheumatologic problems Number of competencies: (27) Number of procedures that require certification: (NIL)									
IM7.1	Describe the pathophysiology of autoimmune disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.2	Describe the genetic basis of autoimmune disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.3	Classify cause of joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM7.4	Develop a systematic clinical approach to joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.5	Describe and discriminate acute, subacute and chronic causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.6	Discriminate, describe and discuss arthralgia from arthritis and mechanical from inflammatory causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.7	Discriminate, describe and discuss distinguishing articular from periarticular complaints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.8	Determine the potential causes of joint pain based on the presenting features of joint involvement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM7.9	Describe the common signs and symptoms of articular and periarticular diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.10	Describe the systemic manifestations of rheumatologic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM7.11	Elicit document and present a medical history that will differentiate the aetiologies of disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM7.12	Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			Orthopedics
IM7.13	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K/S	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written			
IM7.14	Describe the appropriate diagnostic work up based on the presumed aetiology	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written			
IM7.15	Enumerate the indications for and interpret the results of : CBC, anti-CCP, RA, ANA, DNA and other tests of autoimmunity	K	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Pathology	
IM7.16	Enumerate the indications for arthrocentesis	K	K	Y	Small group discussion, Lecture	Written/ Viva voce			Orthopedics
IM7.17	Enumerate the indications and interpret plain radiographs of joints	K	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Radiodiagnosis	Orthopedics
IM7.18	Communicate diagnosis, treatment plan and subsequent follow up plan to patients	C	SH	Y	DOAP session	Skill assessment/ Written			
IM7.19	Develop an appropriate treatment plan for patients with rheumatologic diseases	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written			
IM7.20	Select, prescribe and communicate appropriate medications for relief of joint pain	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	Orthopedics
IM7.21	Select, prescribe and communicate preventive therapy for crystalline arthropathies	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM7.22	Select, prescribe and communicate treatment option for systemic rheumatologic conditions	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	
IM7.23	Describe the basis for biologic and disease modifying therapy in rheumatologic diseases	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Pharmacology	
IM7.24	Communicate and incorporate patient preferences in the choice of therapy	C/A	SH	Y	DOAP session	Skill assessment		AETCOM	
IM7.25	Develop and communicate appropriate follow up and monitoring plans for patients with rheumatologic conditions	C	SH	Y	DOAP session	Skill assessment			
IM7.26	Demonstrate an understanding of the impact of rheumatologic conditions on quality of life, well being, work and family	A	SH	Y	DOAP session	Skill assessment			
IM7.27	Determine the need for specialist consultation	K	K	Y	Small group discussion, Lecture	Viva voce			
Topic: Hypertension Number of competencies: (20) Number of procedures that require certification: (NIL)									
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.3	Describe and discuss the genetic basis of hypertension	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.4	Define and classify hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.5	Describe and discuss the differences between primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.6	Define, describe and discuss and recognise hypertensive urgency and emergency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM8.7	Describe and discuss the clinical manifestations of the various aetiologies of secondary causes of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.8	Describe, discuss and identify target organ damage due to hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.9	Elicit document and present a medical history that includes: duration and levels, symptoms, comorbidities, lifestyle, risk factors, family history, psychosocial and environmental factors, dietary assessment, previous and concomitant therapy	K	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM8.10	Perform a systematic examination that includes : an accurate measurement of blood pressure, fundus examination, examination of vasculature and heart	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM8.11	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM8.12	Describe the appropriate diagnostic work up based on the presumed aetiology	K	KH	Y	Small group discussion	Skill assessment/ Written/ Viva voce			
IM8.13	Enumerate the indications for and interpret the results of : CBC, Urine routine, BUN, Cr, Electrolytes, Uric acid, ECG	K	KH	Y	Small group discussion	Skill assessment/ Written/ Viva voce			
IM8.14	Develop an appropriate treatment plan for essential hypertension	K	KH	Y	Small group discussion	Written/ Viva voce		Pharmacology	
IM8.15	Recognise, prioritise and manage hypertensive emergencies	S	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	
IM8.16	Develop and communicate to the patient lifestyle modification including weight reduction, moderation of alcohol intake, physical activity and sodium intake	C	SH	Y	DOAP session	Skill assessment			
IM8.17	Perform and interpret a 12 lead ECG	S	P	Y	DOAP session	documentation in log book/ skills station			
IM8.18	Incorporate patient preferences in the management of HTN	A/C	SH	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM8.19	Demonstrate understanding of the impact of Hypertension on quality of life, well being, work and family	A	SH	Y	Bedside clinic, DOAP session	observation by faculty			
IM8.20	Determine the need for specialist consultation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Anemia Number of competencies: (21) Number of procedures that require certification : (NIL)									
IM9.1	Define, describe and classify anemia based on red blood cell size and reticulocyte count	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.2	Describe and discuss the morphological characteristics, aetiology and prevalence of each of the causes of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.3	Elicit document and present a medical history that includes symptoms, risk factors including GI bleeding, prior history, medications, menstrual history, and family history	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
IM9.4	Perform a systematic examination that includes : general examination for pallor, oral examination, DOAP session of hyper dynamic circulation, lymph node and splenic examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM9.5	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	
IM9.6	Describe the appropriate diagnostic work up based on the presumed aetiology	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	
IM9.7	Describe and discuss the meaning and utility of various components of the hemogram	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.8	Describe and discuss the various tests for iron deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.9	Order and interpret tests for anemia including hemogram, red cell indices, reticulocyte count, iron studies, B12 and folate	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	
IM9.10	Describe, perform and interpret a peripheral smear and stool occult blood	S	SH	P	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM9.11	Describe the indications and interpret the results of a bone marrow aspirations and biopsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.12	Describe, develop a diagnostic plan to determine the aetiology of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.13	Prescribe replacement therapy with iron, B12, folate	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pharmacology	
IM9.14	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Community Medicine	
IM9.15	Communicate the diagnosis and the treatment appropriately to patients	C	SH	Y	DOAP session	Skill assessment			
IM9.16	Incorporate patient preferences in the management of anemia	C	SH	Y	DOAP session	Skill assessment			
IM9.17	Describe the indications for blood transfusion and the appropriate use of blood components	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.18	Describe the precautions required necessary when performing a blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
IM9.19	Assist in a blood transfusion	S	SH	Y	Bedside clinic	document in log book			
IM9.20	Communicate and counsel patients with methods to prevent nutritional anemia	C	SH	Y	DOAP session	Skill assessment			
IM9.21	Determine the need for specialist consultation	K	KH	Y	Lecture, Small group discussion	Written			
Topic: Acute Kidney Injury and Chronic renal failure Number of competencies: (31) Number of procedures that require certification: (NIL)									
IM10.1	Define, describe and differentiate between acute and chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.2	Classify, describe and differentiate the pathophysiologic causes of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM10.3	Describe the pathophysiology and causes of pre renal ARF, renal and post renal ARF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.4	Describe the evolution, natural history and treatment of ARF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.5	Describe and discuss the aetiology of CRF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.6	Stage Chronic Kidney Disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.7	Describe and discuss the pathophysiology and clinical findings of uraemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.8	Classify, describe and discuss the significance of proteinuria in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.9	Describe and discuss the pathophysiology of anemia and hyperparathyroidism in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.10	Describe and discuss the association between CKD glycemia and hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.11	Describe and discuss the relationship between CAD risk factors and CKD and in dialysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.12	Elicit document and present a medical history that will differentiate the aetiologies of disease, distinguish acute and chronic disease, identify predisposing conditions, nephrotoxic drugs and systemic causes	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM10.13	Perform a systematic examination that establishes the diagnosis and severity including determination of volume status, presence of edema and heart failure, features of uraemia and associated systemic disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM10.14	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	KH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM10.15	Describe the appropriate diagnostic work up based on the presumed aetiology	K	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
IM10.16	Enumerate the indications for and interpret the results of : renal function tests, calcium, phosphorus, PTH, urine electrolytes, osmolality, Anion gap	K	KH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM10.17	Describe and calculate indices of renal function based on available laboratories including FENa (Fractional Excretion of Sodium) and CrCl (Creatinine Clearance)	S	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM10.18	Identify the ECG findings in hyperkalemia	S	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
IM10.19	Enumerate the indications and describe the findings in renal ultrasound	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis	
IM10.20	Describe and discuss the indications to perform arterial blood gas analysis: interpret the data	S	P	Y	DOAP session	documentation in log book			
IM10.21	Describe and discuss the indications for and insert a peripheral intravenous catheter	S	P	Y	DOAP session, Bedside clinic	documentation in logbook			
IM10.22	Describe and discuss the indications, demonstrate in a model and assist in the insertion of a central venous or a dialysis catheter	S	SH	N	DOAP session	Skill assessment with model			
IM10.23	Communicate diagnosis treatment plan and subsequent follow up plan to patients	C	SH	Y	DOAP session	Skill assessment			
IM10.24	Counsel patients on a renal diet	K	SH	Y	DOAP session	Skill assessment			
IM10.25	Identify and describe the priorities in the management of ARF including diet, volume management, alteration in doses of drugs, monitoring and indications for dialysis	K/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM10.26	Describe and discuss supportive therapy in CKD including diet, anti hypertensives, glycemic therapy, dyslipidemia, anemia, hyperkalemia, hyperphosphatemia and secondary hyperparathyroidism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM10.27	Describe and discuss the indications for renal dialysis	C/A	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM10.28	Describe and discuss the indications for renal replacement therapy	C	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM10.29	Describe discuss and communicate the ethical and legal issues involved in renal replacement therapy	C/A	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM10.30	Recognise the impact of CKD on patient's quality of life well being work and family	A	K	Y	Lecture, Small group discussion, Bedside clinic	observation by faculty			
IM10.31	Incorporate patient preferences in to the care of CKD	A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	observation by faculty			
Topic: Diabetes Mellitus Number of competencies: (24) Number of procedures that require certification : (02)									
IM11.1	Define and classify diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM11.2	Describe and discuss the epidemiology and pathogenesis and risk factors and clinical evolution of type 1 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.3	Describe and discuss the epidemiology and pathogenesis and risk factors economic impact and clinical evolution of type 2 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.4	Describe and discuss the genetic background and the influence of the environment on diabetes	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
IM11.5	Describe and discuss the pathogenesis and temporal evolution of microvascular and macrovascular complications of diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.6	Describe and discuss the pathogenesis and precipitating factors, recognition and management of diabetic emergencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM11.7	Elicit document and present a medical history that will differentiate the aetiologies of diabetes including risk factors, precipitating factors, lifestyle, nutritional history, family history, medication history, co-morbidities and target organ disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM11.8	Perform a systematic examination that establishes the diagnosis and severity that includes skin, peripheral pulses, blood pressure measurement, fundus examination, detailed examination of the foot (pulses, nervous and deformities and injuries)	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM11.9	Describe and recognise the clinical features of patients who present with a diabetic emergency	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce			
IM11.10	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce			
IM11.11	Order and interpret laboratory tests to diagnose diabetes and its complications including: glucoses, glucose tolerance test, glycosylated hemoglobin, urinary micro albumin, ECG, electrolytes, ABG, ketones, renal function tests and lipid profile	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pathology	
IM11.12	Perform and interpret a capillary blood glucose test	S	P	Y	Bedside clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	S	P	Y	Bedside clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.14	Recognise the presentation of hypoglycaemia and outline the principles on its therapy	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce			
IM11.15	Recognise the presentation of diabetic emergencies and outline the principles of therapy	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce			
IM11.16	Discuss and describe the pharmacologic therapies for diabetes their indications, contraindications, adverse reactions and interactions	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce		Pharmacology	
IM11.17	Outline a therapeutic approach to therapy of T2Diabetes based on presentation, severity and complications in a cost effective manner	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM11.18	Describe and discuss the pharmacology, indications, adverse reactions and interactions of drugs used in the prevention and treatment of target organ damage and complications of Type II Diabetes including neuropathy, nephropathy, retinopathy, hypertension, dyslipidemia and cardiovascular disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM11.19	Demonstrate and counsel patients on the correct technique to administer insulin	S/C	SH	Y	DOAP session	Skill assessment		Pharmacology	
IM11.20	Demonstrate to and counsel patients on the correct technique of self monitoring of blood glucoses	S/C	SH	Y	DOAP session	Skill assessment			
IM11.21	Recognise the importance of patient preference while selecting therapy for diabetes	A	KH	Y	DOAP session	faculty observation			
IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM11.23	Describe the precipitating causes, pathophysiology, recognition, clinical features, diagnosis, stabilisation and management of diabetic ketoacidosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM11.24	Describe the precipitating causes, pathophysiology, recognition, clinical features, diagnosis, stabilisation and management of Hyperosmolar non ketotic state	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Thyroid dysfunction Number of competencies: (15) Number of procedures that require certification : (NIL)									
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.2	Describe and discuss the genetic basis of some forms of thyroid dysfunction	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
IM12.3	Describe and discuss the physiology of the hypothalamopituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	Short notes		Pathology, Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM12.4	Describe and discuss the principles of radio iodine uptake in the diagnosis of thyroid disorders	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce			
IM12.5	Elicit document and present an appropriate history that will establish the diagnosis cause of thyroid dysfunction and its severity	S	SH	Y	Bedside clinic	Skill assessment/ Short case			
IM12.6	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and severity including systemic signs of thyrotoxicosis and hypothyroidism, palpation of the pulse for rate and rhythm abnormalities, neck palpation of the thyroid and lymph nodes and cardiovascular findings	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			General Surgery
IM12.7	Demonstrate the correct technique to palpate the thyroid	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Surgery
IM12.8	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	K	KH	Y	Bedside clinic, small group discussion	Short case			General Surgery
IM12.9	Order and interpret diagnostic testing based on the clinical diagnosis including CBC, thyroid function tests and ECG and radio iodine uptake and scan	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Surgery
IM12.10	Identify atrial fibrillation, pericardial effusion and bradycardia on ECG	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.11	Interpret thyroid function tests in hypo and hyperthyroidism	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.12	Describe and discuss the iodisation programs of the government of India	K	KH	Y	Lecture, Bedside clinic	Short note		Community Medicine	
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Viva voce/ Short note		Pharmacology	General Surgery
IM12.14	Write and communicate to the patient appropriately a prescription for thyroxine based on age, sex, and clinical and biochemical status	S/C	SH	Y	Skill assessment	Skill assessment		Pharmacology	
IM12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and surgery in the management of thyrotoxicosis	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Common malignancies		Number of competencies: (19)			Number of procedures that require certification : (NIL)				
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Biochemistry	
IM13.2	Describe the genetic basis of selected cancers	K	K	N	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Microbiology	
IM13.4	Describe the natural history, presentation, course, complications and cause of death for common cancers	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM13.5	Describe the common issues encountered in patients at the end of life and principles of management	K	K	N	Lecture, Small group discussion	Short note/ Viva voce			
IM13.6	Describe and distinguish the difference between curative and palliative care in patients with cancer	K	K	N	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	
IM13.7	Elicit document and present a history that will help establish the aetiology of cancer and includes the appropriate risk factors, duration and evolution	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.8	Perform and demonstrate a physical examination that includes an appropriate general and local examination that excludes the diagnosis, extent spread and complications of cancer	S	SH	Y	Bedside clinic	Skill assessment/ short case			General Surgery
IM13.9	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	S	K	Y	Bedside clinic	Skill assessment/ Short case		Human Anatomy	General Surgery
IM13.10	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.11	Order and interpret diagnostic testing based on the clinical diagnosis including CBC and stool occult blood and prostate specific antigen	S	K	Y	Bedside clinic	Skill assessment/ Short case			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM13.12	Describe the indications and interpret the results of Chest X Ray, mammogram, skin and tissue biopsies and tumor markers used in common cancers	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Radiodiagnosis	
IM13.13	Describe and assess pain and suffering objectively in a patient with cancer	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM13.14	Describe the indications for surgery, radiation and chemotherapy for common malignancies	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM13.15	Describe the need, tests involved, their utility in the prevention of common malignancies	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pathology	
IM13.16	Demonstrate an understanding and needs and preferences of patients when choosing curative and palliative therapy	A/C	KH	Y	Bedside clinic, small group discussion	Short note/ Viva voce		AETCOM	
IM13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	Anesthesiology
IM13.18	Describe and discuss the ethical and the medico legal issues involved in end of life care	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		AETCOM	
IM13.19	Describe the therapies used in alleviating suffering in patients at the end of life	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		AETCOM	
Topic: Obesity Number of competencies: (15) Number of procedures that require certification: (NIL)									
IM14.1	Define and measure obesity as it relates to the Indian population	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM14.2	Describe and discuss the aetiology of obesity including modifiable and non-modifiable risk factors and secondary causes	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM14.3	Describe and discuss the monogenic forms of obesity	K	K	N	Lecture, Small group discussion	Short note/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Community Medicine	
IM14.5	Describe and discuss the natural history of obesity and its complications	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM14.6	Elicit and document and present an appropriate history that includes the natural history, dietary history, modifiable risk factors, family history, clues for secondary causes and motivation to lose weight	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.7	Perform, document and demonstrate a physical examination based on the history that includes general examination, measurement of abdominal obesity, signs of secondary causes and comorbidities	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ Short note/ Viva voce			
IM14.9	Order and interpret diagnostic tests based on the clinical diagnosis including blood glucose, lipids, thyroid function tests etc.	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce			
IM14.10	Describe the indications and interpret the results of tests for secondary causes of obesity	K	KH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce			
IM14.11	Communicate and counsel patient on behavioural, dietary and lifestyle modifications	C	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.12	Demonstrate an understanding of patient's inability to adhere to lifestyle instructions and counsel them in a non - judgemental way	A/C	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for obesity	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	
IM14.14	Describe and enumerate the indications and side effects of bariatric surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM14.15	Describe and enumerate and educate patients, health care workers and the public on measures to prevent obesity and promote a healthy lifestyle	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
Topic: GI bleeding Number of competencies: (18) Number of procedures that require certification : (NIL)									
IM15.1	Enumerate, describe and discuss the aetiology of upper and lower GI bleeding	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.2	Enumerate, describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Written/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Physiology	General Surgery
IM15.4	Elicit and document and present an appropriate history that identifies the route of bleeding, quantity, grade, volume loss, duration, etiology, comorbid illnesses and risk factors	S	SH	Y	Bedside clinic	Skill assessment			General Surgery
IM15.5	Perform, demonstrate and document a physical examination based on the history that includes general examination, volume assessment and appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			General Surgery
IM15.6	Distinguish between upper and lower gastrointestinal bleeding based on the clinical features	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.7	Demonstrate the correct technique to perform an anal and rectal examination in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			General Surgery
IM15.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ Short note/ Viva voce			General Surgery
IM15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test.	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Short note/ Viva voce		Pathology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.10	Enumerate the indications for endoscopy, colonoscopy and other imaging procedures in the investigation of Upper GI bleeding	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
IM15.11	Develop, document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion, and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.13	Observe cross matching and blood / blood component transfusion	S	SH	Y	Bedside clinic	Short note/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Short note/Viva voce		Pharmacology	General Surgery
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	General Surgery
IM15.16	Enumerate the indications for endoscopic interventions and Surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.17	Determine appropriate level of specialist consultation	S	K	Y	Small group discussion				General Surgery
IM15.18	Counsel the family and patient in an empathetic non-judgmental manner on the diagnosis and therapeutic options	S	SH	Y	DOAP session	Skill assessment			General Surgery
Topic: Diarrheal disorder Number of competencies: (17) Number of procedures that require certification : (NIL)									
IM16.1	Describe and discuss the aetiology of acute and chronic diarrhea including infectious and non infectious causes	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM16.2	Describe and discuss the acute systemic consequences of diarrhea including its impact on fluid balance	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM16.3	Describe and discuss the chronic effects of diarrhea including malabsorption	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM16.4	Elicit and document and present an appropriate history that includes the natural history, dietary history, travel , sexual history and other concomitant illnesses	S	SH	Y	Bedside clinic, Skills lab	Skill assessment		Microbiology, Pathology	
IM16.5	Perform, document and demonstrate a physical examination based on the history that includes general examination, including an appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM16.6	Distinguish between diarrhea and dysentery based on clinical features	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM16.7	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ short note/ Viva voce			
IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce		Microbiology, Pathology	
IM16.9	Identify common parasitic causes of diarrhea under the microscope in a stool specimen	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM16.10	Identify vibrio cholera in a hanging drop specimen	S	SH	Y	DOAP session	Skill Assessment		Microbiology	
IM16.11	Enumerate the indications for stool cultures and blood cultures in patients with acute diarrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	
IM16.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial and viral diarrhea	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM16.15	Distinguish based on the clinical presentation Crohn's disease from Ulcerative Colitis	S	SH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM16.16	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy including immunotherapy	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	
IM16.17	Describe and enumerate the indications for surgery in inflammatory bowel disease	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
Topic: Headache Number of competencies: (14) Number of procedures that require certification : (NIL)									
IM17.1	Define and classify headache and describe the presenting features, precipitating factors, aggravating and relieving factors of various kinds of headache	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Human Anatomy	
IM17.2	Elicit and document and present an appropriate history including aura, precipitating aggravating and relieving factors, associated symptoms that help identify the cause of headaches	S	SH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment			
IM17.3	Classify migraine and describe the distinguishing features between classical and non classical forms of migraine	K	KH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment			
IM17.4	Perform and demonstrate a general neurologic examination and a focused examination for signs of intracranial tension including neck signs of meningitis	S	SH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment			
IM17.5	Generate document and present a differential diagnosis based on the clinical features, and prioritise the diagnosis based on the presentation	S	SH	Y	Bedside clinic, Small group discussion	Bedside clinic/ skill assessment			
IM17.6	Choose and interpret diagnostic testing based on the clinical diagnosis including imaging	S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill Assessment			
IM17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	K	K	Y	Small group discussion, Bedside clinic	Skill Assessment		Microbiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	S	SH	Y	DOAP session	Skill assessment		Microbiology, Pathology	
IM17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	S	SH	Y	Small group discussion, Bedside clinic	Skill assessment		Microbiology, Pathology	
IM17.10	Enumerate the indications for emergency care admission and immediate supportive care in patients with headache	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
IM17.11	Describe the indications, pharmacology, dose, side effects of abortive therapy in migraine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM17.12	Describe the indications, pharmacology, dose, side effects of prophylactic therapy in migraine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM17.13	Describe the pharmacology, dose, adverse reactions and regimens of drugs used in the treatment of bacterial, tubercular and viral meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM17.14	Counsel patients with migraine and tension headache on lifestyle changes and need for prophylactic therapy	A/C	SH	N	DOAP session	Skill Assessment		Pharmacology	Psychiatry
Topic: Cerebrovascular accident Number of competencies: (17) Number of procedures that require certification : (NIL)									
IM18.1	Describe the functional and the vascular anatomy of the brain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
IM18.2	Classify cerebrovascular accidents and describe the aetiology, predisposing genetic and risk factors pathogenesis of hemorrhagic and non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM18.3	Elicit and document and present an appropriate history including onset, progression, precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the cerebrovascular accident	S	SH	Y	Bedside clinic	Skill assessment		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM18.4	Identify the nature of the cerebrovascular accident based on the temporal evolution and resolution of the illness	K	KH	Y	Bedside clinic, Small group discussion	Skill Assessment			
IM18.5	Perform, demonstrate & document physical examination that includes general and a detailed neurologic examination as appropriate, based on the history	S	SH	Y	Bedside clinic, DOAP session	Skill Assessment			
IM18.6	Distinguish the lesion based on upper vs lower motor neuron, side, site and most probable nature of the lesion	K/S	SH	Y	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.7	Describe the clinical features and distinguish, based on clinical examination, the various disorders of speech	K/S	SH	N	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.8	Describe and distinguish, based on the clinical presentation, the types of bladder dysfunction seen in CNS disease	K	KH	Y	Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
IM18.9	Choose and interpret the appropriate diagnostic and imaging test that will delineate the anatomy and underlying cause of the lesion	S	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
IM18.10	Choose and interpret the appropriate diagnostic testing in young patients with a cerebrovascular accident (CVA)	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.11	Describe the initial supportive management of a patient presenting with a cerebrovascular accident (CVA)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.12	Enumerate the indications for and describe acute therapy of non hemorrhagic stroke including the use of thrombolytic agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.13	Enumerate the indications for and describe the role of anti platelet agents in non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.14	Describe the initial management of a hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.15	Enumerate the indications for surgery in a hemorrhagic stroke	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM18.16	Enumerate the indications describe and observe the multidisciplinary rehabilitation of patients with a CVA	S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physical Medicine & Rehabilitation
IM18.17	Counsel patient and family about the diagnosis and therapy in an empathetic manner	A/C	SH	Y	DOAP session	Skill assessment			
Topic: Movement disorders Number of competencies: (09) Number of procedures that require certification : (NIL)									
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology	
IM19.2	Classify movement disorders of the brain based on distribution, rhythm, repetition, exacerbating and relieving factors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM19.3	Elicit and document and present an appropriate history including onset, progression precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the movement disorders	S	SH	Y	Bedside clinic	Skill assessment			
IM19.4	Perform, demonstrate and document a physical examination that includes a general examination and a detailed neurologic examination using standard movement rating scales	S	SH	Y	Bedside clinic	Skill assessment			
IM19.5	Generate document and present a differential diagnosis and prioritise based on the history and physical examination	S	SH	Y	Bedside clinic	Skill assessment			
IM19.6	Make a clinical diagnosis regarding on the anatomical location, nature and cause of the lesion based on the clinical presentation and findings	S	SH	Y	Bedside clinic	Skill assessment			
IM19.7	Choose and interpret diagnostic and imaging tests in the diagnosis of movement disorders	S	SH	Y	Bedside clinic, Small group session	Skill assessment/ Written/ Viva voce		Radiodiagnosis	
IM19.8	Discuss and describe the pharmacology, dose, side effects and interactions used in the drug therapy of Parkinson's syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM19.9	Enumerate the indications for use of surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Envenomation		Number of competencies: (09)			Number of procedures that require certification : (NIL)				
IM20.1	Enumerate the local poisonous snakes and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.2	Describe, demonstrate in a volunteer or a mannequin and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	S	SH	Y	DOAP session	Skill assessment/ Written/ Viva voce		Forensic Medicine	
IM20.3	Describe the initial approach to the stabilisation of the patient who presents with snake bite	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
IM20.4	Elicit and document and present an appropriate history, the circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Forensic Medicine	
IM20.5	Perform a systematic examination, document and present a physical examination that includes general examination, local examination, appropriate cardiac and neurologic examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM20.6	Choose and interpret the appropriate diagnostic testing in patients with snake bites	S	SH	Y	Small group discussion	Written/ Viva voce			
IM20.7	Enumerate the indications and describe the pharmacology, dose, adverse reactions, hypersensitivity reactions of anti snake venom	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM20.8	Describe the diagnosis, initial approach stabilisation and therapy of scorpion envenomation	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM20.9	Describe the diagnosis initial approach stabilisation and therapy of bee sting allergy	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
Topic: Poisoning		Number of competencies: (08)			Number of procedures that require certification : (NIL)				
IM21.1	Describe the initial approach to the stabilisation of the patient who presents with poisoning	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
Topic: Mineral, Fluid Electrolyte and Acid base Disorder Number of competencies: (13) Number of procedures that require certification : (NIL)									
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM22.3	Describe the approach to the management of hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM22.4	Enumerate the components and describe the genetic basis of the multiple endocrine neoplasia syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM22.5	Enumerate the causes and describe the clinical features and the correct approach to the diagnosis and management of the patient with hyponatremia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.6	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hyponatremia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.7	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hypokalemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.8	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hyperkalemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.9	Enumerate the causes and describe the clinical and laboratory features of metabolic acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.10	Enumerate the causes of describe the clinical and laboratory features of metabolic alkalosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.11	Enumerate the causes and describe the clinical and laboratory features of respiratory acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.12	Enumerate the causes and describe the clinical and laboratory features of respiratory alkalosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.13	Identify the underlying acid based disorder based on an ABG report and clinical situation	S	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
Topic: Nutritional and Vitamin Deficiencies Number of competencies: (05) Number of procedures that require certification: (NIL)									
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.5	Counsel and communicate to patients in a simulated environment with illness on an appropriate balanced diet	S	SH	Y	DOAP session	Skill assessment			
Topic: Geriatrics Number of competencies: (22) Number of procedures that require certification : (NIL)									
IM24.1	Describe and discuss the epidemiology, pathogenesis, clinical evolution, presentation and course of common diseases in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.2	Perform multidimensional geriatric assessment that includes medical, psycho-social and functional components	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Psychiatry	
IM24.3	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of acute confusional states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.4	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vascular events in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.5	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of depression in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.6	Describe and discuss the aetiopathogenesis causes, clinical presentation, difference in discussion presentation identification, functional changes, acute care, stabilization, management and rehabilitation of dementia in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			AETCOM

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.7	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of personality changes in the elderly	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.8	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of osteoporosis in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.9	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of CVA in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.10	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of COPD in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Respiratory Medicine
IM24.11	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology, General Surgery
IM24.12	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of degenerative joint disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM24.13	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
IM24.14	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of common fractures in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM24.15	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Ophthalmology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
IM24.17	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of hearing loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			ENT
IM24.18	Describe the impact of the demographic changes in ageing on the population	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
IM24.19	Enumerate and describe the social problems in the elderly including isolation, abuse, change in family structure and their impact on health.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.20	Enumerate and describe social interventions in the care of elderly including domiciliary discussion services, rehabilitation facilities, old age homes and state interventions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.21	Enumerate and describe ethical issues in the care of the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			AETCOM
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
Topic: Miscellaneous Infections		Number of competencies: (13)			Number of procedures that require certification : (NIL)				
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic diseases (e.g. Leptospirosis, Rabies) and non-febrile infectious disease (e.g. Tetanus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.2	Discuss and describe the common causes, pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.3	Describe and discuss the pathophysiology and manifestations of these diseases	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM25.4	Elicit document and present a medical history that helps delineate the aetiology of these diseases that includes the evolution and pattern of symptoms, risk factors, exposure through occupation and travel	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Community Medicine	
IM25.5	Perform a systematic examination that establishes the diagnosis and severity of presentation that includes: general skin, mucosal and lymph node examination, chest and abdominal examination (including examination of the liver and spleen)	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM25.6	Generate a differential diagnosis and prioritise based on clinical features that help distinguish between infective, inflammatory, malignant and rheumatologic causes	K	SH	Y	Bedside clinic, DOAP session	Written/ Viva voce			
IM25.7	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, blood biochemistry, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bedside clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM25.8	Enumerate the indications for use of newer techniques in the diagnosis of these infections	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
IM25.9	Assist in the collection of blood and other specimen cultures	S	SH	Y	DOAP session	Log book documentation		Microbiology	
IM25.10	Develop and present an appropriate diagnostic plan based on the clinical presentation, most likely diagnosis in a prioritised and cost effective manner	K	KH	Y	Bedside clinic, Skill assessment	Skill assessment			
IM25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
IM25.12	Communicate to the patient and family the diagnosis and treatment of identified infection	C	SH	Y	DOAP session	Skill assessment		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM25.13	Counsel the patient and family on prevention of various infections due to environmental issues	C	SH	Y	DOAP session	Skill assessment		Community Medicine, General Medicine	
Topic: The role of the physician in the community Number of competencies: (49) Number of procedures that require certification : (NIL)									
IM26.1	Enumerate and describe professional qualities and roles of a physician	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.2	Describe and discuss the commitment to lifelong learning as an important part of physician growth	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.3	Describe and discuss the role of non maleficence as a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.4	Describe and discuss the role of autonomy and shared responsibility as a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.5	Describe and discuss the role of beneficence of a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.6	Describe and discuss the role of a physician in health care system	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.7	Describe and discuss the role of justice as a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.8	Identify discuss medicolegal, socioeconomic and ethical issues as it pertains to organ donation	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.9	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as it pertains to rights, equity and justice in access to health care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.10	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to confidentiality in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.11	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to patient autonomy, patient rights and shared responsibility in health care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.12	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to decision making in health care including advanced directives and surrogate decision making	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.13	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to decision making in emergency care including situations where patients do not have the capability or capacity to give consent	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.14	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to research in human subjects	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.15	Identify, discuss and defend, medicolegal,socio-cultural and ethical issues as they pertain to consent for surgical procedures	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.16	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues as it pertains to the physician patient relationship (including fiduciary duty)	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.17	Identify, discuss physician's role and responsibility to society and the community that she/ he serves	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.18	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues in physician- industry relationships	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.19	Demonstrate ability to work in a team of peers and superiors	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM26.20	Demonstrate ability to communicate to patients in a patient, respectful, non threatening, non judgemental and empathetic manner	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM26.21	Demonstrate respect to patient privacy	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.22	Demonstrate ability to maintain confidentiality in patient care	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM26.23	Demonstrate a commitment to continued learning	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.24	Demonstrate respect in relationship with patients, fellow team members, superiors and other health care workers	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.25	Demonstrate responsibility and work ethics while working in the health care team	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.26	Demonstrate ability to maintain required documentation in health care (including correct use of medical records)	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.27	Demonstrate personal grooming that is adequate and appropriate for health care responsibilities	S	SH	Y	Small group discussion	Skill assessment			
IM26.28	Demonstrate adequate knowledge and use of information technology that permits appropriate patient care and continued learning	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.29	Communicate diagnostic and therapeutic options to patient and family in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.30	Communicate care options to patient and family with a terminal illness in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.31	Demonstrate awareness of limitations and seeks help and consultations appropriately	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.32	Demonstrate appropriate respect to colleagues in the profession	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.33	Demonstrate an understanding of the implications and the appropriate procedures and response to be followed in the event of medical errors	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.34	Identify conflicts of interest in patient care and professional relationships and describe the correct response to these conflicts	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.35	Demonstrate empathy in patient encounters	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.36	Demonstrate ability to balance personal and professional priorities	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.37	Demonstrate ability to manage time appropriately	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.38	Demonstrate ability to form and function in appropriate professional networks	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.39	Demonstrate ability to pursue and seek career advancement	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.40	Demonstrate ability to follow risk management and medical error reduction practices where appropriate	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.41	Demonstrate ability to work in a mentoring relationship with junior colleagues	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.42	Demonstrate commitment to learning and scholarship	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.43	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as they pertain to in vitro fertilisation donor insemination and surrogate motherhood	K	KH	N	Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
IM26.44	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues pertaining to medical negligence	K	KH	N	Small group discussion	Written/ Viva voce			
IM26.45	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues pertaining to malpractice	K	KH	N	Small group discussion	Written/ Viva voce			
IM26.46	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues in dealing with impaired physicians	K	KH	N	Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.47	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as they pertain to refusal of care including do not resuscitate and withdrawal of life support	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.48	Demonstrate altruism	S	SH	Y	Small group discussion	Written/ Viva voce			
IM26.49	Administer informed consent and appropriately address patient queries to a patient being enrolled in a research protocol in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Written/ Viva voce			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

Integration

Human Anatomy									
AN5.6	Describe the concept of anastomoses and collateral circulation with significance of end-artries	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	Lecture	Written		General Medicine	Physiology
AN7.6	Describe concept of loss of innervation of a muscle with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
AN20.8	Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Medicine	
AN20.9	Identify & demonstrate Palpation of vessels (femoral, popliteal,dorsalis pedis,post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, great and small saphenous veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Medicine, General Surgery	
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	Physiology
AN24.3	Describe a bronchopulmonary segment	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2)ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K/S	SH	Y	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.8	Identify and describe in brief a barium swallow	K/S	SH	N	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.9	Demonstrate surface marking of lines of pleural reflection, Lung borders and fissures, Trachea, Heart borders, Apex beat & Surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ Skill assessment		General Medicine, Pediatrics	Physiology
AN28.7	Explain the anatomical basis of facial nerve palsy	K	KH	Y	Lecture	Written		General Medicine	
AN50.3	Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN56.1	Describe & identify various layers of meninges with its extent & modifications	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	
AN56.2	Describe circulation of CSF with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.5	Describe anatomical basis of syringomyelia	K	KH	N	Lecture	Written		General Medicine	Physiology
AN58.4	Describe anatomical basis & effects of medial & lateral medullary syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	Lecture	Written		General Medicine	Physiology
AN61.3	Describe anatomical basis & effects of Benedict's and Weber's syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	Physiology
AN62.3	Describe the white matter of cerebrum	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	Physiology
AN74.1	Describe the various modes of inheritance with examples	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.3	Describe multifactorial inheritance with examples	K	KH	Y	Lecture	Written		General Medicine	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Hemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	K	KH	N	Lecture	Written		General Medicine, Pediatrics	
Physiology									
PY3.12	Explain the gradation of muscular activity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Human Anatomy
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastro-oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	S	SH	Y	Lecture, Small group discussion	Practical/ Viva voce		General Medicine	Biochemistry
PY5.5	Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Human Anatomy
PY5.10	Describe & discuss regional circulation including microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PY5.13	Record and interpret normal ECG in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PY5.16	Record Arterial pulse tracing using finger plethysmography in a volunteer or simulated environment	S	SH	N	DOAP sessions, Computer assisted learning methods	Practical/OSPE/Viva voce		General Medicine	
PY7.7	Describe artificial kidney, dialysis and renal transplantation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine Anaesthesiology	
Biochemistry									
BI2.4	Describe and discuss enzyme inhibitors as poisons and drugs, therapeutic enzymes and the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.6	Discuss use of enzymes in laboratory investigations (Enzyme-based assays)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.7	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion, DOAP sessions	Written/ Viva voce		Pathology, General Medicine	
BI3.4	Define and differentiate the pathways of carbohydrate metabolism (glycolysis, gluconeogenesis, glycogen metabolism, HMP shunt)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI3.5	Describe and discuss the regulation, functions and integration of carbohydrate along with associated diseases/disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI3.8	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI3.9	Discuss the mechanism and significance of blood glucose regulation in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI3.10	Interpret the results of blood glucose levels and other laboratory investigations related to disorders of carbohydrate metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.1	Describe and discuss main classes of lipids (Essential/non-essential fatty acids, cholesterol and hormonal steroids, triglycerides, major phospholipids and sphingolipids) relevant to human system and their major functions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.2	Describe the processes involved in digestion and absorption of dietary lipids and also the key features of their metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.3	Explain the regulation of lipoprotein metabolism & associated disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.4	Describe the structure and functions of lipoproteins, their functions, interrelations & relations with atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.5	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.6	Describe the therapeutic uses of prostaglandins and inhibitors of eicosanoid synthesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.7	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas e.g., hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Viva voce/ Skill assessment		Pathology, General Medicine	Physiology
BI5.5	Interpret laboratory results of analytes associated with metabolism of proteins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.1	Discuss the metabolic processes that take place in specific organs in the body in the fed and fasting states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.4	Discuss the laboratory results of analytes associated with gout & Lesch Nyhan syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI6.5	Describe the biochemical role of vitamins in the body and explain the manifestations of their deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.7	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.8	Discuss and interpret results of Arterial Blood Gas (ABG) analysis in various disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.10	Enumerate and describe the disorders associated with mineral metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI7.4	Describe applications of recombinant DNA technology, PCR in the diagnosis and treatment of diseases with genetic basis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI7.7	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.3	Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI8.4	Describe the causes (including dietary habits), effects and health risks associated with being overweight/ obesity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables (macro-molecules & its importance)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
BI9.2	Discuss the involvement of ECM components in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	Physiology
BI11.4	Perform urine analysis to estimate and determine normal and abnormal constituents	S	P	Y	Lecture, Small group discussion	Skill assessment	1	General Medicine	Physiology
BI11.5	Describe screening of urine for inborn errors & describe the use of paper chromatography	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI11.17	Explain the basis and rationale of biochemical tests done in the following conditions: - diabetes mellitus, - dyslipidemia, - myocardial infarction, - renal failure, gout, - proteinuria, - nephrotic syndrome, - edema, - jaundice, - liver diseases, pancreatitis, disorders of acid- base balance, thyroid disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine Pathology	
BI11.22	Calculate albumin: globulin (AG) ratio and creatinine clearance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.23	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.24	Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI1.26	Calculate albumin: globulin (AG) ratio and creatinine clearance	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	
BI1.27	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	S	SH	N	Lecture, Small group discussion	Skill assessment		General Medicine	
BI1.28	Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Pathology									
PA6.1	Define and describe edema its types pathogenesis and clinical correlations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.4	Define autoimmunity. Enumerate autoimmune disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA9.5	Define and describe the pathogenesis of systemic lupus erythematosus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA9.7	Define and describe the pathogenesis of other common autoimmune diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA12.3	Describe the pathogenesis of obesity and its consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.1	Describe hematopoiesis and extramedullary hematopoiesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.2	Describe the role of anticoagulants in hematology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.3	Define and classify anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.4	Enumerate and describe the investigation of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.5	Perform, Identify and describe the peripheral blood picture in anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
PA14.2	Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA14.3	Identify and describe the peripheral smear in microcytic anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA15.2	Describe the laboratory investigations of macrocytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA15.4	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.4	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.5	Describe indices and peripheral blood smear	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA 17.1	Enumerate the etiology, pathogenesis and findings in aplastic anemia	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA17.2	Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA19.6	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA21.3	Differentiate platelet from clotting disorders based on the clinical and hematologic features	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.5	Define and describe disseminated intravascular coagulation its laboratory findings and diagnosis of Vitamin K deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.6	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.3	Describe and identify the microscopic features of peptic ulcer	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.3	Describe the etiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA25.6	Interpret a liver function and viral hepatitis serology panel. Distinguish obstructive from non obstructive jaundice based on clinical features and liver function tests	S	P	Y	DOAP session	Skill assessment	1	General Medicine	
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
PA26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance,metastases and complications of tumors of the lung and pleura	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
PA27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of arteriosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA27.3	Describe the etiology, types, stages pathophysiology pathology and complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic, features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic, features, diagnostic tests and complications of ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic, features diagnosis and complications of infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic, features diagnosis and complications of pericarditis and pericardial effusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA28.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.4	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA28.6	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.7	Enumerate and describe the findings in glomerular manifestations of systemic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.8	Enumerate and classify diseases affecting the tubular interstitium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features, progression and complications of vascular disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.12	Define classify and describe the genetics, inheritance etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group	Written/ Viva voce		Physiology, General Medicine	
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
Microbiology									
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification, etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic heart disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kala-azar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.6	Identify the causative agent of malaria and filariasis	K/S	SH	Y	DOAP session	Skill assessment		General Medicine	
MI2.7	Describe the epidemiology, the etio- pathogenesis evolution complications, opportunistic infections, diagnosis prevention and the principles of management of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course, the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.7	Describe the epidemiology, the etio- pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis, and prevention of viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis	K	KH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain).	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
MI7.3	Describe the etio-pathogenesis, clinical features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course, laboratory diagnosis and prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y	Lecture	Written		General Medicine	Pathology
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate it types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
Pharmacology									
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.16	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: Anti-histaminics, 5-HT modulating drugs, NSAIDs, Drugs for gout, Anti-rheumatic drugs, drugs for migraine	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.21	Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin angiotensin and aldosterone system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of Antihypertensive drugs and drugs used in shock	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used as Antiarrhythmics	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid-peptic disease and GERD 2. Antiemetics and prokinetics 3. Antidiarrhoeals 4. Laxatives 5. Inflammatory Bowel Disease 6. Irritable Bowel Disorders, biliary and pancreatic diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: 1. Drugs used in anemias 2. Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	Pharmacology
PH1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology, Pharmacology
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics	Microbiology, Pharmacology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology
PH1.52	Describe management of common poisoning, insecticides, common sting and bites	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP sessions	Skills assessment		Pediatrics, Pharmacology	
PH3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	S/C	P	Y	Skill station	Skill station	5	General Medicine	
PH3.3	Perform a critical evaluation of the drug promotional literature	S	P	Y	Skill Lab	Maintenance of log book/ Skill station	3	General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH3.5	To prepare and explain a list of P-drugs for a given case/condition	S	P	Y	Skill station	Maintenance of log book	3	General Medicine	
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	A/C	SH	Y	Small group discussion	Skill station		General Medicine	
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	A/C	SH	Y	Small group discussion	Short note/ Viva voce		General Medicine	
Community Medicine									
CM3.1	Describe the health hazards of air, water, noise, radiation and pollution	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, ENT	
CM3.3	Describe the aetiology and basis of water borne diseases/jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Microbiology, General Medicine, Pediatrics	
CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM6.1	Formulate a research question for a study	K	KH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.2	Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.3	Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.4	Enumerate, discuss and demonstrate common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM7.1	Define Epidemiology and describe and enumerate the principles, concepts and uses	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM7.2	Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM7.3	Enumerate, describe and discuss the sources of epidemiological data	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM7.4	Define, calculate and interpret morbidity and mortality indicators based on given set of data	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.5	Enumerate, define, describe and discuss epidemiological study designs.	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.6	Enumerate and evaluate the need of screening tests	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.7	Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures.	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM7.8	Describe the principles of association, causation and biases in epidemiological studies	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology Pathology
CM8.2	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for Non Communicable diseases (diabetes, Hypertension, Stroke, obesity and cancer etc.)	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM8.3	Enumerate and describe disease-specific National Health Programs including their prevention and treatment of a case	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	
CM8.4	Describe the principles and enumerate the measures to control a disease epidemic	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	
CM8.5	Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM12.1	Define and describe the concept of Geriatric services	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM12.2	Describe health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM12.3	Describe the prevention of health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM12.4	Describe National program for elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM13.1	Define and describe the concept of Disaster management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM13.2	Describe disaster management cycle	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
CM13.3	Describe man made disasters in the world and in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.4	Describe the details of the National Disaster management Authority	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
Forensic Medicine & Toxicology									
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially – maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. - documents of issuance of wound certificate - documents of issuance of drunkenness certificate. - documents of issuance of sickness and fitness certificate. - documents for issuance of death certificate. - documents of Medical Certification of Cause of Death - Form Number4 and 4A - documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	
FM2.34	Demonstrate ability to use local resources whenever required like in mass disaster situations	A & C	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, AETCOM	
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Medicine	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry, General Medicine	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India.	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/OSCE		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/OSCE		Pharmacology, General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: Caustics Inorganic – sulphuric, nitric, and hydrochloric acids Organic- Carbolic Acid (phenol), Oxalic and acetylsalicylic acids .	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepines, phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv. Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis vi. Gastro-Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM11.1	Describe features and management of Snake bite, scorpion sting, bee and wasp sting and spider bite	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/Viva voce		General Medicine	
FM12.1	Describe features and management of abuse/poisoning with following camicals: Tobacco, cannabis, amphetamines, cocaine, hallucinogens, designer drugs& solvent	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/Viva voce		General Medicine	
FM13.1	Describe toxic pollution of environment, its medico-legal aspects & toxic hazards of occupation and industry	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
FM14.2	Demonstrate the correct technique of clinical examination in a suspected case of poisoning & prepare medico-legal report in a simulated/ supervised environment	S	SH	Y	Bedside clinic (ward/casualty), Small group discussion	Logbook Skill station/Viva voce/ OSCE		General Medicine	
FM14.3	Assist and demonstrate the proper technique in collecting, preserving and dispatch of the exhibits in a suspected case of poisoning, along with clinical examination .	S	SH	Y	Bedside clinic, Small group discussion/DOAP session	Skill lab/Viva voce		General Medicine	

Dermatology, Venereology & Leprosy

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR9.1	Classify, describe the epidemiology, etiology, microbiology pathogenesis and clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Microbiology, Community Medicine
DR9.2	Demonstrate (and classify based on) the clinical features of leprosy including an appropriate neurologic examination	S	SH	Y	Lecture, Small group discussion	Bedside clinic session/ Skill assessment		General Medicine	
DR9.4	Enumerate, describe and identify lepra reactions and supportive measures and therapy of lepra reactions	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on national guidelines	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on the WHO guidelines	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma.	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Psychiatry
DR10.1	Identify and classify syphilis based on the presentation and clinical manifestations	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Microbiology
DR10.4	Describe the prevention of congenital syphilis	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	
DR10.5	Counsel in a non-judgemental and empathetic manner patients on prevention of sexually transmitted diseases	C	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	
DR10.6	Describe the etiology, diagnostic and clinical features of non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR10.7	Identify and differentiate based on the clinical features non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Microbiology
DR10.9	Describe the syndromic approach to ulcerative sexually transmitted disease	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	
DR10.10	Describe the etiology, diagnostic and clinical features and management of gonococcal and non gonococcal urethritis	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	
DR11.1	Describe the etiology, pathogenesis and clinical features of the dermatologic manifestations of HIV and its complications including opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Microbiology
DR11.2	Identify and distinguish the dermatologic manifestations of HIV its complications, opportunistic infections and adverse reactions	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Pathology, Microbiology
DR16.1	Identify and distinguish skin lesions of SLE	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Pathology
DR16.2	Identify and distinguish Raynaud's phenomenon	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Pathology
DR17.1	Enumerate and identify the cutaneous findings in vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion	Skill assessment/ Viva voce		General Medicine, Pediatrics, Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, Pediatrics, Biochemistry	
DR18.1	Enumerate the cutaneous features of Type 2 diabetes	K	K	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
DR18.2	Enumerate the cutaneous features of hypo- & hyperthyroidism	K	K	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Anesthesiology									
AS2.1	Enumerate the indications, describe the steps and demonstrate in a simulated environment basic life support in adults children and neonates	S	SH	N	DOAP session	Skill assessment		General Medicine, Pediatrics	
AS2.2	Enumerate the indications, describe the steps and demonstrate in a simulated environment advanced life support in adults and children	S	SH	N	DOAP session	Skill assessment		General Medicine	
AS3.1	Describe the principles of preoperative evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery, General Medicine
AS3.2	Elicit, present and document an appropriate history including medication history in a patient undergoing Surgery as it pertains to a preoperative anaesthetic evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.3	Demonstrate and document an appropriate clinical examination in a patient undergoing General Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AS3.4	Choose and interpret appropriate testing for patients undergoing Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.5	Determine the readiness for General Surgery in a patient based on the preoperative evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS7.2	Enumerate and describe the criteria for admission and discharge of a patient to an ICU	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Medicine
AS7.3	Observe and describe the management of an unconscious patient	S	KH	Y	Lecture, Small group discussion DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.4	Observe and describe the basic setup process of a ventilator	S	KH	Y	Lecture, Small group discussion DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.5	Observe and describe the principles of monitoring in an ICU	S	KH	Y	Lecture, Small group discussion DOAP session	Written/ Viva voce			General Medicine
AS8.4	Describe the principles of pain management in palliative care	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
AS8.5	Describe the principles of pain management in the terminally ill	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
AS10.4	Define and describe common medical and medication errors in anaesthesia	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
Otorhinolaryngology (ENT)									
EN4.53	Describe the Clinical features, Investigations and principles of management of HIV manifestations of the ENT	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Ophthalmology									
OP5.2	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features, complications, indications for referral and management of scleritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
OP6.3	Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
OP9.3	Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Dentistry									
DE1.4	Discuss the role of dental caries as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, General Medicine	
Psychiatry									
PS3.7	Enumerate and describe common organic psychiatric disorders, magnitude, etiology and clinical features	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS3.8	Enumerate and describe the essential investigations in patients with organic psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS4.1	Describe the magnitude and etiology of alcohol and substance use disorders	K	KH	Y	Lecture, Small group discussion	Lecture/ Small group discussion			General Medicine
PS4.2	Elicit, describe and document clinical features of alcohol and substance use disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS4.3	Enumerate and describe the indications and interpret laboratory and other tests used in alcohol and substance abuse disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS4.4	Describe the treatment of alcohol and substance abuse disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PS4.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in alcohol and substance abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.1	Enumerate and describe the magnitude and etiology of somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS10.2	Enumerate, elicit, describe and document clinical features in patients with somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.3	Enumerate and describe the indications and interpret laboratory and other tests used in somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.4	Describe the treatment of somatoform disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS12.1	Enumerate and describe the magnitude and etiology of psychosomatic disorders	K	KH	Y	Lecture Small group discussion	Written/ Viva voce			General Medicine
PS12.2	Enumerate, elicit, describe and document clinical features in patients with magnitude and etiology of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.3	Enumerate and describe the indications and interpret laboratory and other tests of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.4	Describe the treatment of psychosomatic disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS16.1	Enumerate and describe common psychiatric disorders in the elderly including dementia, depression and psychosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS16.2	Describe the aetiology and magnitude of psychiatric illness in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS16.3	Describe the therapy of psychiatric illness in elderly including psychosocial and behavioural therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PS16.4	Demonstrate family education in a patient with psychiatric disorders occurring in the elderly in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
Obstetrics & Gynaecology									
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations; principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.2	Define, Classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.3	Define, Classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.5	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management in pregnancy of urinary tract infections	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.6	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management in pregnancy of liver disease	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.7	Describe and discuss Screening, risk factors, management of mother and newborn with HIV	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
Pediatrics									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE14.3	Discuss the risk factors, clinical features, diagnosis and management of Organophosphorous poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PE32.3	Interpret normal Karyotype and recognize Trisomy 21	S	SH	Y	Bedside clinics, Skills lab	Log book			General Medicine
PE32.9	Discuss the referral criteria and multidisciplinary approach to management of Turner Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynecology
General Surgery									
SU22.6	Describe and discuss the clinical features of hypo- & hyperparathyroidism and the principles of their management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
SU23.2	Describe the etiology, clinical features and principles of management of disorders of adrenal gland	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Orthopaedics									
OR5.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of various inflammatory disorder of joints	K	K/KH	Y	Lecture, Small group Discussion, Bedside clinic	Written/ Viva voce OSCE			General Medicine
OR11.1	Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture Small Group discussion, case discussion	Written/ Viva voce OSCE		Human Anatomy	General Medicine, General surgery
Physical Medicine & Rehabilitation									
PM1.2	Define and describe disability, its cause, and magnitude, identification and prevention of disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM1.3	Define and describe the methods to identify and prevent disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PM1.4	Enumerate the rights and entitlements of differently abled persons	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM2.1	Describe the causes of disability in the patient with a cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	General Medicine
PM2.2	Describe and discuss the treatment of rigidity and spasticity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.3	Describe and discuss the principles of early mobilizations, mobility aids and splints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.4	Describe and discuss the impact of comorbidities on the rehabilitation of the patient with cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM4.1	Describe the common patterns, clinical features, investigations, diagnosis and treatment of common causes of arthritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			General Medicine Orthopedics
PM6.1	Perform and demonstrate a clinical examination of sensory and motor deficits of peripheral nerve	S	SH	Y	Bedside clinic	Skill assessment			General Medicine
PM6.2	Enumerate the indications and describe the principles of nerve conduction velocity and EMG	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM7.4	Assess bowel and bladder function and identify common patterns of bladder dysfunction	S	KH	Y	Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM7.6	Enumerate the indications and describe the pharmacology and side effects of commonly used drugs in neuropathic bladder	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein Thrombosis, Aspiration Pneumonia, Autonomic dysreflexia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics General Surgery
PM8.2	Describe and discuss cognitive dysfunction like deficits in attention, memory and communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.3	Describe and discuss common behavior and mood changes following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.4	Describe metabolic co-morbidities like SIADH, diabetes mellitus, insipidus and endocrine dysfunction following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.5	Describe the Vocational opportunities and community based rehabilitation following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM 9.1	Describe rehabilitative aspects as they pertain to the elderly including patients with dementia, depression, incontinence immobility and nutritional needs	K	KH	Y	Lecture, Small group	Written Viva voce			General Medicine Psychiatry
Radiotherapy									
RT1.3	Enumerate, describe and discuss classification and staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery General Medicine

RESPIRATORY MEDICINE (CODE: CT)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
RESPIRATORY MEDICINE									
Topic:Tuberculosis		Number of competencies: (19)			Number of procedures that require certification : (01)				
CT1.1	Describe and discuss the epidemiology of tuberculosis and its impact on the work, life and economy of India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
CT1.2	Describe and discuss the microbiology of tubercle bacillus, mode of transmission, pathogenesis, clinical evolution and natural history of pulmonary and extra pulmonary forms (including lymph node, bone and CNS)	K	KH	Y	Lecture, Small group discussion	written		Microbiology	
CT1.3	Discuss and describe the impact of co-infection with HIV and other co-morbid conditions. Like diabetes on the natural history of tuberculosis	K	K	Y	Lecture, Small group discussion	written		Microbiology	
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Pharmacology	
CT1.5	Elicit, document and present an appropriate medical history that includes risk factor, contacts, symptoms including cough and fever CNS and other manifestations	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
CT1.6	Demonstrate and perform a systematic examination that establishes the diagnosis based on the clinical presentation that includes a a) general examination, b) examination of the chest and lung including loss of volume, mediastinal shift, percussion and auscultation (including DOAP session of lung sounds and added sounds) c) examination of the lymphatic system and d) relevant CNS examination	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
CT1.7	Perform and interpret a PPD (mantoux) and describe and discuss the indications and pitfalls of the test	S	P	Y	DOAP session	Maintenance of log book		Microbiology	
CT1.8	Generate a differential diagnosis based on the clinical history and evolution of the disease that prioritises the most likely diagnosis	K	K	Y	Bedside clinic, Small group discussion	Bedside clinic/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT1.9	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing	K	K	Y	Bedside clinic, DOAP session	Skill assessment			
CT1.10	Perform and interpret an AFB stain	S	P	Y	DOAP session	Skill assessment	1	Microbiology	
CT1.11	Assist in the performance, outline the correct tests that require to be performed and interpret the results of a pleural fluid aspiration	S	SH	Y	Skill assessment	Skill assessment			
CT1.12	Enumerate the indications for tests including: serology, special cultures and polymerase chain reaction and sensitivity testing	K	KH	Y	Small group discussion, Lecture	Short note/ Viva voce		Microbiology	
CT1.13	Describe and discuss the origin, indications, technique of administration, efficacy and complications of the BCG vaccine	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
CT1.14	Describe and discuss the pharmacology of various anti-tuberculous agents, their indications, contraindications, interactions and adverse reactions	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	
CT1.15	Prescribe an appropriate antituberculosis regimen based on the location of disease, smear positivity and negativity and co-morbidities based on current national guidelines including directly observed tuberculosis therapy (DOTS)	K	SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment		Pharmacology, Community Medicine	
CT1.16	Describe the appropriate precautions, screening, testing and indications for chemoprophylaxis for contacts and exposed health care workers	K	KH	Y	Bedside clinic, Small group discussion	Written		Community Medicine	
CT1.17	Define criteria for the cure of Tuberculosis; describe and recognise the features of drug resistant tuberculosis, prevention and therapeutic regimens	S	P	Y	Lecture, Small group discussion	Written			
CT1.18	Educate health care workers on National Program of Tuberculosis and administering and monitoring the DOTS program	C	SH	Y	DOAP session	Skill assessment		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT1.19	Communicate with patients and family in an empathetic manner about the diagnosis, therapy	S	P	Y	DOAP session	Skill assessment		AETCOM	
Topic: Obstructive airway disease Number of competencies: (28) Number of procedures that require certification : (01)									
CT2.1	Define and classify obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.2	Describe and discuss the epidemiology, risk factors and evolution of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology , Pathology	
CT2.3	Enumerate and describe the causes of acute episodes in patients with obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
CT2.4	Describe and discuss the physiology and pathophysiology of hypoxia and hypercapnea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.5	Describe and discuss the genetics of alpha 1 antitrypsin deficiency in emphysema	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.6	Describe the role of the environment in the cause and exacerbation of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
CT2.7	Describe and discuss allergic and non-allergic precipitants of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
CT2.8	Elicit document and present a medical history that will differentiate the aetiologies of obstructive airway disease, severity and precipitants	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
CT2.9	Perform a systematic examination that establishes the diagnosis and severity that includes measurement of respiratory rate, level of respiratory distress, effort tolerance, breath sounds, added sounds, identification of signs of consolidation pleural effusion and pneumothorax	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT2.10	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ Written			
CT2.11	Describe, discuss and interpret pulmonary function tests	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Physiology, Pathology	
CT2.12	Perform and interpret peak expiratory flow rate	S	P	Y	Bedside clinic, DOAP session	documentation in log book/ Skill assessment	3		
CT2.13	Describe the appropriate diagnostic work up based on the presumed aetiology	S	SH	Y	Bedside clinic, Small group discussion	Written/ Skill assessment			
CT2.14	Enumerate the indications for and interpret the results of : pulse oximetry, ABG, Chest Radiograph	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			
CT2.15	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			
CT2.16	Discuss and describe therapies for OAD including bronchodilators, leukotriene inhibitors, mast cell stabilisers, theophylline, inhaled and systemic steroids, oxygen and immunotherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
CT2.17	Describe and discuss the indications for vaccinations in OAD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
CT2.18	Develop a therapeutic plan including use of bronchodilators and inhaled corticosteroids	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT2.19	Develop a management plan for acute exacerbations including bronchodilators, systemic steroids, antimicrobial therapy	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			
CT2.20	Describe and discuss the principles and use of oxygen therapy in the hospital and at home	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
CT2.21	Describe discuss and counsel patients appropriately on smoking cessation	K/C	SH	Y	DOAP session	Skill assessment		AETCOM	
CT2.22	Demonstrate and counsel patient on the correct use of inhalers	S/C	SH	Y	DOAP session	Skill assessment			
CT2.23	Communicate diagnosis treatment plan and subsequent follow up plan to patients	K/C	SH	Y	DOAP session	Skill assessment			
CT2.24	Recognise the impact of OAD on patient's quality of life, well being, work and family	A	KH	Y	Small group discussion, Bedside clinics	Observation by faculty		Community Medicine	
CT2.25	Discuss and describe the impact of OAD on the society and workplace	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
CT2.26	Discuss and describe preventive measures to reduce OAD in workplaces	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
CT2.27	Demonstrate an understanding of patient's inability to change working, living and environmental factors that influence progression of airway disease	A	KH	Y	Small group discussion, Bedside clinics	Observation by faculty		Community Medicine	
CT2.28	Demonstrate an understanding for the difficulties faced by patients during smoking cessation	A	KH	Y	Small group discussion, Bedside clinics	Observation by faculty			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Integration									
Physiology									
PY6.8	Demonstrate the correct technique to perform & interpret Spirometry	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce		Respiratory Medicine	
Pharmacology									
PH1.32	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.44	Describe the first line antitubercular drugs, their mechanisms of action, side effects and doses.	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
General Medicine									
IM24.10	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of COPD in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Respiratory Medicine
Pediatrics									
PE28.19	Describe the etio-pathogenesis, clinical features, diagnosis, management and prevention of asthma in children	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skill Assessment/ Written/ Viva voce		Respiratory Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.20	Counsel the child with asthma on the correct use of inhalers in a simulated environment	S	P	Y	Bedside clinics, Small group discussion, Lecture	Skills Assessment/ Written/ Viva voce	3	Respiratory Medicine	
PE34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.5	Able to elicit, document and present history of contact with tuberculosis in every patient encounter	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			Respiratory Medicine
PE34.6	Identify a BCG scar	S	P	Y	Bed side clinics, Skills lab	Skill Assessment	3	Microbiology	Respiratory Medicine
PE34.7	Interpret a Mantoux test	S	P	Y	Bed side clinics Skills lab	Skill assessment	3	Microbiology	Respiratory Medicine
PE34.8	Interpret a Chest Radiograph	S	SH	Y	Bedside clinics Skills lab	Skill assessment		Radiodiagnosis	Respiratory Medicine
PE34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	SH	N	Bed side clinics, Small group discussion	Log book		Microbiolgy	Respiratory Medicine
PE34.10	Discuss the various samples for demonstraing the organism eg Gastric Aspirate, Sputum , CSF, FNAC	K	KH	Y	Bed side clinics, Small group discussion	Written/ Viva voce		Microbiolgy	Respiratory Medicine
PE34.11	Perform AFB staining	S	P	Y	DOAP session	Log book/Journal	3	Microbiology	Respiratory Medicine
PE34.12	Enumerate the indications and discuss the limitations of methods of culturing M.Tuberculi	K	KH	Y	Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine

PEDIATRICS (CODE: PE)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PEDIATRICS									
Topic: Normal Growth and Development Number of competencies : (07) Number of procedures that require certification: (02)									
PE1.1	Define the terminologies Growth and development and discuss the factors affecting normal growth and development	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE1.2	Discuss and describe the patterns of growth in infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.3	Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical growth in infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.4	Perform Anthropometric measurements, document in growth charts and interpret	S	P	Y	Small group discussion	Document in Log book	3		
PE1.5	Define development and discuss the normal developmental mile stones with respect to motor, behaviour, social, adaptive and language	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.6	Discuss the methods of assessment of development	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE1.7	Perform Developmental assessment and interpret	S	P	N	Bedside clinics, Skills Lab	Document in Log book	3		
Topic: Common problems related to Growth Number of competencies:(06) Number of procedures that require certification: (NIL)									
PE2.1	Discuss the etio-pathogenesis, clinical features and management of a child who fails to thrive	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE2.2	Assessment of a child with failing to thrive including eliciting an appropriate history and examination	S	SH	Y	Bedside clinics	Skills Station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE2.3	Counselling a parent with failing to thrive child	A/C	SH	Y	OSPE	Document in Log book		AETCOM	
PE2.4	Discuss the etio-pathogenesis, clinical features and management of a child with short stature	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE2.5	Assessment of a child with short stature: Elicit history, perform examination, document and present	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			
PE2.6	Enumerate the referral criteria for growth related problems	K	K	Y	Small group discussion	Written/ Viva voce			
Topic: Common problems related to Development -1 (Developmental delay , Cerebral palsy) Number of competencies:(08) Number of procedures that require certification: (NIL)									
PE3.1	Define, enumerate and discuss the causes of developmental delay and disability including intellectual disability in children	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE3.2	Discuss the approach to a child with developmental delay	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE3.3	Assessment of a child with developmental delay - Elicit document and present history	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE3.4	Counsel a parent of a child with developmental delay	S	SH	Y	DOAP session	Document in Log Book			
PE3.5	Discuss the role of the child developmental unit in management of developmental delay	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE3.6	Discuss the referral criteria for children with developmental delay	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE3.7	Visit a Child Developmental Unit and observe its functioning	S	KH	Y	Lecture, Small group discussion	Log book Entry		Community Medicine	
PE3.8	Discuss the etio-pathogenesis, clinical presentation and multi-disciplinary approach in the management of Cerebral palsy	K	KH	Y	Lecture, Small group, Bedside clinics	Written/ Viva voce			Physical Medicine & Rehabilitation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Common problems related to Development-2 (Scholastic backwardness, Learning Disabilities , Autism , ADHD) Number of competencies: (06) Number of procedures that require certification: (NIL)									
PE4.1	Discuss the causes and approach to a child with scholastic backwardness	K	K	N	Lecture, Small group discussion	Written			
PE4.2	Discuss the etiology, clinical features, diagnosis and management of a child with Learning Disabilities	K	K	N	Lecture, Small group discussion	Written			
PE4.3	Discuss the etiology, clinical features, diagnosis and management of a child with Attention Deficit Hyperactivity Disorder (ADHD)	K	K	N	Lecture, Small group discussion	Written			
PE4.4	Discuss the etiology, clinical features, diagnosis and management of a child with Autism	K	K	N	Lecture, Small group discussion	Written			
PE4.5	Discuss the role of Child Guidance clinic in children with Developmental problems	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
PE4.6	Visit to the Child Guidance Clinic	S	KH	N	Lecture, Small group discussion	Document in Log Book			
Topic: Common problems related to behavior Number of competencies: (11) Number of procedures that require certification: (NIL)									
PE5.1	Describe the clinical features, diagnosis and management of thumb sucking	K	K	N	Lecture, Small group discussion	Written			
PE5.2	Describe the clinical features, diagnosis and management of Feeding problems	K	K	N	Lecture, Small group discussion	Written			
PE5.3	Describe the clinical features, diagnosis and management of nail biting	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.4	Describe the clinical features, diagnosis and management of Breath Holding spells	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE5.5	Describe the clinical features, diagnosis and management of temper tantrums	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.6	Describe the clinical features, diagnosis and management of Pica	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.7	Describe the clinical features, diagnosis and management of Fussy infant	K	K	N	Lecture, Small group discussion	Written			Psychiatry
PE5.8	Discuss the etiology, clinical features and management of Enuresis	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.9	Discuss the etiology, clinical features and management of Encopresis	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.10	Discuss the role of child guidance clinic in children with behavioural problems and the referral criteria	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.11	Visit to Child Guidance Clinic and observe functioning	K	KH	N	Lecture, Small group discussion	Document in Log Book			
Topic: Adolescent Health & common problems related to Adolescent Health Number of competencies: (13) Number of procedures that require certification: (NIL)									
PE6.1	Define Adolescence and stages of adolescence	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE6.2	Describe the physical, physiological and psychological changes during adolescence (Puberty)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.3	Discuss the general health problems during adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE6.4	Describe adolescent sexuality and common problems related to it	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.5	Explain the Adolescent Nutrition and common nutritional problems	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE6.6	Discuss the common Adolescent eating disorders (Anorexia Nervosa, Bulimia)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.7	Describe the common mental health problems during adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.8	Respecting patient privacy and maintaining confidentiality while dealing with adolescence	A	SH	Y	Bedside clinics	Document in log book			AETCOM
PE6.9	Perform routine Adolescent Health check up including eliciting history, performing examination including SMR (Sexual Maturity Rating), growth assessments (using Growth charts) and systemic exam including thyroid and Breast exam and the HEADSS screening	S	SH	Y	Bedside clinics	Skills station			
PE6.10	Discuss the objectives and functions of AFHS (Adolescent Friendly Health Services) and the referral criteria	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE6.11	Visit to the Adolescent Clinic	S	KH	Y	DOAP session	Document in Log Book			
PE6.12	Enumerate the importance of obesity and other NCD in adolescents	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE6.13	Enumerate the prevalence and the importance of recognition of sexual drug abuse in adolescents and children	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
Topic: To promote and support optimal Breast feeding for Infants Number of competencies: (11) Number of procedures that require certification: (01)									
PE7.1	Awareness on the cultural beliefs and practices of breast feeding	K	K	N	Lecture, Small group discussion	Viva			Obstetrics & Gynaecology
PE7.2	Explain the physiology of lactation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE7.3	Describe the composition and types of breast milk and discuss the differences between cow's milk and Human milk	K	KH	Y	Lecture, debate	Written/ Viva voce		Physiology	
PE7.4	Discuss the advantages of breast milk	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE7.5	Observe the correct technique of breast feeding and distinguish right from wrong techniques	S	P	Y	Bedside clinics, Skills lab	Skill Assessment	3		
PE7.6	Enumerate the baby friendly hospital initiatives	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE7.7	Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess	S	SH	Y	Bedside clinics, Skill Lab	Skill Assessment			Obstetrics & Gynaecology, AETCOM
PE7.8	Educate mothers on ante natal breast care and prepare mothers for lactation	A/C	SH	Y	DOAP session	Document in Log Book			AETCOM
PE7.9	Educate and counsel mothers for best practices in Breast feeding	A/C	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology, AETCOM
PE7.10	Respects patient privacy	A	SH	Y	DOAP session	Document in Log Book			AETCOM
PE7.11	Participate in Breast Feeding Week Celebration	A	SH	Y	DOAP session	Document in Log Book			
Topic: Complementary Feeding Number of competencies : (05) Number of procedures that require certification: (NIL)									
PE8.1	Define the term Complementary Feeding	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE8.2	Discuss the principles, the initiation, attributes, frequency, techniques and hygiene related to Complementary Feeding including IYCF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE8.3	Enumerate the common complimentary foods	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE8.4	Elicit history on the Complementary Feeding habits	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Community Medicine	
PE8.5	Counsel and educate mothers on the best practices in Complimentary Feeding	A/C	SH	Y	DOAP session	Document in Log Book		Community Medicine	

Topic: Normal nutrition, assessment and monitoring

Numbcompetencies : (07)

Number of procedures that require certification: (NIL)

PE9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Biochemistry	
PE9.2	Describe the tools and methods for assessment and classification of nutritional status of infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE9.3	Explains the Calorific value of common Indian foods	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE9.4	Elicit document and present an appropriate nutritional history and perform a dietary recall	S	SH	Y	Bedside clinic, Skills lab	Skill Assessment		Community Medicine	
PE9.5	Calculate the age related calorie requirement in Health and Disease and identify gap	S	SH	Y	Bedside clinics, Small group discussion	Skill assessment		Community Medicine	
PE9.6	Assess and classify the nutrition status of infants, children and adolescents and recognize deviations	S	SH	Y	Bedside clinic, Small group discussion	Skill Assessment		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE9.7	Plan an appropriate diet in health and disease	S	SH	N	Bedside clinic, Small group discussion	Document in logbook		Community Medicine	
Topic: Provide nutritional support , assessment and monitoring for common nutritional problems Number of competencies: (06) Number of procedures that require certification: (NIL)									
PE10.1	Define and describe the etio-pathogenesis, classify including WHO classification, clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bedside clinics, Skills lab	Skill station		Physiology, Biochemistry	
PE10.4	Identify children with under nutrition as per IMNCI criteria and plan referral	S	SH	Y	DOAP session	Document in log book		Community Medicine	
PE10.5	Counsel parents of children with SAM and MAM	S	SH	Y	Bedside clinic, Skills Station	Document in Log book		AETCOM	
PE10.6	Enumerate the role of locally prepared therapeutic diets and ready to use therapeutic diets	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Obesity in children Number of competencies: (06) Number of procedures that require certification: (01)									
PE11.1	Describe the common etiology, clinical features and management of obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE11.2	Discuss the risk approach for obesity and discuss the prevention strategies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE11.3	Assessment of a child with obesity with regard to eliciting history including physical activity, charting and dietary recall	S	SH	Y	Bedside clinics, Standardized patients	Document in log book			
PE11.4	Examination including calculation of BMI, measurement of waist hip ratio, identifying external markers like acanthosis, striae, pseudogynaecomastia etc	S	SH	Y	Bedside clinics, Standardized patients, Videos	Skills Station			
PE11.5	Calculate BMI, document in BMI chart and interpret	S	P	Y	Bedside clinics, Small group discussion	Document in log book	3		
PE11.6	Discuss criteria for referral	K	K	Y	Small group discussion	Viva voce			
Topic: Micronutrients in Health and disease-1 (Vitamins ADEK, B Complex and C) Number of competencies: (21) Number of procedures that require certification: (NIL)									
PE12.1	Discuss the RDA, dietary sources of Vitamin A and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.2	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin A	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.3	Identify the clinical features of dietary deficiency / excess of Vitamin A	S	SH	Y	Bedside clinics, Small group discussion	Document in log book		Biochemistry	
PE12.4	Diagnose patients with Vitamin A deficiency, classify and plan management	S	SH	N	Bedside clinics, Skill Station	Document in log book		Biochemistry	
PE12.5	Discuss the Vitamin A prophylaxis program and their recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE12.6	Discuss the RDA, dietary sources of Vitamin D and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry, Physiology, Pathology	
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Y	Bedside clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.10	Discuss the role of screening for Vitamin D deficiency	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE12.11	Discuss the RDA, dietary sources of Vitamin E and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.12	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin E	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.13	Discuss the RDA, dietary sources of Vitamin K and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis management and prevention of deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.15	Discuss the RDA, dietary sources of Vitamin B and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.16	Describe the causes, clinical features, diagnosis and management of deficiency of B complex Vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE12.17	Identify the clinical features of Vitamin B complex deficiency	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry	
PE12.18	Diagnose patients with Vitamin B complex deficiency and plan management	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry	
PE12.19	Discuss the RDA , dietary sources of Vitamin C and their role in Health and disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.20	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin C (scurvy)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.21	Identify the clinical features of Vitamin C deficiency	S	SH	N	Bedside clinics, Skill lab	Document in log book		Biochemistry	
Topic: Micronutrients in Health and disease -2: Iron, Iodine, Calcium, Magnesium Number of competencies: (14) Number of procedures that require certification: (NIL)									
PE13.1	Discuss the RDA, dietary sources of Iron and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.2	Describe the causes, diagnosis and management of Fe deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Pathology, Biochemistry	
PE13.4	Interpret hemogram and Iron Panel	S	SH	Y	Bedside clinic, Small group discussion	Skill Assessment		Pathology, Biochemistry	
PE13.5	Propose a management plan for Fe deficiency anaemia	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Pathology, Pharmacology	
PE13.6	Discuss the National anaemia control program and its recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE13.7	Discuss the RDA , dietary sources of Iodine and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.8	Describe the causes, diagnosis and management of deficiency of Iodine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.9	Identify the clinical features of Iodine deficiency disorders	S	SH	N	Lecture, Bedside clinic	Written/ Viva voce		Biochemistry	
PE13.10	Discuss the National Goiter Control program and their recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Community Medicine	
PE13.11	Discuss the RDA, dietary sources of Calcium and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.12	Describe the causes, clinical features, diagnosis and management of Ca Deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.13	Discuss the RDA, dietary sources of Magnesium and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.14	Describe the causes, clinical features, diagnosis and management of Magnesium Deficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
Topic: Toxic elements and free radicals and oxygen toxicity Number of competencies: (05) Number of procedures that require certification (NIL)									
PE14.1	Discuss the risk factors, clinical features, diagnosis and management of Lead Poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PE14.2	Discuss the risk factors, clinical features, diagnosis and management of Kerosene ingestion	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE14.3	Discuss the risk factors, clinical features, diagnosis and management of Organophosphorous poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE14.4	Discuss the risk factors, clinical features, diagnosis and management of paracetamol poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PE14.5	Discuss the risk factors, clinical features, diagnosis and management of Oxygen toxicity	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Fluid and electrolyte balance Number of competencies:(07) Number of procedures that require certification:(NIL)									
PE15.1	Discuss the fluid and electrolyte requirement in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE15.2	Discuss the clinical features and complications of fluid and electrolyte imbalance and outline the management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE15.3	Calculate the fluid and electrolyte requirement in health	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE15.4	Interpret electrolyte report	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE15.5	Calculate fluid and electrolyte imbalance	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE15.6	Demonstrate the steps of inserting an IV cannula in a model	S	SH	Y	Skills Lab	mannequin			
PE15.7	Demonstrate the steps of inserting an interosseous line in a mannequin	S	SH	Y	Skills Lab	mannequin			
Topic: Integrated Management of Neonatal and Childhood Illnesses (IMNCI) Guideline Number of competencies:(03) Number of procedures that require certification: (NIL)									
PE16.1	Explain the components of Integrated Management of Neonatal and Childhood Illnesses (IMNCI) guidelines and method of Risk stratification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE16.2	Assess children <2 months using IMNCI Guidelines	S	SH	Y	DOAP session	Document in log Book			
PE16.3	Assess children >2 to 5 years using IMNCI guidelines and Stratify Risk	S	SH	Y	DOAP session	Document in log Book			
Topic: The National Health programs, NHM Number of competencies:(02) Number of procedures that require certification: (NIL)									
PE17.1	State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCH A+, RBSK, RKSK, JSSK mission Indradhanush and ICDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE17.2	Analyse the outcomes and appraise the monitoring and evaluation of NHM	K	KH	Y	Debate	Written/ Viva voce		Community Medicine	
Topic: The National Health Programs: RCH Number of competencies: (08) Number of procedures that require certification: (NIL)									
PE18.1	List and explain the components, plan, outcome of Reproductive Child Health (RCH) program and appraise its monitoring and evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.2	Explain preventive interventions for child survival and safe motherhood	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bedside clinics	Skill station		Community Medicine	Obstetrics & Gynaecology
PE18.4	Provide intra-natal care and conduct a normal delivery in a simulated environment	S	SH	Y	DOAP session, Skills lab	Document in Log Book		Community Medicine	Obstetrics & Gynaecology
PE18.5	Provide intra-natal care and observe the conduct of a normal delivery	S	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bed side clinics, Skill Lab	Skill Assessment		Community Medicine	Obstetrics & Gynaecology
PE18.7	Educate and counsel caregivers of children	A	SH	Y	Postnatal ward, standardized patient	Skill Assessment		AETCOM	
PE18.8	Observe the implementation of the program by visiting the Rural Health Centre	S	KH	Y	Bed side clinics, Skill Lab	Document in log book		Community Medicine	Obstetrics & Gynaecology
Topic: National Programs, RCH - Universal Immunizations program Number of competencies: (16) Number of procedures that require certification: (01)									
PE19.1	Explain the components of the Universal Immunization Program and the National Immunization Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, pre-term, organ transplants, those who received blood and blood products, splenectomised children, adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.6	Assess patient for fitness for immunization and prescribe an age appropriate immunization schedule	S	P	Y	Out Patient clinics Skills lab	Skill Assessment	5		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE19.7	Educate and counsel a patient for immunization	A/C	SH	Y	DOAP session	Document in Log Book			
PE19.8	Demonstrate willingness to participate in the National and sub national immunisation days	A	SH	Y	Lecture, Small group discussion	Document in Log Book		Community Medicine	
PE19.9	Describe the components of safe vaccine practice – Patient education/ counselling; adverse events following immunization, safe injection practices, documentation and Medico-legal implications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			AETCOM
PE19.10	Observe the handling and storing of vaccines	S	SH	Y	DOAP session	Written/ Viva voce			
PE19.11	Document Immunization in an immunization record	S	SH	Y	Out Patient clinics, Skills lab	Skill assessment			
PE19.12	Observe the administration of UIP vaccines	S	SH	Y	DOAP session	Document in Log Book		Community Medicine	
PE19.13	Demonstrate the correct administration of different vaccines in a mannequin	S	SH	Y	DOAP session	Document in Log Book			
PE19.14	Practice Infection control measures and appropriate handling of the sharps	S	SH	Y	DOAP session	Document in Log Book			
PE19.15	Explain the term implied consent in Immunization services	K	K	Y	Small group discussion	Written/ Viva voce			
PE19.16	Enumerate available newer vaccines and their indications including pentavalent pneumococcal, rotavirus, JE, typhoid IPV & HPV	K	K	N	Lecture, Small group discussion	Written/ Viva voce			

Topic: Care of the Normal New born, and High risk New born

Number of competencies: (20)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE20.1	Define the common neonatal nomenclatures including the classification and describe the characteristics of a Normal Term Neonate and High Risk Neonates	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.2	Explain the care of a normal neonate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.3	Perform Neonatal resuscitation in a manikin	S	SH	Y	DOAP session	Log book entry of Performance			
PE20.4	Assessment of a normal neonate	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE20.5	Counsel / educate mothers on the care of neonates	A/C	SH	Y	DOAP session	Log book documentation			
PE20.6	Explain the follow up care for neonates including Breast Feeding, Temperature maintenance, immunization, importance of growth monitoring and red flags	S	SH	Y	DOAP session	Log book entry			Obstetrics & Gynaecology
PE20.7	Discuss the etiology, clinical features and management of Birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.8	Discuss the etiology, clinical features and management of respiratory distress in New born including meconium aspiration and transient tachypnoea of newborn	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.9	Discuss the etiology, clinical features and management of Birth injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.10	Discuss the etiology, clinical features and management of Hemorrhagic disease of New born	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE20.11	Discuss the clinical characteristics, complications and management of Low birth weight (preterm and Small for gestation)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.12	Discuss the temperature regulation in neonates, clinical features and management of Neonatal Hypothermia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.13	Discuss the temperature regulation in neonates, clinical features and management of Neonatal Hypoglycemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.14	Discuss the etiology, clinical features and management of Neonatal hypocalcemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.15	Discuss the etiology, clinical features and management of Neonatal seizures	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.16	Discuss the etiology, clinical features and management of Neonatal Sepsis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.17	Discuss the etiology, clinical features and management of Perinatal infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.18	Identify and stratify risk in a sick neonate using IMNCI guidelines	S	SH	Y	DOAP session	Document in Log Book			
PE20.19	Discuss the etiology, clinical features and management of Neonatal hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.20	Identify clinical presentations of common surgical conditions in the new born including TEF, esophageal atresia, anal atresia, cleft lip and palate, congenital diaphragmatic hernia and causes of acute abdomen	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Genito-Urinary system Number of competencies: (17) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE21.1	Enumerate the etio-pathogenesis, clinical features, complications and management of Urinary Tract infection in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE21.2	Enumerate the etio-pathogenesis, clinical features, complications and management of acute post-streptococcal Glomerular Nephritis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.3	Discuss the approach and referral criteria to a child with Proteinuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.4	Discuss the approach and referral criteria to a child with Hematuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
PE21.5	Enumerate the etio-pathogenesis, clinical features, complications and management of Acute Renal Failure in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.6	Enumerate the etio-pathogenesis, clinical features, complications and management of Chronic Renal Failure in Children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.7	Enumerate the etio-pathogenesis, clinical features, complications and management of Wilms Tumor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.8	Elicit, document and present a history pertaining to diseases of the Genitourinary tract	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			General Surgery
PE21.9	Identify external markers for Kidney disease, like Failing to thrive, hypertension, pallor, Ichthyosis, anasarca	S	SH	Y	Bedside clinics, Skills lab	Document in log book			
PE21.10	Analyse symptom and interpret the physical findings and arrive at an appropriate provisional / differential diagnosis	S	SH	Y	Bedside clinics, Skills lab	Log book			
PE21.11	Perform and interpret the common analytes in a Urine examination	S	SH	Y	Bedside clinics, Skills lab	Skill assessment		Biochemistry, Pathology	
PE21.12	Interpret report of Plain X Ray of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE21.13	Enumerate the indications for and Interpret the written report of Ultra sonogram of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	
PE21.14	Recognize common surgical conditions of the abdomen and genitourinary system and enumerate the indications for referral including acute and subacute intestinal obstruction, appendicitis, pancreatitis, perforation intussusception, Phimosis, undescended testis, Chordee, hypospadiasis, Torsion testis, hernia Hydrocele, Vulval Synechiae	S	SH	Y	Bedside clinics, Skills lab	Log book assessment			General Surgery
PE21.15	Discuss and enumerate the referral criteria for children with genitourinary disorder	S	SH	Y	Bedside clinics, Skills lab	Log book assessment			
PE21.16	Counsel / educate a patient for referral appropriately	A/C	SH	Y	DOAP session	Document in Log book		AETCOM	
PE21.17	Describe the etiopathogenesis, grading, clinical features and management of hypertension in children	K	KH	Y	Lecture, Small group discussion	Short notes			
Topic: Approach to and recognition of a child with possible Rheumatologic problem Number of competencies: (03) Number of procedures that require certification:(NIL)									
PE22.1	Enumerate the common Rheumatological problems in children. Discuss the clinical approach to recognition and referral of a child with Rheumatological problem	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE22.2	Counsel a patient with Chronic illness	S	SH	N	Bedside clinics Skills lab	Log book			
PE22.3	Describe the diagnosis and management of common vasculitic disorders including Henoch Schonlein Purpura, Kawasaki Disease, SLE, JIA	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Cardiovascular system- Heart Diseases Number of competencies: (18) Number of procedures that require certification:(NIL)									
PE23.1	Discuss the Hemodynamic changes, clinical presentation, complications and management of Acyanotic Heart Diseases –VSD, ASD and PDA	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot's Physiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.6	Discuss the etio-pathogenesis, clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE23.7	Elicit appropriate history for a cardiac disease, analyse the symptoms e.g. breathlessness, chest pain, tachycardia, feeding difficulty, failing to thrive, reduced urinary output, swelling, syncope, cyanotic spells, Suck rest cycle, frontal swelling in infants. Document and present	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE23.8	Identify external markers of a cardiac disease e.g. Cyanosis, Clubbing, dependent edema, dental caries, arthritis, erythema rash, chorea, subcutaneous nodules, Oslers node, Janeway lesions and document	S	SH	Y	Bedside clinics, Skills Lab	Skill Assessment			
PE23.9	Record pulse, blood pressure, temperature and respiratory rate and interpret as per the age	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE23.10	Perform independently examination of the cardiovascular system – look for precordial bulge, pulsations in the precordium, JVP and its significance in children and infants, relevance of percussion in Pediatric examination, Auscultation and other system examination and document	S	SH	Y	Bedside clinics, Skills lab	Skill station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE23.11	Develop a treatment plan and prescribe appropriate drugs including fluids in cardiac diseases, anti -failure drugs, and inotropic agents	S	SH	Y	Bedside clinics, Skills lab	log book			
PE23.12	Interpret a chest X ray and recognize Cardiomegaly	S	SH	Y	Bedside clinics, Skills lab	Log book entry		Radiodiagnosis	
PE23.13	Choose and Interpret blood reports in Cardiac illness	S	P	Y	Bedside clinics, Small group discussion	Log book entry			
PE23.14	Interpret Pediatric ECG	S	SH	Y	Bedside clinics, Skills lab	Log book entry			
PE23.15	Use the ECHO reports in management of cases	S	SH	Y	Bedside clinics	Log book entry		Radiodiagnosis	
PE23.16	Discuss the indications and limitations of Cardiac catheterization	K	K	N	Small group discussion	Viva voce			
PE23.17	Enumerate some common cardiac surgeries like BT shunt, Potts and Waterston's and corrective surgeries	K	K	N	Small group discussion	Viva voce			
PE23.18	Demonstrate empathy while dealing with children with cardiac diseases in every patient encounter	A	SH	Y	Small group discussion	Document in Log Book		AETCOM	
Topic:Diarrhoeal diseases and Dehydration Number of competencies: (17) Number of procedures that require certification:(03)									
PE24.1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE24.3	Discuss the physiological basis of ORT, types of ORS and the composition of various types of ORS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE24.4	Discuss the types of fluid used in Paediatric diarrheal diseases and their composition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti-emetics in acute diarrheal diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.6	Discuss the causes, clinical presentation and management of persistent diarrhoea in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE24.7	Discuss the causes, clinical presentation and management of chronic diarrhoea in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.9	Elicit, document and present history pertaining to diarrheal diseases	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE24.10	Assess for signs of dehydration, document and present	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE24.11	Apply the IMNCI guidelines in risk stratification of children with diarrheal dehydration and refer	S	SH	Y	Bedside clinics, Skills lab	Document in Log book			
PE24.12	Perform and interpret stool examination including Hanging Drop	S	SH	N	Bedside clinics, Skills lab	Log book		Microbiology	
PE24.13	Interpret RFT and electrolyte report	S	SH	Y	Bedside clinics, Small group discussion	Document in Log Book			
PE24.14	Plan fluid management as per the WHO criteria	S	SH	Y	Bedside clinics, Small group activity	Skills Station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE24.15	Perform NG tube insertion in a manikin	S	P	Y	DOAP session	Document in Log book	2		
PE24.16	Perform IV cannulation in a model	S	P	Y	DOAP session	Document in Log book	2		
PE24.17	Perform Interosseous insertion model	S	P	Y	DOAP session	Document in Log book	2		
Topic: Malabsorption Number of competencies: (01) Number of procedures that require certification:(NIL)									
PE25.1	Discuss the etio-pathogenesis, clinical presentation and management of Malabsorption in Children and its causes including celiac disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
Topic: Acute and chronic liver disorders Number of competencies: (13) Number of procedures that require certification: (NIL)									
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.4	Discuss the etio-pathogenesis, clinical features and management of Portal Hypertension in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology	
PE26.5	Elicit document and present the history related to diseases of Gastrointestinal system	S	SH	Y	Bedside clinics, Skills lab	Skills Station			
PE26.6	Identify external markers for GI and Liver disorders e.g.. Jaundice, Pallor, Gynaecomastia, Spider angioma, Palmar erythema, Icthyosis, Caput medusa, Clubbing, Failing to thrive, Vitamin A and D deficiency	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE26.7	Perform examination of the abdomen, demonstrate organomegaly, ascites etc.	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE26.8	Analyse symptoms and interpret physical signs to make a provisional/ differential diagnosis	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			
PE26.9	Interpret Liver Function Tests, viral markers, ultra sonogram report	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Pathology	
PE26.10	Demonstrate the technique of liver biopsy in a Perform Liver Biopsy in a simulated environment	S	SH	Y	DOAP session	Document in log book			
PE26.11	Enumerate the indications for Upper GI endoscopy	K	K	N	Small group discussion	Viva voce			
PE26.12	Discuss the prevention of Hep B infection – Universal precautions and Immunisation	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Microbiology	
PE26.13	Counsel and educate patients and their family appropriately on liver diseases	A/C	P	y	Bedside clinics, Skills lab	Document in log book			
Topic: Pediatric Emergencies – Common Pediatric Emergencies Number of competencies: (35) Number of procedures that require certification:(10)									
PE27.1	List the common causes of morbidity and mortality in the under five children	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.2	Describe the etio-pathogenesis, clinical approach and management of cardiorespiratory arrest in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.3	Describe the etio-pathogenesis of respiratory distress in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE27.4	Describe the clinical approach and management of respiratory distress in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.5	Describe the etio-pathogenesis, clinical approach and management of Shock in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.6	Describe the etio-pathogenesis, clinical approach and management of Status epilepticus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.7	Describe the etio-pathogenesis, clinical approach and management of an unconscious child	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.8	Discuss the common types, clinical presentations and management of poisoning in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.9	Discuss oxygen therapy, in Pediatric emergencies and modes of administration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.10	Observe the various methods of administering Oxygen	S	KH	Y	Demonstration	Document in log book			
PE27.11	Explain the need and process of triage of sick children brought to health facility	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.12	Enumerate emergency signs and priority signs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.13	List the sequential approach of assessment of emergency and priority signs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.14	Assess emergency signs and prioritize	S	SH	Y	DOAP session, Skills lab	Skills Assessment			
PE27.15	Assess airway and breathing: recognise signs of severe respiratory distress. Check for cyanosis, severe chest indrawing, grunting	S	P	Y	DOAP session, Skills lab	Skills Assessment	3		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE27.16	Assess airway and breathing. Demonstrate the method of positioning of an infant & child to open airway in a simulated environment	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.17	Assess airway and breathing: administer oxygen using correct technique and appropriate flow rate	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.18	Assess airway and breathing: perform assisted ventilation by Bag and mask in a simulated environment	S	P	Y	DOAP session, Skills lab	Skills Assessment	3		
PE27.19	Check for signs of shock i.e. pulse, Blood pressure, CRT	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.20	Secure an IV access in a simulated environment	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PF27.21	Choose the type of fluid and calculate the fluid requirement in shock	S	P	Y	DOAP session, Small group activity	Skills Assessment	3		
PE27.22	Assess level of consciousness & provide emergency treatment to a child with convulsions/ coma - Position an unconscious child - Position a child with suspected trauma - Administer IV/per rectal Diazepam for a convulsing child in a simulated environment	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.23	Assess for signs of severe dehydration	S	P	Y	Bedside clinics, Skills lab	Skill station	3		
PE27.24	Monitoring and maintaining temperature: define hypothermia. Describe the clinical features, complications and management of Hypothermia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.25	Describe the advantages and correct method of keeping an infant warm by skin to skin contact	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE27.26	Describe the environmental measures to maintain temperature	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.27	Assess for hypothermia and maintain temperature	S	SH	Y	Skills lab	Skills Assessment			
PE27.28	Provide BLS for children in manikin	S	P	Y	Skills Lab		3		
PE.27.29	Discuss the common causes, clinical presentation, medico-legal implications of abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.30	Demonstrate confidentiality with regard to abuse	A	SH	Y	Skills lab, standardized patients	Skills Station			
PE27.31	Assess child for signs of abuse	S	SH	Y	DOAP session, Skills lab	Log book			
PE27.32	Counsel parents of dangerously ill / terminally ill child to break a bad news	S	SH	Y	DOAP session	Document in Log book			
PE27.33	Obtain Informed Consent	S	SH	Y	DOAP session	Document in Log book			
PE27.34	Willing to be a part of the ER team	A	SH	Y	DOAP session	Document in Log book			
PE27.35	Attends to emergency calls promptly	A	SH	Y	DOAP session	Document in Log Book			
Topic: Respiratory system Number of competencies: (20) Number of procedures that require certification: (NIL)									
PE28.1	Discuss the etio-pathogenesis, clinical features and management of Naso pharyngitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.2	Discuss the etio-pathogenesis of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.3	Discuss the clinical features and management of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.4	Discuss the etio-pathogenesis, clinical features and management of Acute Otitis Media (AOM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.5	Discuss the etio-pathogenesis, clinical features and management of Epiglottitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.6	Discuss the etio-pathogenesis, clinical features and management of Acute laryngo- trachea-bronchitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.7	Discuss the etiology, clinical features and management of Stridor in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.8	Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.9	Elicit, document and present age appropriate history of a child with upper respiratory problem including Stridor	S	SH	Y	Bedside clinics, skill lab	Skill Assessment		ENT	
PE28.10	Perform otoscopic examination of the ear	S	SH	Y	DOAP session	Skills Assessment		ENT	
PE28.11	Perform throat examination using tongue depressor	S	SH	Y	DOAP session	Skills Assessment		ENT	
PE28.12	Perform examination of the nose	S	SH	Y	DOAP session	Skills Assessment		ENT	
PE28.13	Analyse the clinical symptoms and interpret physical findings and make a provisional / differential diagnosis in a child with ENT symptoms	S	SH	Y	Bedside clinics	Skills Assessment			
PE28.14	Develop a treatment plan and document appropriately in a child with upper respiratory symptoms	S	SH	Y	Bedside clinics	Skills Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.15	Stratify risk in children with stridor using IMNCI guidelines	S	SH	Y	Bedside clinics	Log book documentation			
PE28.16	Interpret blood tests relevant to upper respiratory problems	S	SH	N	Bedside clinics, Small group discussion	Log book			
PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use written report in case of management Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in pediatric chest X-rays	S	SH	Y	Bedside clinics, Small group discussion	Skills Assessment		ENT, Radiodiagnosis	
PE28.18	Describe the etio-pathogenesis, diagnosis, clinical features, management and prevention of lower respiratory infections including bronchiolitis, wheeze associated LRTI Pneumonia and empyema	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skill Assessment/ Written/ Viva voce			
PE28.19	Describe the etio-pathogenesis, diagnosis, clinical features, management and prevention of asthma in children	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skill Assessment/ Written/ Viva voce		Respiratory Medicine	
PE28.20	Counsel the child with asthma on the correct use of inhalers in a simulated environment	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skills Assessment/ Written/ Viva voce		Respiratory Medicine	
Topic: Anemia and other Hemato-oncologic disorders in children Number of competencies: (20) Number of procedures that require certification: (NIL)									
PE29.1	Discuss the etio-pathogenesis, clinical features, classification and approach to a child with anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.2	Discuss the etio-pathogenesis, clinical features and management of Iron Deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE29.3	Discuss the etiopathogenesis, clinical features and management of VIT B12, Folate deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.4	Discuss the etio-pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sickle cell anaemia, Hereditary spherocytosis, Auto-immune hemolytic anaemia and hemolytic uremic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.5	Discuss the National Anaemia Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE29.6	Discuss the cause of thrombocytopenia in children: describe the clinical features and management of Idiopathic Thrombocytopenic Purpura (ITP)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.7	Discuss the etiology, classification, pathogenesis and clinical features of Hemophilia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.8	Discuss the etiology, clinical presentation and management of Acute Lymphoblastic Leukemia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.9	Discuss the etiology, clinical presentation and management of lymphoma in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.10	Elicit, document and present the history related to Hematology	S	SH	Y	Bedside clinics, Skills lab	Skills Station			
PE29.11	Identify external markers for hematological disorders e.g.. Jaundice, Pallor, Petechiae purpura, Ecchymosis, Lymphadenopathy, bone tenderness, loss of weight, Mucosal and large joint bleed	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE29.12	Perform examination of the abdomen, demonstrate organomegaly	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE29.13	Analyse symptoms and interpret physical signs to make a provisional/ differential diagnosis	S	SH	Y	Bedside clinics, Skill lab	Skill assessment			
PE29.14	Interpret CBC, LFT	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE29.15	Perform and interpret peripheral smear	S	SH	Y	DOAP session	Document in log book			
PE29.16	Discuss the indications for Hemoglobin electrophoresis and interpret report	K	K	N	Small group discussion	Viva voce		Biochemistry	
PE29.17	Demonstrate performance of bone marrow aspiration in manikin	S	SH	Y	Skills lab	Document in log Book			
PE29.18	Enumerate the referral criteria for Hematological conditions	S	SH	Y	Bedside clinics, Small group activity	Viva voce			
PE29.19	Counsel and educate patients about prevention and treatment of anemia	A/C	SH	Y	Bedside clinics, Skills lab	Document in log book			
PE29.20	Enumerate the indications for splenectomy and precautions	K	K	N	Small group Activity	Viva voce			
Topic: Systemic Pediatrics-Central Nervous system Number of competencis: (23) Number of procedures that require certification:(NIL)									
PE30.1	Discuss the etio-pathogenesis, clinical features , complications, management and prevention of meningitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.2	Distinguish bacterial, viral and tuberculous meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.3	Discuss the etio-pathogenesis, classification, clinical features, complication and management of Hydrocephalus in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE30.4	Discuss the etio-pathogenesis, classification, clinical features, and management of Microcephaly in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.5	Enumerate the Neural tube defects. Discuss the causes, clinical features, types, and management of Neural Tube defect	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.6	Discuss the etio-pathogenesis, clinical features, and management of Infantile hemiplegia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.7	Discuss the etio-pathogenesis, clinical features, complications and management of Febrile seizures in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.8	Define epilepsy. Discuss the pathogenesis, clinical types, presentation and management of Epilepsy in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.9	Define status Epilepticus. Discuss the clinical presentation and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.10	Discuss the etio-pathogenesis, clinical features and management of Mental retardation in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.11	Discuss the etio-pathogenesis, clinical features and management of children with cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.12	Enumerate the causes of floppiness in an infant and discuss the clinical features, differential diagnosis and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.13	Discuss the etio-pathogenesis, clinical features, management and prevention of Poliomyelitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.14	Discuss the etio-pathogenesis, clinical features and management of Duchene muscular dystrophy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.15	Discuss the etio-pathogenesis, clinical features and management of Ataxia in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE30.16	Discuss the approach to and management of a child with headache	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.17	Elicit document and present an age appropriate history pertaining to the CNS	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE30.18	Demonstrate the correct method for physical examination of CNS including identification of external markers. Document and present clinical findings	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE30.19	Analyse symptoms and interpret physical findings and propose a provisional / differential diagnosis	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE30.20	Interpret and explain the findings in a CSF analysis	S	SH	Y	Small group discussion	Log book		Microbiology	
PE30.21	Enumerate the indication and discuss the limitations of EEG, CT, MRI	K	K	N	Bedside clinics	Log book			
PE30.22	Interpret the reports of EEG, CT, MRI	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	
PE30.23	Perform in a mannequin lumbar puncture. Discuss the indications, contraindication of the procedure	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
Topic: Allergic Rhinitis , Atopic Dermatitis, Bronchial Asthma , Urticaria Angioedema Number of competencies: (12) Number of procedures that require certification: (NIL)									
PE31.1	Describe the etio-pathogenesis, management and prevention of Allergic Rhinitis in Children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE31.2	Recognize the clinical signs of Allergic Rhinitis	S	SH	Y	Bedside clinics' Skill Lab	Skill Assessment		ENT	
PE31.3	Describe the etio-pathogenesis, clinical features and management of Atopic dermatitis in Children	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE31.4	Identify Atopic dermatitis and manage	S	SH		Bedside clinics Skills lab	Skill Assessment		Dermatology, Venereology & Leprosy	
PE31.5	Discuss the etio-pathogenesis, clinical types, presentations, management and prevention of childhood Asthma	K	KH	Y	Lecture Small group discussion	Written/ Viva voce			
PE31.6	Recognise symptoms and signs of Asthma	S	SH	Y	Bedside clinic, Small group activity	Skill Assessment			
PE31.7	Develop a treatment plan for Asthma appropriate to clinical presentation & severity	S	SH	Y	Bedside clinic, Small group activity	Skill Assessment			
PE31.8	Enumerate criteria for referral	K	KH	Y	Bedside clinic, Small group activity	Written/ Viva voce			
PE31.9	Interpret CBC and CX Ray in Asthma	S	SH	Y	Bedside clinic, Small group activity	Skill Assessment			
PE31.10	Enumerate the indications for PFT	K	K	N	Bedside clinic, Small group activity	Viva voce			
PE31.11	Observe administration of Nebulisation	S	SH	Y	DOAP session	Document in log book			
PE31.12	Discuss the etio-pathogenesis, clinical features and complications and management of Urticaria Angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Chromosomal Abnormalities Number of competencies: (13) Number of procedures that require certification: (NIL)									
PE32.1	Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Down's Syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE32.2	Identify the clinical features of Down's Syndrome	S	SH	Y	Bedside clinics, Skills lab	log book		General Medicine	
PE32.3	Interpret normal Karyotype and recognize Trisomy 21	S	SH	Y	Bedside clinics, Skills lab	Log book			General Medicine
PE32.4	Discuss the referral criteria and Multidisciplinary approach to management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE32.5	Counsel parents regarding 1. Present child 2. Risk in the next pregnancy	A/C	SH	N	Bedside clinics, Skills lab	Log book			
PE32.6	Discuss the genetic basis, risk factors, clinical features, complications, prenatal diagnosis, management and genetic counselling in Turner's Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Obstetrics & Gynaecology	
PE32.7	Identify the clinical features of Turner Syndrome	S	SH	N	Bedside clinics, Skills lab	Log book		General Medicine	
PE32.8	Interpret normal Karyotype and recognize the Turner Karyotype	S	SH	N	Bedside clinics, Skills lab	log book		General Medicine, Obstetrics & Gynaecology	
PE32.9	Discuss the referral criteria and multidisciplinary approach to management of Turner Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynaecology
PE32.10	Counsel parents regarding 1. Present child 2. Risk in the next pregnancy	A/C	SH	N	Bedside clinics, Skills lab	Log book			
PE32.11	Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Klinefelter Syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE32.12	Identify the clinical features of Klinefelter Syndrome	S	SH	N	Bedside clinics, Skills lab	Log book		General Medicine	
PE32.13	Interpret normal Karyotype and recognize the Klinefelter Karyotype	S	SH	N	Bedside clinics, Skills lab	Log book		General Medicine	
Topic: Endocrinology Number of competencies: (11) Number of procedures that require certification: (02)									
PE33.1	Describe the etio-pathogenesis clinical features, management of Hypothyroidism in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE33.2	Recognize the clinical signs of Hypothyroidism and refer	S	SH	Y	Bedside clinics, Skill Lab	Skill Assessment			
PE33.3	Interpret and explain neonatal thyroid screening report	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE33.4	Discuss the etio-pathogenesis, clinical types, presentations, complication and management of Diabetes mellitus in children	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce			
PE33.5	Interpret Blood sugar reports and explain the diagnostic criteria for Type 1 Diabetes	S	SH	Y	Bedside clinic, small group activity	Skill Assessment			
PE33.6	Perform and interpret Urine Dip Stick for Sugar	S	P	Y	DOAP session	Skill Assessment	3	Biochemistry	
PE33.7	Perform genital examination and recognize Ambiguous Genitalia and refer appropriately	S	SH	Y	Bedside clinic Skills lab	Skill Assessment			
PE33.8	Define precocious and delayed Puberty	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE33.9	Perform Sexual Maturity Rating (SMR) and interpret	S	SH	Y	Bedside clinics Skills Lab	Skill Assessment			
PE33.10	Recognize precocious and delayed Puberty and refer	S	SH	Y	Bedside clinics Skills Lab	log book			
PE33.11	Identify deviations in growth and plan appropriate referral	S	P	Y	Bedside clinics Skills Lab	log book	2		
Topic:Vaccine preventable Diseases - Tuberculosis Number of competencies: (20) Number of procedures that require certification: (03)									
PE34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.5	Able to elicit, document and present history of contact with tuberculosis in every patient encounter	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			Respiratory Medicine
PE34.6	Identify a BCG scar	S	P	Y	Bedside clinics, Skills lab	Skill Assessment	3	Microbiology	Respiratory Medicine
PE34.7	Interpret a Mantoux test	S	P	Y	Bedside clinics Skills lab	Skill assessment	3	Microbiology	Respiratory Medicine
PE34.8	Interpret a Chest Radiograph	S	SH	Y	Bedside clinics Skills lab	Skill assessment		Radiodiagnosis	Respiratory Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	SH	N	Bedside clinics, Small group discussion	log book		Microbiology	Respiratory Medicine
PE34.10	Discuss the various samples for demonstrating the organism e.g. Gastric Aspirate, Sputum , CSF, FNAC	K	KH	Y	Bedside clinics, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.11	Perform AFB staining	S	P	Y	DOAP session	Log book/Journal	3	Microbiology	Respiratory Medicine
PE34.12	Enumerate the indications and discuss the limitations of methods of culturing M.Tuberculi	K	KH	Y	Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.13	Enumerate the newer diagnostic tools for Tuberculosis including BACTEC CBNAAT and their indications	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE34.14	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.15	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with exanthematous illnesses like Measles, Mumps, Rubella & Chicken pox	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.16	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Diphtheria, Pertussis, Tetanus.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.17	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Typhoid	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE34.18	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Dengue, Chikungunya and other vector born diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.19	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of children with Common Parasitic infections, malaria, leishmaniasis, filariasis, helminthic infestations, amebiasis, giardiasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.20	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Rickettsial diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
Topic: The role of the physician in the community									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.9	Demonstrate surface marking of lines of pleural reflection, Lung borders and fissures, Trachea, Heart borders, Apex beat & surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Medicine, Pediatrics	Physiology
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	Lecture	Written		Pediatrics	Physiology
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
AN74.1	Describe the various modes of inheritance with examples	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Hemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	K	KH	N	Lecture	Written		General Medicine, Pediatrics	
AN75.1	Describe the structural and numerical chromosomal aberrations	K	KH	Y	Lecture	Written		Pediatrics	
AN75.2	Explain the terms mosaics and chimeras with example	K	KH	N	Lecture	Written		Pediatrics	
AN75.3	Describe the genetic basis & clinical features of Prader Willi syndrome, Edward syndrome & Patau syndrome	K	KH	N	Lecture	Written		Pediatrics	
AN75.4	Describe genetic basis of variation; polymorphism and mutation	K	KH	Y	Lecture	Written		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN75.5	Describe the principles of genetic counselling	K	KH	Y	Lecture	Written		Pediatrics, Obstetrics & Gynaecology	
Physiology									
PY11.6	Describe physiology of Infancy	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PY11.9	Interpret growth charts	K	KH	Y	Small group teaching	Practical/OSPE/ Viva voce		Pediatrics	
PY11.10	Interpret anthropometric assessment of infants	K	KH	Y	Small group teaching	Practical/OSPE/Viva voce		Pediatrics	
Biochemistry									
BI5.3	Describe the digestion and absorption of dietary proteins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI5.4	Describe common disorders associated with protein metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI7.3	Describe gene mutations and basic mechanism of regulation of gene expression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI7.4	Describe applications of recombinant DNA technology, PCR in the diagnosis and treatment of diseases with genetic basis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables. (macro-molecules & its importance)	K	KH	Y	Lecture , Small group discussion	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
BI10.5	Describe antigens and concepts involved in vaccine development	K	KH	Y	Lecture , Small group discussion	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
Pathology									
PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Pediatrics	
PA21.2	Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP and hemophilias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA28.12	Define, classify and describe the genetics, inheritance etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
PA35.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Microbiology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	Pathology
MI1.9	Discuss the immunological basis of vaccines and describe the Universal Immunisation schedule	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
Pharmacology									
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics	Microbiology
PH1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP sessions	Skills assessment		Pharmacology, General Medicine	
Community Medicine									
CM3.3	Describe the aetiology and basis of water borne diseases /jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Microbiology, General Medicine, Pediatrics	
CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP session	Skill Assessment		General Medicine, Pediatrics	
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP session	Skill Assessment		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.6	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
CM5.8	Describe and discuss the importance and methods of food fortification and effects of additives and adulteration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
CM6.1	Formulate a research question for a study	K	KH	Y	Small group, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.2	Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Y	Small group discussion, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.3	Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Y	Small group discussion, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.4	Enumerate, discuss and demonstrate common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Y	Small group discussion, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
CM8.3	Enumerate and describe disease specific National Health Programs including their prevention and treatment of a case	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	
CM8.4	Describe the principles and enumerate the measures to control a disease epidemic	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM8.5	Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM9.2	Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Y	Lecture, Small group discussion, DOAP sessions	Skill assessment		Obstetrics & Gynaecology, Pediatrics	
CM10.1	Describe the current status of Reproductive, maternal, newborn and Child Health	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.2	Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.5	Describe Universal Immunization Program; Integrated Management of Neonatal and Childhood Illness (IMNCI) and other existing Programs	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Pediatrics	
Forensic Medicine & Toxicology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially – maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. -- documents of issuance of wound certificate -- documents of issuance of drunkenness certificate. -- documents of issuance of sickness and fitness certificate. -- documents for issuance of death certificate. -- documents of Medical Certification of Cause of Death - Form Number 4 and 4A -- documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Paediatrics	
FM2.27	Define and discuss infanticide, foeticide and stillbirth	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pediatrics	
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden infants death syndrome and Munchausen's syndrome by proxy	K	KH	Y	Lecture, Small group discussions, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pediatrics, Human Anatomy	
FM3.29	Describe and discuss child abuse and battered baby syndrome	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Dermatology, Venereology & Leprosy									
DR5.1	Describe the etiology, microbiology, pathogenesis, natural history, clinical features, presentations and complications of scabies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
DR5.2	Identify and differentiate scabies from other lesions	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR5.3	Enumerate and describe the pharmacology, administration and adverse reaction of pharmacotherapies for scabies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Pharmacology
DR6.1	Describe the etiology, pathogenesis and diagnostic features of pediculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR6.2	Identify and differentiate pediculosis from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	
DR7.1	Describe the etiology, microbiology, pathogenesis, clinical presentations and diagnostic features of dermatophytes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR8.1	Describe the etiology, microbiology, pathogenesis, clinical presentations and diagnostic features of common viral infections of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR17.1	Enumerate and identify the cutaneous findings in vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill assessment/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
Anesthesiology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AS2.1	Enumerate the indications, describe the steps and demonstrate in a simulated environment basic life support in adults children and neonates	S	SH	N	DOAP session	Skill assessment		General Medicine, Pediatrics	
Psychiatry									
PS14.1	Enumerate and describe the magnitude and etiology of psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.2	Enumerate, elicit, describe and document clinical features in patients with psychiatric disorders occurring in childhood and adolescence	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS14.3	Describe the treatment of stress related disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.4	Demonstrate family education in a patient with psychiatric disorders occurring in childhood and adolescence in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS14.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.1	Describe the aetiology and magnitude of mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.2	Describe and discuss intelligence quotient and its measurement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.3	Elicit and document a history and clinical examination and choose appropriate investigations in a patient with mental retardation	K/S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS15.4	Describe the psychosocial interventions and treatment used in mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
General Medicine									
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
Obstetrics & Gynecology									
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	Pediatrics
OG18.1	Describe and discuss the assessment of maturity of the newborn, diagnosis of birth asphyxia, principles of resuscitation, common problems	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.2	Demonstrate the steps of neonatal resuscitation in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Pediatrics
OG18.3	Describe and discuss the diagnosis of birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.4	Describe the principles of resuscitation of the newborn and enumerate the common problems encountered	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Physical Medicine & Rehabilitation									
PM3.1	Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	Pediatrics
PM3.2	Recognize, describe and discuss the spectrum of multiple disability : cognitive, motor, visual and hearing in cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.3	Recognize, describe and discuss the role of special education in children with learning disabilities	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.4	Demonstrate spasticity, rigidity and dystonia in children with cerebral palsy	S	SH	Y	DOAP session, Small group discussion, Bedside clinic	Skill assessment			Pediatrics
PM3.5	Enumerate the indications and describe the therapies for spasticity including medications, serial casts, nerve blocks, botulinum toxin injections	K	KH	Y	Lecture, Small group discussion			Pharmacology	Pediatrics, Orthopedics
PM3.6	Enumerate the indications and describe prevention of joint subluxations and contractures by proper positioning, and use of special chairs, and appliances	K	KH	Y	DOAP session, Small group discussion, Bedside clinic				Pediatrics
PM3.7	Enumerate the first aid measures to be used in patients with seizures	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM4.2	Describe and discuss the principles of management of chronic pain and role of common modalities (moist heat, ultrasound, Short wave diathermy)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

PSYCHIATRY (CODE: PS)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PSYCHIATRY									
Topic: Doctor patient relationship		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
PS1.1	Establish rapport and empathy with patients	A/C	SH	Y	DOAP session	Skill station			
PS1.2	Describe the components of communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS1.3	Demonstrate breaking of bad news in a simulated environment	A/C	SH	Y	DOAP session	Skill station			
PS1.4	Describe and demonstrate the importance of confidentiality in patient encounters	A/C	SH	Y	DOAP session	Faculty observation			
Topic: Mental health		Number of competencies: (05)			Number of procedures that require certification:(NIL)				
PS2.1	Define stress and describe its components and causes	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS2.2	Describe the role of time management, study skills, balanced diet and sleep wake habits in stress avoidance	K	KH	Y	Lecture, Small group discussion	Viva voce			
PS2.3	Define and describe the principles and components of learning memory and emotions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS2.4	Describe the principles of personality development and motivation	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS2.5	Define and distinguish normality and abnormality	K	K	Y	Lecture, Small group discussion	Viva voce			
Topic: Introduction to psychiatry		Number of competencies: (12)			Number of procedures that require certification: (NIL)				
PS3.1	Describe the growth of psychiatry as a medical specialty, its history and contribution to society	K	KH	Y	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS3.2	Enumerate, describe and discuss important signs & symptoms of common mental disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.3	Elicit, present and document a history in patients presenting with a mental disorder	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS3.4	Describe the importance of establishing rapport with patients	S/A	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Faculty observation			
PS3.5	Perform, demonstrate and document a minimal examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS3.6	Describe and discuss biological, psychological & social factors & their interactions in the causation of mental disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.7	Enumerate and describe common organic psychiatric disorders, magnitude, etiology and clinical features	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS3.8	Enumerate and describe the essential investigations in patients with organic psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS3.9	Describe the steps and demonstrate in a simulated environment family education in patients with organic psychiatric disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS3.10	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.11	Enumerate the appropriate conditions for specialist referral in patients with psychiatric disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.12	Describe, discuss and distinguish psychotic & non-psychotic (Mood, Anxiety, Stress related) disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychotic disorders		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PS4.1	Describe the magnitude and etiology of alcohol and substance use disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS4.2	Elicit, describe and document clinical features of alcohol and substance use disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS4.3	Enumerate and describe the indications and interpret laboratory and other tests used in alcohol and substance abuse disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS4.4	Describe the treatment of alcohol and substance abuse disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS4.5	Demonstrate family education in a patient with alcohol and substance abuse in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		AETCOM	
PS4.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in alcohol and substance abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS4.7	Enumerate the appropriate conditions for specialist referral in patients with alcohol and substance abuse disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychotic disorders Number of competencies: (06) Number of procedures that require certification: (NIL)									
PS5.1	Classify and describe the magnitude and etiology of schizophrenia & other psychotic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS5.2	Enumerate, elicit, describe and document clinical features, positive s	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS5.3	Describe the treatment of schizophrenia including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS5.4	Demonstrate family education in a patient with schizophrenia in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS5.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in schizophrenia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS5.6	Enumerate the appropriate conditions for specialist referral in patients with psychotic disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Depression Number of competencies: (07) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS6.1	Classify and describe the magnitude and etiology of depression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS6.2	Enumerate, elicit, describe and document clinical features in patients with depression	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS6.3	Enumerate and describe the indications and interpret laboratory and other tests used in depression	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS6.4	Describe the treatment of depression including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS6.5	Demonstrate family education in a patient with depression in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS6.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in depression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS6.7	Enumerate the appropriate conditions for specialist referral in patients with depression	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Bipolar disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS7.1	Classify and describe the magnitude and etiology of bipolar disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS7.2	Enumerate, elicit, describe and document clinical features in patients with bipolar disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS7.3	Enumerate and describe the indications and interpret laboratory and other tests used in bipolar disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS7.4	Describe the treatment of bipolar disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS7.5	Demonstrate family education in a patient with bipolar disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS7.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in bipolar disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS7.7	Enumerate the appropriate conditions for specialist referral in patients with bipolar disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Anxiety disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS8.1	Enumerate and describe the magnitude and etiology of anxiety disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS8.2	Enumerate, elicit, describe and document clinical features in patients with anxiety disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS8.3	Enumerate and describe the indications and interpret laboratory and other tests used in anxiety disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS8.4	Describe the treatment of anxiety disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.5	Demonstrate family education in a patient with anxiety disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS8.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in anxiety disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.7	Enumerate the appropriate conditions for specialist referral in anxiety disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Stress related disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS9.1	Enumerate and describe the magnitude and etiology of stress related disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS9.2	Enumerate, elicit, describe and document clinical features in patients with stress related disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS9.3	Enumerate and describe the indications and interpret laboratory and other tests used in stress related disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS9.4	Describe the treatment of stress related disorders including behavioural and psychosocial therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS9.5	Demonstrate family education in a patient with stress related disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS9.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in stress related disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS9.7	Enumerate the appropriate conditions for specialist referral in stress disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Somatoform disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS10.1	Enumerate and describe the magnitude and etiology of somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS10.2	Enumerate, elicit, describe and document clinical features in patients with somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.3	Enumerate and describe the indications and interpret laboratory and other tests used in somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.4	Describe the treatment of somatoform disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.5	Demonstrate family education in a patient with somatoform, dissociative and conversion disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS10.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.7	Enumerate the appropriate conditions for specialist referral in patients with somato form dissociative and conversion disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Personality disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS11.1	Enumerate and describe the magnitude and etiology of personality disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS11.2	Enumerate, elicit, describe and document clinical features in patients with personality disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS11.3	Enumerate and describe the indications and interpret laboratory and other tests used in personality disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS11.4	Describe the treatment of personality disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS11.5	Demonstrate family education in a patient with personality disorders in a simulated environment	S/A/C	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS11.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in personality disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS11.7	Enumerate the appropriate conditions for specialist referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychosomatic disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS12.1	Enumerate and describe the magnitude and etiology of psychosomatic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS12.2	Enumerate, elicit, describe and document clinical features in patients with magnitude and etiology of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.3	Enumerate and describe the indications and interpret laboratory and other tests of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.4	Describe the treatment of psychosomatic disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS12.5	Demonstrate family education in a patient with psychosomatic disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS12.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychosomatic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS12.7	Enumerate the appropriate conditions for specialist referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Psychosexual and gender identity disorders		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PS13.1	Enumerate and describe the magnitude and etiology of psychosexual and gender identity disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS13.2	Enumerate, elicit, describe and document clinical features in patients with magnitude and etiology of psychosexual and gender identity disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS13.3	Enumerate and describe the indications and interpret laboratory and other tests used in psychosexual and gender identity disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS13.4	Describe the treatment of psychosexual and gender identity disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS13.5	Demonstrate family education in a patient with psychosexual and gender identity disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS13.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychosexual and gender identity disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS13.7	Enumerate the appropriate conditions for specialist referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychiatric disorders in childhood and adolescence		Number of competencies: (06)			Number of procedures that require certification: (NIL)				
PS14.1	Enumerate and describe the magnitude and etiology of psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.2	Enumerate, elicit, describe and document clinical features in patients with psychiatric disorders occurring in childhood and adolescence	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS14.3	Describe the treatment of stress related disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.4	Demonstrate family education in a patient with psychiatric disorders occurring in childhood and adolescence in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS14.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.6	Enumerate the appropriate conditions for specialist referral in children and adolescents with psychiatric disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Mental retardation Number of competencies: (04) Number of procedures that require certification: (NIL)									
PS15.1	Describe the aetiology and magnitude of mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.2	Describe and discuss intelligence quotient and its measurement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.3	Elicit and document a history and clinical examination and choose appropriate investigations in a patient with mental retardation	K/S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS15.4	Describe the psychosocial interventions and treatment used in mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Topic: Psychiatric disorders in the elderly Number of competencies: (05) Number of procedures that require certification: (NIL)									
PS16.1	Enumerate and describe common psychiatric disorders in the elderly including dementia, depression and psychosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS16.2	Describe the aetiology and magnitude of psychiatric illness in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PS16.3	Describe the therapy of psychiatric illness in elderly including psychosocial and behavioural therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS16.4	Demonstrate family education in a patient with psychiatric disorders occurring in the elderly in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		General Medicine	
PS16.5	Enumerate the appropriate conditions for specialist referral in psychiatric disorders in the elderly	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychiatric emergencies Number of competencies: (03) Number of procedures that require certification: (NIL)									
PS17.1	Enumerate and describe the recognition and clinical presentation of psychiatric emergencies (Suicide, Deliberate Self Harm, Violent behaviour)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS17.2	Describe the initial stabilisation and management of psychiatric emergencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS17.3	Enumerate the appropriate conditions for specialist referral in patients with psychiatric emergencies	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Therapeutics Number of competencies: (03) Number of procedures that require certification: (NIL)									
PS18.1	Enumerate the indications and describe the pharmacology, dose and side effects of commonly use drugs in psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharamcology	
PS18.2	Enumerate the indications for modified electroconvulsive therapy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS18.3	Enumerate and describe the principles and role of psychosocial interventions in psychiatric illness including psychotherapy, behavioural therapy and rehabilitation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Miscellaneous Number of competencies: (06) Number of procedures that require certification: (NIL)									
PS19.1	Describe the relevance, role and status of community psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS19.2	Describe the objectives strategies and contents of the National Mental Health Act	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PS19.3	Describe and discuss the basic legal and ethical issues in psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine & Toxicology, AETCOM	
PS19.4	Enumerate and describe the salient features of the prevalent mental health laws in India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PS19.5	Describe the concept and principles of preventive psychiatry and mental health promotion (positive mental health); and community education	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PS19.6	Enumerate and describe the identifying features and the principles of participatory management of mental illness occurring during and after disasters	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Physiology									
PY10.7	Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
PY10.8	Describe and discuss behavioural and EEG characteristics during sleep and mechanism responsible for its production	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.9	Describe and discuss the physiological basis of memory, learning and speech	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.12	Identify normal EEG forms	S	S	Y	Small group teaching	OSPE/Viva voce		Psychiatry	
Pharmacology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, antipsychotic, antidepressant drugs, antimaniacs, opioid agonists and antagonists, drugs used for neurodegenerative disorders, antiepileptics drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.20	Describe the effects of acute and chronic ethanol intake. Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Psychiatry	
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussions	Written/Viva voce		Psychiatry	Forensic Medicine
PH1.23	Describe the process and mechanism of drug deaddiction	K/ S	KH	Y	Lecture, Small group discussions	Written/Viva voce		Psychiatry	
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	K	KH	Y	Small group discussion	Short note/Viva voce		Psychiatry	
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs.	A/C	SH	Y	Small group discussion	Skill station		Psychiatry	
Community Medicine									
CM15.1	Define and describe the concept of mental Health	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
CM15.2	Describe warning signals of mental health disorder	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
CM15.3	Describe National Mental Health program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
Forensic Medicine & Toxicology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
FM3.17	Describe and discuss the sexual perversions fetichism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM5.1	Classify common mental illnesses including post-traumatic stress disorder (PTSD)	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.2	Define, classify and describe delusions, hallucinations, illusion, lucid interval and obsessions with exemplification	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.3	Describe civil and criminal responsibilities of a mentally ill person	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.4	Differentiate between true insanity from feigned insanity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry, General Medicine	
FM5.6	Describe the Indian Mental Health Act, 1987 with special reference to admission, care and discharge of a mentally ill person	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
General Medicine									
IM17.14	Counsel patients with migraine and tension headache on lifestyle changes and need for prophylactic therapy	A/C	SH	N	DOAP session	Skill Assessment		Pharmacology	Psychiatry
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
IM24.2	Perform multidimensional geriatric assessment that includes medical, psycho-social and functional components	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Psychiatry	
IM24.5	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of depression in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM24.7	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of personality changes in the elderly	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.19	Enumerate and describe the social problems in the elderly including isolation, abuse, change in family structure and their impact on health	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
Pediatrics									
PE1.2	Discuss and describe the patterns of growth in infants, children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.3	Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical growth in infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.5	Define development and discuss the normal developmental milestones with respect to motor, behaviour, social, adaptive and language	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.4	Describe the clinical features, diagnosis and management of Breath Holding spells	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.5	Describe the clinical features, diagnosis and management of Temper tantrums	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.7	Describe the clinical features, diagnosis and management of Fussy infant	K	K	N	Lecture, Small group discussion	Written			Psychiatry
PE5.10	Discuss the role of child guidance clinic in children with Behavioral problems and the referral criteria	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.2	Describe the physical , physiological and psychological changes during Adolescence (Puberty)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE6.4	Describe Adolescent sexuality and common problems related to it	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.5	Explain Adolescent Nutrition and common nutritional problems	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.6	Discuss the common Adolescent Eating disorders (Anorexia Nervosa, Bulimia)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.7	Describe the common mental health problems during Adolescence	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			Psychiatry
PE6.13	Enumerate the prevalence and the importance of recognition of sexual drug abuse in adolescents and children	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
Physical Medicine & Rehabilitation									
PM 9.1	Describe rehabilitative aspects as they pertain to the elderly including patients with dementia, depression, incontinence immobility and nutritional needs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Psychiatry
Dermatology, Venereology & Leprosy									
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Psychiatry
Forensic Medicine & Toxicology									
FM2.5	Discuss moment of death, modes of death- coma, asphyxia and syncope	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	Pathology
FM3.14	SEXUAL OFFENCES Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce / OSCE		Obstetrics & Gynaecology, Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
FM3.15	SEXUAL OFFENCES Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce / OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.16	SEXUAL OFFENCES Describe and discuss adultery and unnatural sexual offences- sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	

DERMATOLOGY, VENEROLOGY AND LEPROSY (CODE: DR)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DERMATOLOGY, VENEREOLOGY & LEPROSY									
Topic: Acne Number of competencies:(03) Number of procedures that require certificaion:(NIL)									
DR1.1	Enumerate the causative and risk factors of acne	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
DR1.2	Identify and grade the various common types of acne	S	SH	Y	Bedside clinic	Skill assessment			
DR1.3	Describe the treatment and preventive measures for various kinds of acne	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Vitiligo Number of competencies: (02) Number of procedures that require certificaion:(NIL)									
DR2.1	Identify and differentiate vitiligo from other causes of hypopigmented lesions	S	S	Y	Bedside clinic	Skill assessment			
DR2.2	Describe the treatment of vitiligo	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Papulosquamous disorders Number of competencies:(03) Number of procedures that require certificaion:(NIL)									
DR3.1	Identify and distinguish psoriatic lesions from other causes	K	SH	Y	Bedside clinic	Skill assessment/ Written/ Viva voce			
DR3.2	Demonstrate the grattage test	S	SH	Y	Bedside clinic	Skill assessment			
DR3.3	Enumerate the indications for and describe the various modalities of treatment of psoriasis including topical, systemic and phototherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lichen Planus Number of competencies:(02) Number of procedures that require certificaion:(NIL)									
DR4.1	Identify and distinguish lichen planus lesions from other causes	S	SH	Y	Bedside clinic	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR4.2	Enumerate and describe the treatment modalities for lichen planus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Scabies Number of competencies:(03) Number of procedures that require certificaion:(NIL)									
DR5.1	Describe the etiology, microbiology, pathogenesis, natural history, clinical features, presentations and complications of scabies in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
DR5.2	Identify and differentiate scabies from other lesions in adults and children	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	
DR5.3	Enumerate and describe the pharmacology, administration and adverse reaction of pharmacotherapies for scabies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Pharmacology
Topic: Pediculosis Number of competencies : (02) Number of procedures that require certificaion:(NIL)									
DR6.1	Describe the etiology pathogenesis and diagnostic features of pediculosis in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR6.2	Identify and differentiate pediculosis from other skin lesions in adults and children	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	
Topic: Fungal Infections Number of competencies: (03) Number of procedures that require certificaion:(NIL)									
DR7.1	Describe the etiology, microbiology, pathogenesis and clinical presentations and diagnostic features of dermatophytes in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR7.2	Identify Candida species in fungal scrapings and KOH mount	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR7.3	Describe the pharmacology and action of antifungal (systemic and topical) agents. Enumerate side effects of antifungal therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pharmacology
Topic: Viral infections Number of competencies (07) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR8.1	Describe the etiology, microbiology, pathogenesis and clinical presentations and diagnostic features of common viral infections of the skin in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR8.2	Identify and distinguish herpes simplex and herpes labialis from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.3	Identify and distinguish herpes zoster and varicella from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.4	Identify and distinguish viral warts from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.5	Identify and distinguish molluscum contagiosum from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.6	Enumerate the indications, describe the procedure and perform a Tzanck smear	S	SH	Y	DOAP session	Skill assessment			
DR8.7	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for common viral illnesses of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
Topic: Leprosy Number of competencies: (07) Number of procedures that require certification: (NIL)									
DR9.1	Classify, describe the epidemiology, etiology, microbiology, pathogenesis, clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology, Community Medicine
DR9.2	Demonstrate (and classify based on) the clinical features of leprosy including an appropriate neurologic examination	S	SH	Y	Bedside clinic	Bedside clinic/ Skill assessment		General Medicine	
DR9.3	Enumerate the indications and observe the performance of a slit skin smear in patients with leprosy	S	KH	Y	Bedside clinic, DOAP session	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR9.4	Enumerate, describe and identify lepra reactions and supportive measures and therapy of lepra reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on national guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on the WHO guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Psychiatry
Topic: Sexually Transmitted Diseases Number of competencies: (11) Number of procedures that require certification:(NIL)									
DR10.1	Identify and classify syphilis based on the presentation and clinical manifestations	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.2	Identify spirochete in a dark ground microscopy	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
DR10.4	Describe the prevention of congenital syphilis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR10.5	Counsel in a non-judgemental and empathetic manner patients on prevention of sexually transmitted disease	C	SH	Y	DOAP session	Skill assessment		General Medicine	
DR10.6	Describe the etiology, diagnostic and clinical features of non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR10.7	Identify and differentiate based on the clinical features non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
DR10.9	Describe the syndromic approach to ulcerative sexually transmitted disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR10.10	Describe the etiology, diagnostic and clinical features and management of gonococcal and non-gonococcal urethritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR10.11	Describe the etiology, diagnostic and clinical features and management of vaginal discharge	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Topic: HIV Number of competencies: (03) Number of procedures that require certification: (NIL)									
DR11.1	Describe the etiology, pathogenesis and clinical features of the dermatologic manifestations of HIV and its complications including opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
DR11.2	Identify and distinguish the dermatologic manifestations of HIV, its complications, opportunistic infections and adverse reactions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
Topic: Dermatitis and Eczema Number of competencies: (07) Number of procedures that require certification: (NIL)									
DR12.1	Describe the aetiopathogenesis of eczema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR12.2	Identify eczema and differentiate it from lichenification and changes of aging	S	SH	Y	Bedside clinic	Skill assessment			
DR12.3	Classify and grade eczema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
DR12.4	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the treatment of eczema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
DR12.5	Define erythroderma. Enumerate and identify the causes of erythroderma. Discuss the treatment	S	KH	Y	Bedside clinic	Written/ Skill assessment			
DR12.6	Identify and distinguish exfoliative dermatitis from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology, Microbiology
Topic: Vesicubullous Lesions Number of competencies:(03) Number of procedures that require certificaion:(NIL)									
DR13.1	Distinguish bulla from vesicles	S	SH	Y	Bedside clinic	Skill assessment			
DR13.2	Demonstrate the Tzanck test, nikolsky sign and bulla spread sign	S	SH	Y	Bedside clinic	Skill assessment			
DR13.3	Calculate the body surface area of involvement of vesiculobullous lesions	S	SH	Y	Bedside clinic	Skill assessment			
Topic: Urticaria Angioedema Number of competencies: (05) Number of procedures that require certificaion:(NIL)									
DR14.1	Describe the etiology, pathogenesis and clinical precipitating features and classification of Urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR14.2	Identify and distinguish urticarial from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR14.3	Demonstrate dermographism	S	SH	Y	Bedside clinic	Skill assessment			
DR14.4	Identify and distinguish angioedema from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR14.5	Enumerate the indications and describe the pharmacology indications and adverse reactions of drugs used in the urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
Topic: Pyoderma Number of competencies: (04) Number of procedures that require certification:(NIL)									
DR15.1	Identify and distinguish folliculitis impetigo and carbuncle from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR15.2	Identify staphylococcus on a gram stain	S	SH	Y	Bedside clinic	Skill assessment			Microbiology
DR15.3	Enumerate the indications and describe the pharmacology, indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	Microbiology, Pharmacology
DR15.4	Enumerate the indications for surgical referral	S	KH	Y	DOAP session	Written/ Viva voce		General Surgery	
Topic: Collagen Vascular disease Number of competencies: (02) Number of procedures that require certification:(NIL)									
See also major competencies listed in General Medicine									
DR16.1	Identify and distinguish skin lesions of SLE	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR16.2	Identify and distinguish Raynaud's phenomenon	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology
Topic: Nutritional Deficiencies and Skin Number of competencies: (04) Number of procedures that require certification:(NIL)									
DR17.1	Enumerate and identify the cutaneous findings in vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill assessment/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
Topic: Systemic diseases and the skin Number of competencies:(02) Number of procedures that require certification:(NIL)									
DR18.1	Enumerate the cutaneous features of Type 2 diabetes	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR18.2	Enumerate the cutaneous features of hypo/hyper-thyroidism	K	K	Y	Lecture, Small group	Written/ Viva voce		General Medicine	

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Human Anatomy									
AN4.2	Describe structure & function of skin with its appendages	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.4	Describe modifications of deep fascia with its functions	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.5	Explain principles of skin incisions	K	KH	N	Lecture	Written		Dermatology, Venereology & Leprosy	
Pathology									
PA34.1	Describe the risk factors, pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.2	Describe the risk factors, pathogenesis, pathology and natural history of basal cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors, morphology, clinical features and metastases of melanoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.4	Identify, distinguish and describe common tumors of the skin	S	SH	N	DOAP session	Skill Assessment		Dermatology, Venereology & Leprosy	

Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
MI4.3	Describe the etio-pathogenesis of Skin and soft tissue infections and discuss the clinical course, and the laboratory diagnosis.	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy, General Surgery	
MI7.2	Describe the etio-pathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures, wherever relevant.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy, Obstetrics & Gynaecology	

Pharmacology

PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.57	Describe drugs used in skin disorders	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	

Pediatrics

PE31.4	Identify Atopic dermatitis and manage	S	SH		Bedside clinics, Skill Lab	Skill Assessment		Dermatology, Venereology & Leprosy	

PHYSICAL MEDICINE & REHABILITATION (CODE: PM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PHYSICAL MEDICINE & REHABILITATION									
Topic: Introduction to Physical Medicine		Number of competencies: (04)			Number of procedures that require certification:(NIL)				
PM1.1	Define and describe the scope of physical Medicine and Rehabilitation and functional restoration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PM1.2	Define and describe disability, its cause, and magnitude, identification and prevention of disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM1.3	Define and describe the methods to identify and prevent disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM1.4	Enumerate the rights and entitlements of differently abled persons	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
Topic: Cerebrovascular accident		Number of competencies: (04)			Number of procedures that require certification:(NIL)				
PM2.1	Describe the causes of disability in the patient with a cerebrovascular accident	K	KH	Y	Lecture, small group discussion	Written/ Viva voce		Human Anatomy	General Medicine
PM2.2	Describe and discuss the treatment of rigidity and spasticity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.3	Describe and discuss the principles of early mobilizations, mobility aids and splints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.4	Describe and discuss the impact of co-morbidities on the rehabilitation of the patient with cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Topic: Cerebral Palsy		Number ocompetencies: (07)			Number of procedures that require certification: (NIL)				
PM3.1	Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM3.2	Recognize, Describe and discuss the spectrum of multiple disability: cognitive, motor, visual and hearing in cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.3	Recognize describe and discuss the role of special education in children with learning disabilities	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.4	Demonstrate spasticity rigidity and dystonia in children with cerebral palsy	S	SH	Y	DOAP session, Small group discussion, Bedside clinic	Skill assessment			Pediatrics
PM3.5	Enumerate the indications and describe the therapies for spasticity including medications, serial casts, nerve blocks, botulinum toxin injections	K	KH	Y	Lecture, Small group discussion			Pharmacology	Pediatrics, Orthopedics
PM3.6	Enumerate the indications and describe prevention of joint subluxations and contractures by proper positioning, and use of special chairs, and appliances	K	KH	Y	DOAP session, Small group discussion, Bedside clinic				Pediatrics
PM3.7	Enumerate the first aid measures to be used in patients with seizures	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
Topic: Musculoskeletal system Number of competencies : (05) Number of procedures that require certification: (NIL)									
PM4.1	Describe the common patterns, clinical features, investigations, diagnosis and treatment of common causes of arthritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM4.2	Describe and discuss the principles of management of chronic pain and role of common modalities (moist heat, ultrasound, Short wave diathermy)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM4.3	Observe in a mannequin or equivalent the administration of an intra-articular injection	S	KH	N	DOAP session	Skill assessment			Orthopedics
PM4.4	Describe the role of exercise as a therapeutic modality	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			General Medicine, Orthopedics
Topic: Amputation Number of competencies : (04) Number of procedures that require certification: (NIL)									
PM5.1	Enumerate the indications and describe the principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, General Surgery
PM5.2	Describe the principles of early mobilization, evaluation of the residual limb, contralateral limb and the influence of co-morbidities	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM5.3	Demonstrate the correct use of crutches in ambulation and postures to correct contractures and deformities	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			Orthopedics
PM5.4	Identify the correct prosthesis for common amputations	S	SH	Y	DOAP session	Skill assessment written			Orthopedics
Topic: Lower motor neruon lesion Number of competencies :(04) Number of procedures that require certification: (NIL)									
PM6.1	Perform and demonstrate a clinical examination of sensory and motor deficits of peripheral nerve	S	SH	Y	Bedside clinic	Skill assessment			General Medicine
PM6.2	Enumerate the indications and describe the principles of nerve conduction velocity and EMG	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM6.3	Describe the principles principles of skin traction, serial casts and surgical treatment including contracture release, tendon transfer, osteotomies and arthrodesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM6.4	Describe the principles of orthosis for ambulation in PPRP	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
Topic: Spinal injury Number of competencies:(09) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM7.1	Describe and discuss the clinical features, diagnostic work up and management of spinal cord injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM7.2	Describe and demonstrate process of transfer, application of collar restraints while maintaining airway and prevention of secondary injury in a mannequin/model	S	SH	Y	DOAP session, Small group discussion, Bedside clinic	Skill assessment			Orthopedics
PM7.3	Perform and demonstrate a correct neurological examination in a patient with spinal injury and determine the neurologic level of injury	S	SH	Y	Bed side clinic	Skill assessment			Orthopedics
PM7.4	Assess bowel and bladder function and identify common patterns of bladder dysfunction	S	KH	Y	Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM7.5	Enumerate the indications and identify the common mobility aids and appliances, wheel chairs	S	S	Y	DOAP session	Skill assessment /Viva voce			Orthopedics
PM7.6	Enumerate the indications and describe the pharmacology and side effects of commonly used drugs in neuropathic bladder	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein Thrombosis, Aspiration Pneumonia, Autonomic dysreflexia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM7.8	Enumerate the causes of, describe and classify Pressure Sores,their prevention, and treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
PM7.9	Enumerate the indications of debridement, and Split thickness skin grafting.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
Topic: Traumatic brain injury (TBI) Number of competencies:(05) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics, General Surgery
PM8.2	Describe and discuss cognitive dysfunction like deficits in attention, memory and communication.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.3	Describe and discuss common behavior and mood changes following TBI.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.4	Describe metabolic co-morbidities like SIADH, diabetes mellitus, insipidus and endocrine dysfunction following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.5	Describe the vocational opportunities and community based rehabilitation following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Topic: Geriatrics Number of competencies:(01) Number of procedures that require certification: (NIL)									
PM 9.1	Describe rehabilitative aspects as they pertain to the elderly including patients with dementia, depression, incontinence immobility and nutritional needs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Psychiatry
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

Integration

General Medicine									
IM18.16	Enumerate the indications, describe and observe the multidisciplinary rehabilitation of patients with a CVA	S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physical Medicine & Rehabilitation
IM24.13	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation

Pediatrics

PE3.8	Discuss the etio-pathogenesis, clinical presentation and multi-disciplinary approach in the management of Cerebral palsy	K	KH	Y	Lecture, Small group discussion, Bed side clinics	Written/ Viva voce			Physical Medicine & Rehabilitation

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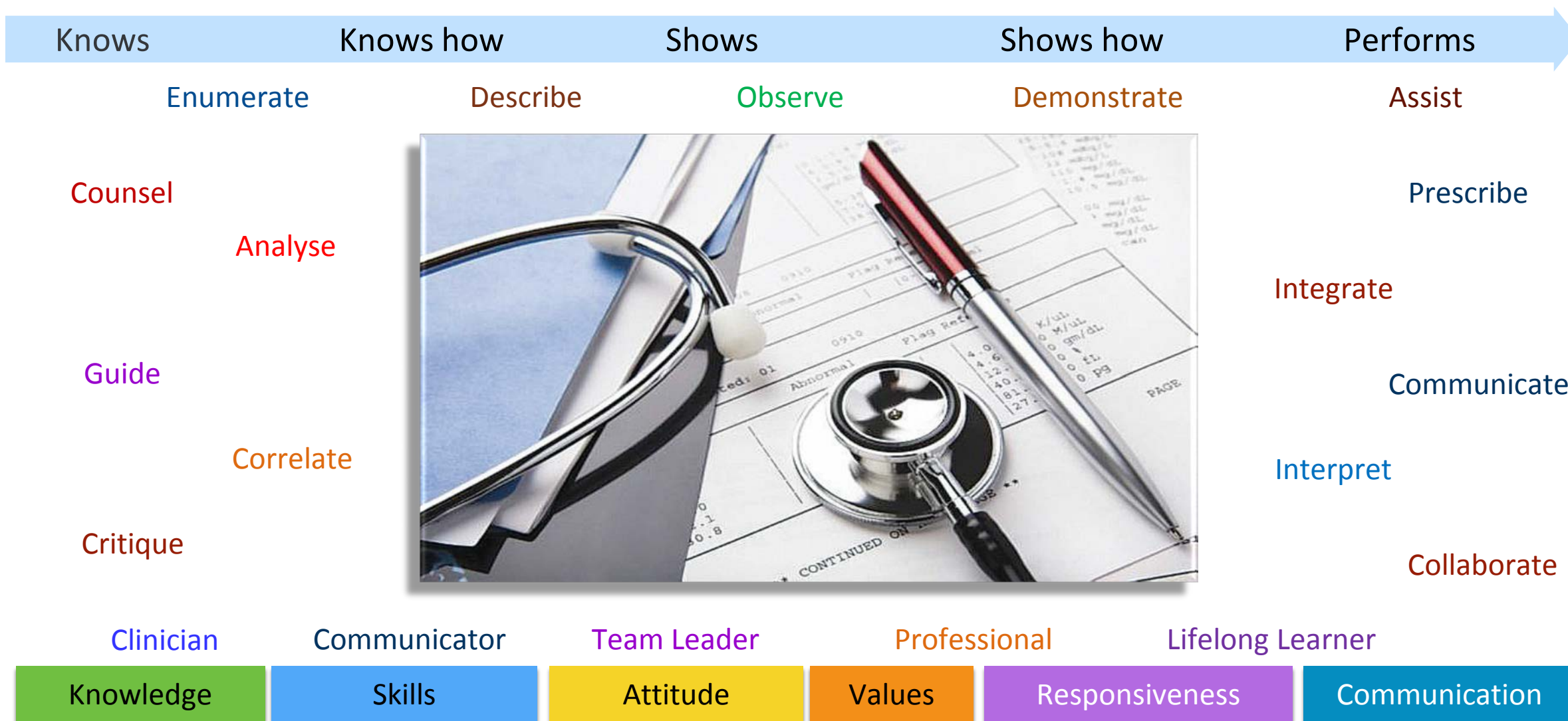
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MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



VOLUME-I (2018)

**COMPETENCY BASED UNDERGRADUATE CURRICULUM
FOR THE
INDIAN MEDICAL GRADUATE
2018**



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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड

BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

FOREWORD

The Medical Council of India, aware of its responsibilities in creation of trained health manpower, has been engaged for the past few years in updating the medical curriculum for undergraduates and postgraduates to be in consonance with the changing health needs of the country. The task of updating and reorganization of the postgraduate curriculum in nearly 50 broad specialty disciplines to the competency pattern was accomplished by the Academic Cell of the Council with the help of subject experts and members of its Reconciliation Board and have been uploaded on the Council Website for use of the medical fraternity.

The Council visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. The student should be trained to effectively communicate with patients and their relatives in a manner respectful of the patient's preferences, values, beliefs, confidentiality and privacy and to this purpose, a book on Attitude, Ethics & Communication was prepared by the Medical Council of India; the teaching faculty of medical colleges have been receiving training on this module since 2015.

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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड
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-2-

Competency based Medical Education provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies. Keeping this objective as the core ingredient, the Medical Council of India with the help of panel of experts drawn from across the country, laid the basic framework for the revised undergraduate medical curriculum. Over the past four years, a group of highly committed medical professionals working as Members of the MCI Reconciliation Board developed this information into a document incorporating appropriate teaching-learning strategies, tools and techniques of teaching, and modes of assessment which have culminated in the current competency based undergraduate curriculum. We understand that maximum efforts were made to encourage integrated teaching between traditional subject areas using a problem-based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both the understanding and resolution of the problem. All efforts have been made to de-emphasize compartmentalisation of disciplines so as to achieve both horizontal and vertical integration in different phases. We are proud of their work accomplishment and congratulate them in the onerous task accomplished.

It gives us great satisfaction to state that the '**competency based undergraduate curriculum**' that has been prepared by the Medical Council of India would definitely serve the cause of medical education and in creating a competent Indian Medical Graduate to serve the community.

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COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Preamble

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide health care to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using “broad competencies”; instead, the reports have written end of phase subject (sub) competencies. These “sub-competencies” can be mapped to the global competencies in the Graduate Medical Education Regulations.

A significant attempt has been made in the outcome driven undergraduate curriculum to provide the orientation and the skills necessary for life-long learning to enable proper care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged. In the pre-internship years,- the highest level of skill acquisition is a show how (SH) in a simulated or guided environment; few skills require independent performance and certification - these are marked with P (for performance). Opportunity to ‘perform’ these skills will be available during internship.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above, an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self directed learning and co-curricular activities.

Formative and internal assessments have been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened, increasing the involvement of Curriculum Committee and Medical Education Departments/Units.

The curriculum document in conjunction with the new Graduate Medical Education Regulations (GMR), when notified, must be seen as a “living document” that should evolve as stakeholder requirements and aspirations change. We hope that the current GMR does just that. The Medical Council of India is

grateful to all the teachers, subject experts, process experts, patients, students and trainees who have contributed through invaluable inputs, intellectual feedbacks and valuable time spent to make this possible. This document would not have been possible without the dedicated and unstinting intellectual, mental and time-consuming efforts of the members of the Reconciliation Board of the Council and the Academic Cell of MCI.

How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. They must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

2. Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession fulfill his/her social obligations towards realization of this goal.
- (b) learn every aspect of National policies on health and devote herself/himself to its practical implementation.
- (c) achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

- (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH);
 - (ii) Sanitation and water supply;
 - (iii) Prevention and control of communicable and non-communicable diseases;
 - (iv) Immunization;
 - (v) Health Education;
 - (vi) Indian Public Health Standards (IPHS) at various level of service delivery;
 - (vii) Bio-medical waste disposal; and
 - (viii) Organizational and or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, General and hospital management, principal inventory skills and counseling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2. 3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

- 3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- 3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - i) Disease prevention,
 - ii) Health promotion and cure,
 - iii) Pain and distress alleviation, and
 - iv) Rehabilitation and palliation.

- 3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

- 3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- 3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- 3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- 3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. *Communicator with patients, families, colleagues and community*

- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically reevaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. *Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession*

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise outcomes

Section 2 contains subject-wise outcomes so called “sub-competencies” that must be achieved at the end of instruction in that subject. These are organised in tables and have two parts. The core subject outcomes are in first part. The second part in the same document (titled Integration) contains outcomes/competencies in other subjects which have been identified by experts in those subjects as requiring alignment or integration with the core subject.

Outcomes (competencies) in each subject are grouped according to topics number-wise. It is important to review the individual outcomes (competencies) in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section “definitions used in this document”. The suggested number of times a skill must be performed independently for certification in the learner’s log book is also given. Last two columns indicate subjects within the same phase and other phases with which the topic can be taught - together - aligned (temporal coordination), shared, correlated or nested.

The number of topics and competencies in each subject are given below:

Topics & outcomes in Pre-clinical & Para-clinical subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Human Anatomy	82	409
2.	Physiology	11	137
3.	Biochemistry	11	89
4.	Pharmacology	05	85
5.	Pathology	36	182
6.	Microbiology	08	54
7.	Forensic Medicine & Toxicology	14	162
	Total	167	1118

Topics & outcomes in Medicine and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Community Medicine	20	107
2.	General Medicine	26	506
3.	Respiratory Medicine	02	47
4.	Pediatrics	35	406
5.	Psychiatry	19	117
6.	Dermatology, Venereology & Leprosy	18	73
7.	Physical Medicine & Rehabilitation	09	43
	Total	129	1299

Topics & outcomes in Surgery and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	General Surgery	30	133
2.	Ophthalmology	09	60
3.	Otorhinolaryngology	04	76
4.	Obstetrics & Gynaecology	38	126
5.	Orthopedics	14	39
6.	Anesthesiology	10	46
7.	Radiodiagnosis	01	13
8.	Radiotherapy	05	16
9.	Dentistry	05	23
	Total	116	532

Section 3

Sample topics used for alignment & integration

Section 3 contains a sample selection of topics that run across the phases which can be used for alignment and integration. These are suggestions and institutions can select their own set of topics which can run across phases.

It is important to design the curriculum with a view to ensure with several broad outcomes in mind: a) achievement of the broad competencies by the learner at the end of the MBBS program, b) retain the subject - wise character of learning and assessment and ensure that phase-wise subject outcomes are met and assessed, c) teaching topics that are similar together thereby reducing redundancy and allowing the learner to integrate the concept as the most important step in integration (alignment or temporal coordination) (see document on integration), and d) align learning and assessment experiences to the outcome and the level of achievement specified.

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H	I	J
No.	Competencies	Domain	K/KH/SH/P	Core	Suggested Teaching Learning Method	Suggested Assessment method	No. required to certify (P)	Vertical Integration	Horizontal Integration
Physiology									
Summary Name of Topic: General Physiology Number of Competencies: (08)									
PY1.1	Describe the structure and functions of a	K	KH	Y	Lectures, Small group discussion	Written/Viva			Biochemistry
IM25.4	Elicit <i>document</i> and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	Skill assessment		Community Medicine	

Unique number of the competency. First two alphabets represent the subject (see list); number following alphabet reflects topic number, following period is a running number.

Description of competency

Identifies the domain or domains addressed
 K - Knowledge
 S - Skill
 A - Attitude
 C - Communication

Identifies the level of competency required based on the Miller's pyramid
 K - Knows
 KH - Knows How
 S - Skill
 SH - Show How
 P - Perform independently

Identifies if the competency is core or desirable.
 Y indicates Core;
 N-non-core

Identifies the suggested learning method.
 DOAP - Demonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
 Skill assessment - Clinics, Skills lab, Practicals etc.

no of times a skill needs to be done independently to be certified for independent performance;
 Rarely used in UG

Subject (s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject (s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

PA42.1*	At the end of the session the phase II student must be able to enumerate the most common causes of meningitis correctly
PA42.2*	At the end of the session the phase II student must be able to enumerate the components of CSF analysis correctly
PA42.3*	At the end of the session the phase II student must be able to describe the CSF features for a given etiology of meningitis accurately
PA42.4*	At the end of the session the phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters

Audience - who will do the behavior

Behavior - What should the learner be able to do?

Condition - Under what conditions should the learner be able to do it?

Degree – How well must it be done

Objective: Statement of what a learner should be able to do at the end of a specific learning experience
***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning methods from competencies

Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Lecture	small group discussion
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Related objectives can be combined into one teaching session	
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given etiologic of meningitis accurately		
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	small group discussion, practical session	

*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies-1

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the ~~Phase II student~~ must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given aetiology of meningitis accurately	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document

Deriving assessment methods from competencies-2

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

MI2.4*	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine	Pathology

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the morphology of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects -teachers from both subjects usually not needed. Ensure redundancy and duplication by reviewing both subjects



Horizontally aligned and integrated with pathology

Vertically integrated with General Medicine



Integrate concept - not necessarily teachers Plan session with teachers from both phases. Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient). Using teachers from both phases is rarely required

The concept of integration

Concept of integration used in the Manual

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application. The GMR 2018 applies these principles to the extent that will retain the strengths of silo - based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind, the Regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be thought separately but during the same time frame (Figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to Share (Figure 1b) topics or Correlate (Figure 1c) topics by using an integration session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. Care must be taken to ensure that achievement phase - based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasized that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may be involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting (Figure 1d) (Harden). Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year.

Assessment will continue to be subject based. However, efforts must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application.

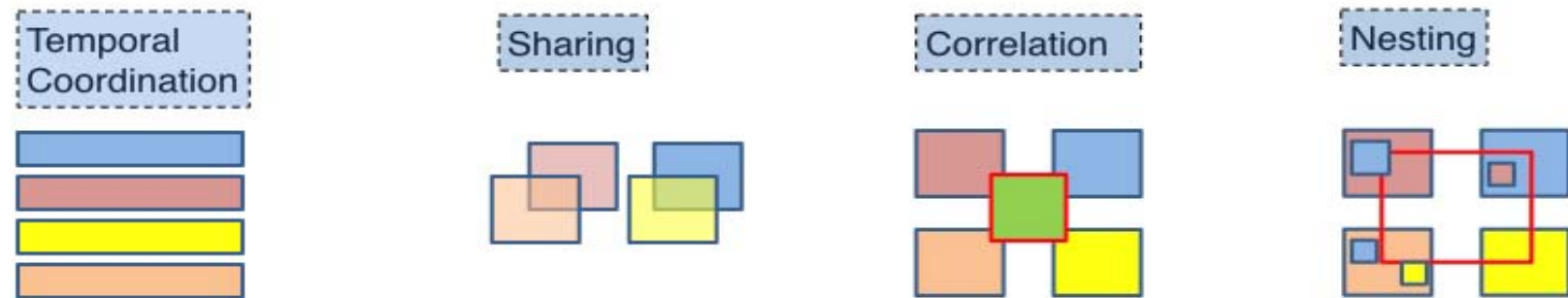


Figure 1 : Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Definitions used in the Manual

- 1. Goal:** A projected state of affairs that a person or system plans to achieve.
In other words: Where do you want to go? or What do you want to become?
- 2. Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.
In other words: What should you have? or What should have changed?
- 3. Objective:** Statement of what a learner should be able to do at the end of a specific learning experience.
In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Interpret	
Elicit		
Report		

Note:

1. Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.
2. The word ‘perform’ or ‘do’ is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
3. Most tasks that require performance during undergraduate years will be performed under supervision.
4. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

Lecture	Any instructional large group method including traditional lecture and interactive lecture
Small group discussion	Any instructional method involving small groups of students in an appropriate learning context
DOAP (Demonstration- Observation - Assistance - Performance)	A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently
Skill assessment	A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands
Core	A competency that is necessary in order to complete the requirements of the subject (traditional must know)
Non-Core	A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified.

Volume I

Competency based Undergraduate Curriculum

in

Pre-clinical and Para-clinical subjects

HUMAN ANATOMY (CODE: AN)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Human Anatomy									
Topic: Anatomical terminology		Number of competencies: (2)			Number of procedures for certification: (NIL)				
AN1.1	Demonstrate normal anatomical position, various planes, relation, comparison, laterality & movement in our body	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/skills assessment			
AN1.2	Describe composition of bone and bone marrow	K	KH	Y	Lecture	Written/ Viva voce			
Topic: General features of bones & Joints		Number of competencies: (6)			Number of procedures for certification: (NIL)				
AN2.1	Describe parts, blood and nerve supply of a long bone	K	KH	Y	Lecture, DOAP session	Written/ Viva voce			
AN2.2	Enumerate laws of ossification	K	KH	N	Lecture	Written			
AN2.3	Enumerate special features of a sesamoid bone	K	KH	N	Lecture	Written			
AN2.4	Describe various types of cartilage with its structure & distribution in body	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN2.5	Describe various joints with subtypes and examples	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN2.6	Explain the concept of nerve supply of joints & Hilton's law	K	KH	Y	Lecture	Written/ Viva voce			
Topic: General features of Muscle		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN3.1	Classify muscle tissue according to structure & action	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN3.2	Enumerate parts of skeletal muscle and differentiate between tendons and aponeuroses with examples	K	KH	Y	Lecture	Written/ Viva voce			
AN3.3	Explain Shunt and spurt muscles	K	KH	N	Lecture	Written			
Topic: General features of skin and fascia		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN4.1	Describe different types of skin & dermatomes in body	K	KH	N	Lecture, DOAP session	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN4.2	Describe structure & function of skin with its appendages	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.3	Describe superficial fascia along with fat distribution in body	K	KH	Y	Lecture, DOAP session	Written/ Viva voce			
AN4.4	Describe modifications of deep fascia with its functions	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.5	Explain principles of skin incisions	K	KH	N	Lecture	Written		Dermatology, Venereology & Leprosy	
Topic: General features of the cardiovascular system Number of competencies: (8) Number of procedures for certification: (NIL)									
AN5.1	Differentiate between blood vascular and lymphatic system	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.2	Differentiate between pulmonary and systemic circulation	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.3	List general differences between arteries & veins	K	KH	Y	Lecture	Written/ Viva voce			
AN5.4	Explain functional difference between elastic, muscular arteries and arterioles	K	KH	Y	Lecture	Written/ Viva voce			
AN5.5	Describe portal system giving examples	K	KH	Y	Lecture	Written/ Viva voce			
AN5.6	Describe the concept of anastomoses and collateral circulation with significance of end-arteries	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN5.7	Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses	K	KH	N	Lecture	Written			Physiology
AN5.8	Define thrombosis, infarction & aneurysm	K	KH	N	Lecture	Written		Pathology	Physiology
Topic: General Features of lymphatic system Number of competencies: (3) Number of procedures for certification: (NIL)									
AN6.1	List the components and functions of the lymphatic system	K	KH	N	Lecture	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN6.2	Describe structure of lymph capillaries & mechanism of lymph circulation	K	KH	N	Lecture	Written			
AN6.3	Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system	K	KH	N	Lecture	Written		General Surgery	
Topic: Introduction to the nervous system Number of competencies: (8) Number of procedures for certification: (NIL)									
AN7.1	Describe general plan of nervous system with components of central, peripheral & autonomic nervous systems	K	KH	Y	Lecture	Written			
AN7.2	List components of nervous tissue and their functions	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.3	Describe parts of a neuron and classify them based on number of neurites, size & function	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.4	Describe structure of a typical spinal nerve	K	KH	Y	Lecture	Written/ Viva voce			
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	Lecture	Written		General Medicine	Physiology
AN7.6	Describe concept of loss of innervation of a muscle with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
AN7.7	Describe various type of synapse	K	KH	N	Lecture	Written			Physiology
AN7.8	Describe differences between sympathetic and spinal ganglia	K	KH	N	Lecture	Written			
Topic: Features of individual bones (Upper Limb) Number of competencies: (6) Number of procedures for certification: (NIL)									
AN8.1	Identify the given bone, its side, important features & keep it in anatomical position	K/S	SH	Y	DOAP session	Viva voce/ Practicals/ OSPE			
AN8.2	Identify & describe joints formed by the given bone	K/S	SH	Y	Lecture, DOAP session	Viva voce			
AN8.3	Enumerate peculiarities of clavicle	K	KH	Y	Lecture, DOAP session	Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN8.4	Demonstrate important muscle attachment on the given bone	K/S	SH	Y	Practical DOAP session, Small group teaching	Viva voce Practicals		Orthopedics	
AN8.5	Identify and name various bones in articulated hand, Specify the parts of metacarpals and phalanges and enumerate the peculiarities of pisiform	K/S	SH	Y	Practical, F91 DOAP session, Small group teaching	Viva voce Practicals			
AN8.6	Describe scaphoid fracture and explain the anatomical basis of avascular necrosis	K	KH	N	DOAP session	Viva voce		Orthopedics	
Topic: Pectoral region Number of competencies: (3) Number of procedures for certification: (NIL)									
AN9.1	Describe attachment, nerve supply & action of pectoralis major and pectoralis minor	K	KH	Y	Lecture, Practical	Written			
AN9.2	Breast: Describe the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied anatomy of breast	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN9.3	Describe development of breast	K	KH	N	Lecture	Written			
Topic: Axilla, Shoulder and Scapular region Number of competencies: (13) Number of procedures for certification: (NIL)									
AN10.1	Identify & describe boundaries and contents of axilla	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.2	Identify, describe and demonstrate the origin, extent, course, parts, relations and branches of axillary artery & tributaries of vein	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.3	Describe, identify and demonstrate formation, branches, relations, area of supply of branches, course and relations of terminal branches of brachial plexus	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN10.4	Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN10.5	Explain variations in formation of brachial plexus	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN10.6	Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis	K	KH	N	Lecture	Written		General Surgery	
AN10.7	Explain anatomical basis of enlarged axillary lymph nodes	K	KH	N	Lecture	Written		General Surgery	
AN10.8	Describe, identify and demonstrate the position, attachment, nerve supply and actions of trapezius and latissimus dorsi	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.9	Describe the arterial anastomosis around the scapula and mention the boundaries of triangle of auscultation	K	KH	N	Lecture	Written			
AN10.10	Describe and identify the deltoid and rotator cuff muscles	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.11	Describe & demonstrate attachment of serratus anterior with its action	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.12	Describe and demonstrate shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Orthopedics	
AN10.13	Explain anatomical basis of Injury to axillary nerve during intramuscular injections	K	KH	N	Lecture	Viva voce			
Topic: Arm & Cubital fossa Number of competencies: (6) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN11.1	Describe and demonstrate muscle groups of upper arm with emphasis on biceps and triceps brachii	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN11.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels in arm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN11.3	Describe the anatomical basis of Venepuncture of cubital veins	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN11.4	Describe the anatomical basis of Saturday night paralysis	K	KH	Y	Practical, Lecture	Written/ Viva voce		Orthopedics	
AN11.5	Identify & describe boundaries and contents of cubital fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN11.6	Describe the anastomosis around the elbow joint	K	KH	N	Lecture	Written			
Topic: Forearm & hand Number of competencies: (15) Number of procedures for certification: (NIL)									
AN12.1	Describe and demonstrate important muscle groups of ventral forearm with attachments, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of forearm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.3	Identify & describe flexor retinaculum with its attachments	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN12.4	Explain anatomical basis of carpal tunnel syndrome	K	KH	Y	Lecture	Written/ Viva voce			
AN12.5	Identify & describe small muscles of hand. Also describe movements of thumb and muscles involved	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.6	Describe & demonstrate movements of thumb and muscles involved	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.7	Identify & describe course and branches of important blood vessels and nerves in hand	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.8	Describe anatomical basis of Claw hand	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN12.9	Identify & describe fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.10	Explain infection of fascial spaces of palm	K	KH	N	Lecture	Written		General Surgery	
AN12.11	Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN12.12	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN12.13	Describe the anatomical basis of Wrist drop	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN12.14	Identify & describe compartments deep to extensor retinaculum	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN12.15	Identify & describe extensor expansion formation	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: General Features, Joints, radiographs & surface marking Number of competencies: (8) Number of procedures for certification: (NIL)									
AN13.1	Describe and explain Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage	K	KH	Y	Lecture	Written/ Viva voce			
AN13.2	Describe dermatomes of upper limb	K	KH	N	Lecture	Written/ Viva voce			
AN13.3	Identify & describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints, wrist joint & first carpometacarpal joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN13.4	Describe Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangeal joint	K	KH	N	Lecture	Written			
AN13.5	Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand	K/S	SH	Y	Practical, Small group discussion, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	
AN13.6	Identify & demonstrate important bony landmarks of upper limb: Jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end, Inferior angle of the scapula	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment			
AN13.7	Identify & demonstrate surface projection of: Cephalic and basilic vein, Palpation of Brachial artery, Radial artery, Testing of muscles: Trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, Brachioradialis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN13.8	Describe development of upper limb	K	KH	N	Lecture	Written			
Features of individual bones (Lower Limb) Number of competencies: (4) Number of procedures for certification: (NIL)									
AN14.1	Identify the given bone, its side, important features & keep it in anatomical position	K/S	SH	Y	DOAP session	Viva voce			
AN14.2	Identify & describe joints formed by the given bone	K/S	SH	Y	Lecture, DOAP session	Viva voce			
AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia	K	KH	Y	Lecture	Viva voce/ Practicals		Forensic Medicine & Toxicology	
AN14.4	Identify and name various bones in the articulated foot with individual muscle attachment	K/S	SH	N	Practical, DOAP session, Small group teaching	Viva voce/ Practicals			
Topic: Front & Medial side of thigh Number of competencies: (5) ♂ Number of procedures for certification: (NIL)									
AN15.1	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN15.2	Describe and demonstrate major muscles with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN15.3	Describe and demonstrate boundaries, floor, roof and contents of femoral triangle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN15.4	Explain anatomical basis of Psoas abscess & Femoral hernia	K	KH	N	Lecture, DOAP session	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN15.5	Describe and demonstrate adductor canal with its content	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: Gluteal region & back of thigh Number of competencies: (6) Number of procedures for certification: (NIL)									
AN16.1	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of gluteal region	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN16.2	Describe anatomical basis of sciatic nerve injury during gluteal intramuscular injections	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.3	Explain the anatomical basis of Trendelenburg sign	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.4	Describe and demonstrate the hamstrings group of muscles with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN16.5	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN16.6	Describe and demonstrate the boundaries, roof, floor, contents and relations of popliteal fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: Hip Joint Number of competencies: (3) Number of procedures for certification: (NIL)									
AN17.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN17.2	Describe anatomical basis of complications of fracture neck of femur	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN17.3	Describe dislocation of hip joint and surgical hip replacement	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
Topic: Knee joint, Anterolateral compartment of leg & dorsum of foot Number of competencies: (7) ♂ Number of procedures for certification: (NIL)									
AN18.1	Describe and demonstrate major muscles of anterolateral compartment of leg with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN18.2	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN18.3	Explain the anatomical basis of foot drop	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN18.4	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the knee joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN18.5	Explain the anatomical basis of locking and unlocking of the knee joint	K	KH	Y	Small group teaching	Written/ Viva voce			
AN18.6	Describe knee joint injuries with its applied anatomy	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN18.7	Explain anatomical basis of Osteoarthritis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
Topic: Back of Leg & Sole Number of competencies: (7) Number of procedures for certification: (NIL)									
AN19.1	Describe and demonstrate the major muscles of back of leg with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN19.2	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN19.3	Explain the concept of "Peripheral heart"	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN19.4	Explain the anatomical basis of rupture of calcaneal tendon	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.5	Describe factors maintaining importance arches of the foot with its importance	K	KH	Y	Lecture	Written/ Viva voce			
AN19.6	Explain the anatomical basis of Flat foot & Club foot	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.7	Explain the anatomical basis of Metatarsalgia & Plantar fasciitis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
Topic: General Features, Joints, radiographs & surface marking Number of competencies: (10) Number of procedures for certification: (NIL)									
AN20.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN20.2	Describe the subtalar and transverse tarsal joints	K	KH	N	Lecture, DOAP session	Written/ Viva voce			
AN20.3	Describe and demonstrate Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN20.4	Explain anatomical basis of enlarged inguinal lymph nodes	K	KH	N	Lecture	Written/ Viva voce		General Surgery	
AN20.5	Explain anatomical basis of varicose veins and deep vein thrombosis	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN20.6	Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN20.7	Identify & demonstrate important bony landmarks of lower limb: -Vertebral levels of highest point of iliac crest, posterior superior iliac spines, iliac tubercle, pubic tubercle, ischial tuberosity, adductor tubercle, -Tibial tuberosity, head of fibula, -Medial and lateral malleoli, Condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal, tuberosity of the navicular	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment			
AN20.8	Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Medicine	
AN20.9	Identify & demonstrate Palpation of vessels (femoral, popliteal,dorsalis pedis,post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, Great and small saphenous veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Medicine, General Surgery	
AN20.10	Describe basic concept of development of lower limb	K	KH	N	Lecture	Viva voce			
Topic: Thoracic cage Number of competencies: (11) Number of procedures for certification: (NIL)									
AN21.1	Identify and describe the salient features of sternum, typical rib, 1 st rib and typical thoracic vertebra	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN21.2	Identify & describe the features of 2 nd , 11 th and 12 th ribs, 1 st , 11 th and 12 th thoracic vertebrae	K/S	SH	N	Lecture, DOAP session	Viva voce/ skill assessment			
AN21.3	Describe & demonstrate the boundaries of thoracic inlet, cavity and outlet	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN21.4	Describe & demonstrate extent, attachments, direction of fibres, nerve supply and actions of intercostal muscles	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN21.5	Describe & demonstrate origin, course, relations and branches of a typical intercostal nerve	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN21.6	Mention origin, course and branches/ tributaries of: 1) anterior & posterior intercostal vessels 2) internal thoracic vessels	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN21.7	Mention the origin, course, relations and branches of 1) atypical intercostal nerve 2) superior intercostal artery, subcostal artery	K	KH	N	Lecture	Written			
AN21.8	Describe & demonstrate type, articular surfaces & movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN21.9	Describe & demonstrate mechanics and types of respiration	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN21.10	Describe costochondral and interchondral joints	K	KH	N	Lecture	Written			
AN21.11	Mention boundaries and contents of the superior, anterior, middle and posterior mediastinum	K	KH	Y	Practical, Lecture	Written/ Viva voce			
Topic: Heart & Pericardium Number of competencies: (7) Number of procedures for certification: (NIL)									
AN22.1	Describe & demonstrate subdivisions, sinuses in pericardium, blood supply and nerve supply of pericardium	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN22.2	Describe & demonstrate external and internal features of each chamber of heart	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN22.3	Describe & demonstrate origin, course and branches of coronary arteries	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN22.5	Describe & demonstrate the formation, course, tributaries and termination of coronary sinus	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN22.6	Describe the fibrous skeleton of heart	K	KH	Y	Lecture	Written			
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	Lecture	Written		General Medicine	Physiology
Topic: Mediastinum Number of competencies: (7) Number of procedures for certification: (NIL)									
AN23.1	Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN23.2	Describe & demonstrate the extent, relations tributaries of thoracic duct and enumerate its applied anatomy	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN23.3	Describe & demonstrate origin, course, relations, tributaries and termination of superior venacava, azygos, hemiazygos and accessory hemiazygos veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN23.4	Mention the extent, branches and relations of arch of aorta & descending thoracic aorta	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN23.5	Identify & Mention the location and extent of thoracic sympathetic chain	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN23.6	Describe the splanchnic nerves	K	KH	N	Lecture	Written			
AN23.7	Mention the extent, relations and applied anatomy of lymphatic duct	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Lungs & Trachea Number of competencies: (6) Number of procedures for certification: (NIL)									
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN24.3	Describe a bronchopulmonary segment	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.4	Identify phrenic nerve & describe its formation & distribution	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
AN24.5	Mention the blood supply, lymphatic drainage and nerve supply of lungs	K	KH	Y	Lecture	Written/ Viva voce			
AN24.6	Describe the extent, length, relations, blood supply, lymphatic drainage and nerve supply of trachea	K	KH	N	Lecture	Written			
Topic: Thorax Number of competencies: (9) Number of procedures for certification: (01)									
AN25.1	Identify, draw and label a slide of trachea and lung	K/S	SH	Y	Lecture, Practical	Written/ skill assessment	1		
AN25.2	Describe development of pleura, lung & heart	K	KH	Y	Lecture	Written			
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.6	Mention development of aortic arch arteries, SVC, IVC and coronary sinus	K	KH	N	Lecture	Written/ Viva voce			
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K/S	SH	Y	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.8	Identify and describe in brief a barium swallow	K/S	SH	N	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.9	Demonstrate surface marking of lines of pleural reflection, lung borders and fissures, trachea, heart borders, apex beat & surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Medicine, Pediatrics	Physiology
Topic: Skull osteology Number of competencies: (7) Number of procedures for certification: (NIL)									
AN26.1	Demonstrate anatomical position of skull, Identify and locate individual skull bones in skull	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.2	Describe the features of norma frontalis, verticalis, occipitalis, lateralis and basalis	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.3	Describe cranial cavity, its subdivisions, foramina and structures passing through them	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.4	Describe morphological features of mandible	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.5	Describe features of typical and atypical cervical vertebrae (atlas and axis)	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.6	Explain the concept of bones that ossify in membrane	K	KH	N	Lecture	Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN26.7	Describe the features of the 7 th cervical vertebra	K/S	SH	N	DOAP session	Viva voce			
Topic: Scalp Number of competencies: (2) Number of procedures for certification: (NIL)									
AN27.1	Describe the layers of scalp, its blood supply, its nerve supply and surgical importance	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN27.2	Describe emissary veins with its role in spread of infection from extracranial route to intracranial venous sinuses	K	KH	Y	Lecture	Written			
Topic: Face & parotid region Number of competencies: (10) Number of procedures for certification: (NIL)									
AN28.1	Describe & demonstrate muscles of facial expression and their nerve supply	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.2	Describe sensory innervation of face	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN28.3	Describe & demonstrate origin /formation, course, branches /tributaries of facial vessels	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.4	Describe & demonstrate branches of facial nerve with distribution	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.5	Describe cervical lymph nodes and lymphatic drainage of head, face and neck	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN28.6	Identify superficial muscles of face, their nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.7	Explain the anatomical basis of facial nerve palsy	K	KH	Y	Lecture	Written		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN28.8	Explain surgical importance of deep facial vein	K	KH	Y	Lecture	Written		General Surgery	
AN28.9	Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN28.10	Explain the anatomical basis of Frey's syndrome	K	KH	N	Lecture	Written		General Surgery	
Topic: Posterior triangle of neck Number of competencies: (4) Number of procedures for certification: (NIL)									
AN29.1	Describe & demonstrate attachments, nerve supply, relations and actions of sternocleidomastoid	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN29.2	Explain anatomical basis of Erb's & Klumpke's palsy	K	KH	Y	Lecture	Written		General Surgery	
AN29.3	Explain anatomical basis of wry neck	K	KH	N	Lecture	Written		General Surgery	
AN29.4	Describe & demonstrate attachments of 1) inferior belly of omohyoid, 2)scalenus anterior, 3) scalenus medius & 4) levator scapulae	K/S	SH	N	Lecture, Practical	Written/ Viva voce			
Topic: Cranial cavity Number of competencies: (5) Number of procedures for certification: (NIL)									
AN30.1	Describe the cranial fossae & identify related structures	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN30.2	Describe & identify major foramina with structures passing through them	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN30.3	Describe & identify dural folds & dural venous sinuses	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN30.4	Describe clinical importance of dural venous sinuses	K	KH	Y	Lecture	Written			
AN30.5	Explain effect of pituitary tumours on visual pathway	K	KH	N	Lecture	Written		Ophthalmology	
Topic: Orbit Number of competencies: (5) Number of procedures for certification: (NIL)									
AN31.1	Describe & identify extra ocular muscles of eyeball	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN31.2	Describe & demonstrate nerves and vessels in the orbit	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN31.3	Describe anatomical basis of Horner's syndrome	K	KH	N	Lecture	Written		Ophthalmology	
AN31.4	Enumerate components of lacrimal apparatus	K	KH	Y	Lecture	Written			
AN31.5	Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus	K	KH	Y	Lecture	Written		Ophthalmology	
Topic: Anterior Triangle Number of competencies: (2) Number of procedures for certification: (NIL)									
AN32.1	Describe boundaries and subdivisions of anterior triangle	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN32.2	Describe & demonstrate boundaries and contents of muscular, carotid, digastric and submental triangles	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: Temporal and Infratemporal regions Number of competencies: (5) Number of procedures for certification: (NIL)									
AN33.1	Describe & demonstrate extent, boundaries and contents of temporal and infratemporal fossae	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN33.2	Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN33.3	Describe & demonstrate articulating surface, type & movements of temporomandibular joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN33.4	Explain the clinical significance of pterygoid venous plexus	K	KH	Y	Lecture	Written		General Surgery	
AN33.5	Describe the features of dislocation of temporomandibular joint	K	KH	N	Lecture	Written		General Surgery	
Topic: Submandibular region Number of competencies: (2) Number of procedures for certification: (NIL)									
AN34.1	Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibular ganglion	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN34.2	Describe the basis of formation of submandibular stones	K	KH	N	Lecture	Written		General Surgery	
Topic: Deep structures in the neck Number of competencies: (10) Number of procedures for certification: (NIL)									
AN35.1	Describe the parts, extent, attachments, modifications of deep cervical fascia	K	KH	Y	Lecture	Written			
AN35.2	Describe & demonstrate location, parts, borders, surfaces, relations & blood supply of thyroid gland	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN35.3	Demonstrate & describe the origin, parts, course & branches subclavian artery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN35.4	Describe & demonstrate origin, course, relations, tributaries and termination of internal jugular & brachiocephalic veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN35.5	Describe and demonstrate extent, drainage & applied anatomy of cervical lymph nodes	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN35.6	Describe and demonstrate the extent, formation, relation & branches of cervical sympathetic chain	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN35.7	Describe the course and branches of IX, X, XI & XII nerve in the neck	K	KH	Y	Lecture	Written			
AN35.8	Describe the anatomically relevant clinical features of Thyroid swellings	K	KH	N	Lecture	Written		General Surgery	
AN35.9	Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib	K	KH	N	Lecture	Written		General Surgery	
AN35.10	Describe the fascial spaces of neck	K	KH	N	Lecture	Written			
Topic: Mouth, Pharynx & Palate Number of competencies: (5) Number of procedures for certification: (NIL)									
AN36.1	Describe the 1) morphology, relations, blood supply and applied anatomy of palatine tonsil 2) composition of soft palate	K	KH	Y	Lecture	Written		ENT	
AN36.2	Describe the components and functions of Waldeyer's lymphatic ring	K	KH	Y	Lecture	Written		ENT	
AN36.3	Describe the boundaries and clinical significance of pyriform fossa	K	KH	N	Lecture	Written		ENT	
AN36.4	Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess	K	KH	N	Lecture	Written		ENT	
AN36.5	Describe the clinical significance of Killian's dehiscence	K	KH	N	Lecture	Written		ENT	
Topic: Cavity of Nose Number of competencies: (3) Number of procedures for certification: (NIL)									
AN37.1	Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN37.2	Describe location and functional anatomy of paranasal sinuses	K	KH	Y	Lecture	Written		ENT	
AN37.3	Describe anatomical basis of sinusitis & maxillary sinus tumours	K	KH	N	Lecture	Written		ENT	
Topic: Larynx Number of competencies: (3) Number of procedures for certification: (NIL)									
AN38.1	Describe the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN38.2	Describe the anatomical aspects of laryngitis	K	KH	N	Lecture	Written		ENT	
AN38.3	Describe anatomical basis of recurrent laryngeal nerve injury	K	KH	N	Lecture	Written		ENT	
Topic: Tongue Number of competencies: (2) Number of procedures for certification: (NIL)									
AN39.1	Describe & demonstrate the morphology, nerve supply, embryological basis of nerve supply, blood supply, lymphatic drainage and actions of extrinsic and intrinsic muscles of tongue	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN39.2	Explain the anatomical basis of hypoglossal nerve palsy	K	KH	N	Lecture	Written		ENT	
Topic: Organs of hearing and equilibrium Number of competencies: (5) Number of procedures for certification: (NIL)									
AN40.1	Describe & identify the parts, blood supply and nerve supply of external ear	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.2	Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.3	Describe the features of internal ear	K	KH	N	Lecture	Written		ENT	
AN40.4	Explain anatomical basis of otitis externa and otitis media	K	KH	N	Lecture	Written		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN40.5	Explain anatomical basis of myringotomy	K	KH	N	Lecture	Written		ENT	
Topic: Eyeball Number of competencies: (3) Number of procedures for certification: (NIL)									
AN41.1	Describe & demonstrate parts and layers of eyeball	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Ophthalmology	
AN41.2	Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion	K	KH	N	Lecture	Written		Ophthalmology	
AN41.3	Describe the position, nerve supply and actions of intraocular muscles	K	KH	N	Lecture	Written		Ophthalmology	
Topic: Back Region Number of competencies: (3) Number of procedures for certification: (NIL)									
AN42.1	Describe the contents of the vertebral canal	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN42.2	Describe & demonstrate the boundaries and contents of Suboccipital triangle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN42.3	Describe the position, direction of fibres, relations, nerve supply, actions of semispinalis capitis and splenius capitis	K	KH	N	Lecture	Written			
Topic: Head & neck Joints, Histology, Development, Radiography & Surface marking Number of competencies: (9) Number of procedures for certification: (NIL)									
AN43.1	Describe & demonstrate the movements with muscles producing the movements of atlantooccipital joint & atlantoaxial joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN43.2	Identify, describe and draw the microanatomy of pituitary gland, thyroid, parathyroid gland, tongue, salivary glands, tonsil, epiglottis, cornea, retina	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN43.3	Identify, describe and draw microanatomy of olfactory epithelium, eyelid, lip, sclero-corneal junction, optic nerve, cochlea- organ of corti, pineal gland	K/S	SH	N	Lecture, Practical	Written/ skill assessment			
AN43.4	Describe the development and developmental basis of congenital anomalies of face, palate, tongue, branchial apparatus, pituitary gland, thyroid gland & eye	K	KH	Y	Lecture	Written/ Viva voce			
AN43.5	Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Surgery	
AN43.6	Demonstrate surface projection of- Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & accessory nerve	K/S	SH	N	Practical	Viva voce/ skill assessment		General Surgery	
AN43.7	Identify the anatomical structures in 1) Plain x-ray skull, 2) AP view and lateral view 3) Plain x-ray cervical spine-AP and lateral view 4) Plain x-ray of paranasal sinuses	K/S	SH	Y	Practical	Viva voce/ skill assessment		Radiodiagnosis	
AN43.8	Describe the anatomical route used for carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ skill assessment		Radiodiagnosis	
AN43.9	Identify anatomical structures in carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ skill assessment		Radiodiagnosis	
Topic: Anterior abdominal wall Number of competencies: (7) Number of procedures for certification: (NIL)									
AN44.1	Describe & demonstrate the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN44.2	Describe & identify the Fascia, nerves & blood vessels of anterior abdominal wall	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN44.3	Describe the formation of rectus sheath and its contents	K	KH	Y	Lecture	Written/ Viva voce			
AN44.4	Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN44.5	Explain the anatomical basis of inguinal hernia.	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN44.6	Describe & demonstrate attachments of muscles of anterior abdominal wall	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN44.7	Enumerate common Abdominal incisions	K	KH	N	Lecture	Written		General Surgery	
Topic: Posterior abdominal wall Number of competencies: (3) Number of procedures for certification: (NIL)									
AN45.1	Describe Thoracolumbar fascia	K	KH	Y	Lecture	Written			
AN45.2	Describe & demonstrate Lumbar plexus for its root value, formation & branches	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN45.3	Mention the major subgroups of back muscles, nerve supply and action	K	KH	N	Lecture	Written			
Topic: Male external genitalia Number of competencies: (5) Number of procedures for certification: (NIL)									
AN46.1	Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN46.2	Describe parts of Epididymis	K	KH	Y	Lecture, Practical	Written/ Viva voce			
AN46.3	Describe Penis under following headings: (parts, components, blood supply and lymphatic drainage)	K	KH	Y	Lecture, Practical	Written/ Viva voce			
AN46.4	Explain the anatomical basis of Varicocoele	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN46.5	Explain the anatomical basis of Phimosis & Circumcision	K	KH	N	Lecture	Written		General Surgery	
Topic: Abdominal cavity Number of competencies: (14) Number of procedures for certification: (NIL)									
AN47.1	Describe & identify boundaries and recesses of Lesser & Greater sac	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN47.2	Name & identify various peritoneal folds & pouches with its explanation	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN47.3	Explain anatomical basis of Ascites & Peritonitis	K	KH	N	Lecture	Written		General Surgery	
AN47.4	Explain anatomical basis of Subphrenic abscess	K	KH	N	Lecture	Written		General Surgery	
AN47.5	Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN47.6	Explain the anatomical basis of Splenic notch, Accessory spleens, Kehr's sign, Different types of vagotomy, Liver biopsy (site of needle puncture), Referred pain in cholecystitis, Obstructive jaundice, Referred pain around umbilicus, Radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach	K	KH	N	Lecture	Written		General Surgery	
AN47.7	Mention the clinical importance of Calot's triangle	K	KH	N	Lecture	Written		General Surgery	
AN47.8	Describe & identify the formation, course relations and tributaries of Portal vein, Inferior vena cava & Renal vein	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN47.9	Describe & identify the origin, course, important relations and branches of Abdominal aorta, Coeliac trunk, Superior mesenteric, Inferior mesenteric & Common iliac artery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN47.10	Enumerate the sites of portosystemic anastomosis	K	KH	Y	Lecture	Written		General Surgery	
AN47.11	Explain the anatomic basis of hematemesis& caput medusae in portal hypertension	K	KH	Y	Lecture,	Written/ Viva voce		General Surgery	
AN47.12	Describe important nerve plexuses of posterior abdominal wall	K	KH	N	Lecture	Written			
AN47.13	Describe & demonstrate the attachments, openings, nerve supply & action of the thoracoabdominal diaphragm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN47.14	Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia	K	KH	N	Lecture	Written		General Surgery	
Topic: Pelvic wall and viscera Number of competencies: (8) Number of procedures for certification: (NIL)									
AN48.1	Describe & identify the muscles of Pelvic diaphragm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN48.2	Describe & demonstrate the (position, features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and clinical aspects of) important male & female pelvic viscera	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN48.3	Describe & demonstrate the origin, course, important relations and branches of internal iliac artery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN48.4	Describe the branches of sacral plexus	K	KH	Y	Lecture	Written			
AN48.5	Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation	K	KH	N	Lecture	Written		General Surgery	
AN48.6	Describe the neurological basis of Automatic bladder	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN48.7	Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer	K	KH	N	Lecture	Written		General Surgery	
AN48.8	Mention the structures palpable during vaginal & rectal examination	K	KH	N	Lecture	Written		Obstetrics & Gynaecology General Surgery	
Topic: Perineum Number of competencies: (5) Number of procedures for certification: (NIL)									
AN49.1	Describe & demonstrate the superficial & deep perineal pouch (boundaries and contents)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.2	Describe & identify Perineal body	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.3	Describe & demonstrate Perineal membrane in male & female	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN49.4	Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN49.5	Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
Topic: Vertebral column Number of competencies: (4) Number of procedures for certification: (NIL)									
AN50.1	Describe the curvatures of the vertebral column	K	KH	Y	Lecture	Written/ Viva voce			
AN50.2	Describe & demonstrate the type, articular ends, ligaments and movements of Intervertebral joints, Sacroiliac joints & Pubic symphysis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN50.3	Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
AN50.4	Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida	K	KH	N	Lecture	Written		Orthopedics	
Topic: Sectional Anatomy Number of competencies: (2) Number of procedures for certification: (NIL)									
AN51.1	Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Radiodiagnosis	
AN51.2	Describe & identify the midsagittal section of male and female pelvis	K	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Radiodiagnosis	
Topic: Histology & Embryology Number of competencies: (8) Number of procedures for certification: (NIL)									
AN52.1	Describe & identify the microanatomical features of Gastro-intestinal system: Oesophagus, Fundus of stomach, Pylorus of stomach, Duodenum, Jejunum, Ileum, Large intestine, Appendix, Liver, Gall bladder, Pancreas & Suprarenal gland	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN52.2	Describe & identify the microanatomical features of: Urinary system: Kidney, Ureter & Urinary bladder Male Reproductive System: Testis, Epididymis, Vas deferens, Prostate & penis Female reproductive system: Ovary, Uterus, Uterine tube, Cervix, Placenta & Umbilical cord	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN52.3	Describe & identify the microanatomical features of Cardiooesophageal junction, Corpus luteum	K/S	SH	N	Lecture, Practical	Written/ skill assessment			
AN52.4	Describe the development of anterior abdominal wall	K	KH	N	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN52.5	Describe the development and congenital anomalies of Diaphragm	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.6	Describe the development and congenital anomalies of: Foregut, Midgut & Hindgut	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.7	Describe the development of Urinary system	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.8	Describe the development of male & female reproductive system	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
Topic: Osteology Number of competencies: (4) Number of procedures for certification: (NIL)									
AN53.1	Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		General Surgery, Obstetrics & Gynaecology	
AN53.2	Demonstrate the anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN53.3	Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN53.4	Explain and demonstrate clinical importance of bones of abdominopelvic region (sacralization of lumbar vertebra, Lumbarization of 1st sacral vertebra, types of bony pelvis & Coccyx)	K/S	SH	N	Lecture, DOAP session	Viva voce/ skill assessment			
Topic: Radiodiagnosis Number of competencies: (3) Number of procedures for certification: (NIL)									
AN54.1	Describe & identify features of plain X ray abdomen	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	
AN54.2	Describe & identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography & Hysterosalpingography)	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN54.3	Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen	K	KH	N	Lecture	Viva voce		Radiodiagnosis	
Topic: Surface marking Number of competencies: (2) Number of procedures for certification: (NIL)									
AN55.1	Demonstrate the surface marking of; Regions and planes of abdomen, Superficial inguinal ring, Deep inguinal ring , McBurney's point, Renal Angle & Murphy's point	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Surgery	
AN55.2	Demonstrate the surface projections of: Stomach, Liver, Fundus of gall bladder, Spleen, Duodenum, Pancreas, Ileocaecal junction, Kidneys & Root of mesentery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Surgery	
Topic: Meninges & CSF Number of competencies: (2) Number of procedures for certification: (NIL)									
AN56.1	Describe & identify various layers of meninges with its extent & modifications	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	
AN56.2	Describe circulation of CSF with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
Topic: Spinal Cord Number of competencies: (5) Number of procedures for certification: (NIL)									
AN57.1	Identify external features of spinal cord	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN57.2	Describe extent of spinal cord in child & adult with its clinical implication	K	KH	Y	Lecture	Written/ Viva voce			
AN57.3	Draw & label transverse section of spinal cord at mid-cervical & mid-thoracic level	K	KH	Y	Lecture	Written/ Viva voce			
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN57.5	Describe anatomical basis of syringomyelia	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Medulla Oblongata Number of competencies: (4) Number of procedures for certification: (NIL)									
AN58.1	Identify external features of medulla oblongata	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/ skill assessment			
AN58.2	Describe transverse section of medulla oblongata at the level of 1) pyramidal decussation, 2) sensory decussation 3) ION	K	KH	Y	Lecture	Written/ Viva voce			
AN58.3	Enumerate cranial nerve nuclei in medulla oblongata with their functional group	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN58.4	Describe anatomical basis & effects of medial & lateral medullary syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Pons Number of competencies: (3) Number of procedures for certification: (NIL)									
AN59.1	Identify external features of pons	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN59.2	Draw & label transverse section of pons at the upper and lower level	K	KH	Y	Lecture	Written/ Viva voce			
AN59.3	Enumerate cranial nerve nuclei in pons with their functional group	K	KH	Y	Lecture	Written/ Viva voce			
Topic: Cerebellum Number of competencies: (3) Number of procedures for certification: (NIL)									
AN60.1	Describe & demonstrate external & internal features of cerebellum	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN60.2	Describe connections of cerebellar cortex and intracerebellar nuclei	K	KH	Y	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Midbrain Number of competencies: (3) Number of procedures for certification: (NIL)									
AN61.1	Identify external & internal features of midbrain	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN61.2	Describe internal features of midbrain at the level of superior & inferior colliculus	K	KH	Y	Lecture	Written/ Viva voce			
AN61.3	Describe anatomical basis & effects of Benedikt's and Weber's syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Cranial nerve nuclei & Cerebral hemispheres Number of competencies: (6) Number of procedures for certification: (NIL)									
AN62.1	Enumerate cranial nerve nuclei with its functional component	K	KH	Y	Lecture	Written/ Viva voce			
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN62.3	Describe the white matter of cerebrum	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.4	Enumerate parts & major connections of basal ganglia & limbic lobe	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Ventricular System		Number of competencies: (2)			Number of procedures for certification: (NIL)				
AN63.1	Describe & demonstrate parts, boundaries & features of IIIrd, IVth & lateral ventricle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	Lecture	Written		Pediatrics	Physiology
Topic: Histology & Embryology		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN64.1	Describe & identify the microanatomical features of Spinal cord, Cerebellum & Cerebrum	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN64.2	Describe the development of neural tube, spinal cord, medulla oblongata, pons, midbrain, cerebral hemisphere & cerebellum	K	KH	Y	Lecture	Written/ Viva voce			
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
Topic: Epithelium histology		Number of competencies: (2)			Number of competencies for certification: (01)				
AN65.1	Identify epithelium under the microscope & describe the various types that correlate to its function	K/S	P	Y	Lecture, Practical	Written/ skill assessment	1		
AN65.2	Describe the ultrastructure of epithelium	K	KH	N	Lecture, Practical	Written			
Topic: Connective tissue histology		Number of competencies: (2)			Number of procedures for certification: (NIL)				
AN66.1	Describe & identify various types of connective tissue with functional correlation	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			Physiology
AN66.2	Describe the ultrastructure of connective tissue	K	KH	N	Lecture, Practical	Written		Pathology	
Topic: Muscle histology		Number of competencies: (3)			Number of procedures for certification: (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN67.1	Describe & identify various types of muscle under the microscope	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN67.2	Classify muscle and describe the structure-function correlation of the same	K	KH	Y	Lecture, Practical	Written			Physiology
AN67.3	Describe the ultrastructure of muscular tissue	K	KH	N	Lecture, Practical	Written			
Topic: Nervous tissue histology Number of competencies: (3) Number of procedures for certification: (NIL)									
AN68.1	Describe & Identify multipolar & unipolar neuron, ganglia, peripheral nerve	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN68.2	Describe the structure-function correlation of neuron	K	KH	Y	Lecture, Practical	Written			Physiology
AN68.3	Describe the ultrastructure of nervous tissue	K	KH	N	Lecture, Practical	Written			
Topic: Blood Vessels Number of competencies: (3) Number of procedures for certification: (NIL)									
AN69.1	Identify elastic & muscular blood vessels, capillaries under the microscope	K/S	SH	Y	Lecture, Practical	Skill assessment			
AN69.2	Describe the various types and structure-function correlation of blood vessel	K	KH	Y	Lecture, Practical	Written			Physiology
AN69.3	Describe the ultrastructure of blood vessels	K	KH	Y	Lecture, Practical	Written			
Topic: Glands & Lymphoid tissue Number of competencies: (2) Number of procedures for certification: (NIL)									
AN70.1	Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN70.2	Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node, spleen, thymus, tonsil and correlate the structure with function	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
Topic: Bone & Cartilage Number of competencies: (2) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN71.1	Identify bone under the microscope; classify various types and describe the structure-function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN71.2	Identify cartilage under the microscope & describe various types and structure- function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
Topic: Integumentary System Number of competencies: (1) Number of procedures for certification: (NIL)									
AN72.1	Identify the skin and its appendages under the microscope and correlate the structure with function	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
Topic: Chromosomes Number of competencies: (3) Number of procedures for certification: (NIL)									
AN73.1	Describe the structure of chromosomes with classification	K	KH	Y	Lecture	Written			
AN73.2	Describe technique of karyotyping with its applications	K	KH	Y	Lecture	Written			
AN73.3	Describe the Lyon's hypothesis	K	KH	Y	Lecture	Written			
Topic: Patterns of Inheritance Number of competencies: (4) Number of procedures for certification: (NIL)									
AN74.1	Describe the various modes of inheritance with examples	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.3	Describe multifactorial inheritance with examples	K	KH	Y	Lecture	Written		General Medicine	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Haemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	K	KH	N	Lecture	Written		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Principle of Genetics, Chromosomal Aberrations & Clinical Genetics Number of competencies: (5) Number of procedures for certification: (NIL)									
AN75.1	Describe the structural and numerical chromosomal aberrations	K	KH	Y	Lecture	Written		Pediatrics	
AN75.2	Explain the terms mosaics and chimeras with example	K	KH	N	Lecture	Written		Pediatrics	
AN75.3	Describe the genetic basis & clinical features of Prader Willi syndrome, Edward syndrome & Patau syndrome	K	KH	N	Lecture	Written		Pediatrics	
AN75.4	Describe genetic basis of variation: polymorphism and mutation	K	KH	Y	Lecture	Written		Pediatrics	
AN75.5	Describe the principles of genetic counselling	K	KH	Y	Lecture	Written		Pediatrics, Obstetrics & Gynaecology	
Topic: Introduction to embryology Number of competencies: (2) Number of procedures for certification: (NIL)									
AN76.1	Describe the stages of human life	K	KH	Y	Lecture	Written			
AN76.2	Explain the terms- phylogeny, ontogeny, trimester, viability	K	KH	Y	Lecture	written			
Topic: Gametogenesis and fertilization Number of competencies: (6) Number of procedures for certification: (NIL)									
AN77.1	Describe the uterine changes occurring during the menstrual cycle	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.2	Describe the synchrony between the ovarian and menstrual cycles	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.3	Describe spermatogenesis and oogenesis along with diagrams	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.4	Describe the stages and consequences of fertilisation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN77.5	Enumerate and describe the anatomical principles underlying contraception	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.6	Describe teratogenic influences; fertility and sterility, surrogate motherhood, social significance of “sex-ratio”.	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
Topic: Second week of development Number of competencies: (5) Number of procedures for certification: (NIL)									
AN78.1	Describe cleavage and formation of blastocyst	K	KH	Y	Lecture	Written			
AN78.2	Describe the development of trophoblast	K	KH	Y	Lecture	Written			
AN78.3	Describe the process of implantation & common abnormal sites of implantation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN78.4	Describe the formation of extra-embryonic mesoderm and coelom, bilaminar disc and prochordal plate	K	KH	Y	Lecture	Written			
AN78.5	Describe in brief abortion; decidual reaction, pregnancy test	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
Toic: 3rd to 8th week of development Number of competencies: (6) Number of procedures for certification: (NIL)									
AN79.1	Describe the formation & fate of the primitive streak	K	KH	Y	Lecture	Written			
AN79.2	Describe formation & fate of notochord	K	KH	Y	Lecture	Written			
AN79.3	Describe the process of neurulation	K	KH	Y	Lecture	Written			
AN79.4	Describe the development of somites and intra-embryonic coelom	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN79.5	Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN79.6	Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Fetal membranes Number of competencies: (7) Number of procedures for certification: (NIL)									
AN80.1	Describe formation, functions & fate of-chorion: amnion; yolk sac; allantois & decidua	K	KH	Y	Lecture	Written			
AN80.2	Describe formation & structure of umbilical cord	K	KH	Y	Lecture	Written			
AN80.3	Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.4	Describe embryological basis of twinning in monozygotic & dizygotic twins	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.5	Describe role of placental hormones in uterine growth & parturition	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.6	Explain embryological basis of estimation of fetal age.	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN80.7	Describe various types of umbilical cord attachments	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
Topic: Prenatal Diagnosis Number of competencies: (3) Number of procedures for certification: (NIL)									
AN81.1	Describe various methods of prenatal diagnosis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.2	Describe indications, process and disadvantages of amniocentesis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.3	Describe indications, process and disadvantages of chorion villus biopsy	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
Topic: Ethics in Anatomy Number of competencies: (1) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN 82.1	Demonstrate respect and follow the correct procedure when handling cadavers and other biologic tissue	S	SH	Y	Group Activity	NIL		AETCOM	
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Physiology									
PY3.1	Describe the structure and functions of a neuron and neuroglia; Discuss Nerve Growth Factor & other growth factors/cytokines	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.7	Describe the different types of muscle fibres and their structure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY4.1	Describe the structure and functions of digestive system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY5.1	Describe the functional Anatomy of heart including chambers, sounds; and Pacemaker tissue and conducting system.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY9.1	Describe and discuss sex determination; sex differentiation and their abnormalities and outline psychiatry and practical implication of sex determination.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.1	Describe and discuss the organization of nervous system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.2	Describe and discuss the functions and properties of synapse, reflex, receptors	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.3	Describe and discuss somatic sensations & sensory tracts	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.4	Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture and equilibrium & vestibular apparatus	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.5	Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.6	Describe and discuss Spinal cord, its functions, lesion & sensory disturbances	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.7	Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
PY10.11	Demonstrate the correct clinical examination of the nervous system: Higher functions, Sensory system, motor system, reflexes, Cranial Nerves in a normal volunteer or simulated environment	S	P	Y	DOAP sessions	Skill assessment / Viva voce / OSCE	1 each (total 5)		Human Anatomy
Biochemistry									
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
Pathology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group	Written/ Viva voce		Human Anatomy, General Surgery	
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy Physiology, General Medicine, General Surgery	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopedics	Microbiology
Forensic Medicine & Toxicology									
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden infants death syndrome and Munchausen's syndrome by proxy.	K	KH	Y	Lectures, Small group discussion, Autopsy, DOAP session	Written/Viva voce/ OSCE		Pediatrics, Human Anatomy	
FM3.1	Identification Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion, stature, age determination using morphology, teeth-eruption, decay, bite marks, bones ossification centres, medico-legal aspects of age.	K	KH	Y	Lectures, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce/skill assessment		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Anesthesiology									
AS4.2	Describe the Anatomy of the airway and its implications for general anaesthesia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS5.2	Describe the correlative Anatomy of the brachial plexus, subarachnoid and epidural spaces	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS5.3	Observe and describe the principles and steps/ techniques involved in peripheral nerve blocks	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy	
AS8.1	Describe the anatomical correlates and physiologic principles of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy Physiology	
ENT									
EN1.1	Describe the Human Anatomy & physiology of ear, nose, throat, head & neck.	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/Skill assessment		Human Anatomy	
Ophthalmology									
OP2.1	Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP4.1	Enumerate describe and discuss the types and causes of corneal ulceration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP6.7	Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Human Anatomy	
OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Pathology	
Dentistry									
DE1.1	Enumerate the parts of the tooth	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
DE5.1	Enumerate the parts of the tooth and supporting structures	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
General Medicine									
IM3.1	Define discuss describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small Group discussion	short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM13.9	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	S	K	Y	Bedside clinic	Skill assessment/ short case		Human Anatomy	General Surgery
IM17.1	Define and classify headache and describe the presenting features, precipitating factors, aggravating and relieving factors of various kinds of headache	K	KH	Y	Lecture, Small group discussion	short note/ Viva voce		Human Anatomy	
IM18.1	Describe the functional and the vascular anatomy of the brain	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Human Anatomy	
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Human Anatomy, Physiology	
Obstetrics & Gynaecology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OG2.1	Describe and discuss the development and anatomy of the female reproductive tract, relationship to other pelvic organs, applied anatomy as related to Obstetrics and Gynaecology.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Human Anatomy	
OG4.1	Describe and discuss the basic embryology of fetus , factors influencing fetal growth and development, anatomy and physiology of placenta, and teratogenesis	K	K	Y	Lecture, Small group discussion	Theory		Human Anatomy	
OG14.1	Enumerate and discuss the diameters of maternal pelvis and types	K	KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce/ skill assessment		Human Anatomy	
General Surgery									
SU19.1	Describe the etiology and classification of cleft lip and palate	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU19.2	Describe the Principles of reconstruction of cleft lip and palate	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU22.1	Describe the Applied anatomy, and physiology of thyroid	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU22.5	Describe the applied anatomy of parathyroid.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU23.1	Describe the applied anatomy of adrenal glands	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU24.1	Describe the clinical features, principles of investigation, prognosis and management of pancreatitis.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
SU25.1	Describe applied anatomy appropriate investigations for breast disease	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.2	Describe the clinical features, investigations and principles of management of congenital anomalies of Genitourinary system.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.5	Describe the applied anatomy and physiology of esophagus	K	K	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Human Anatomy, Physiology	
SU28.7	Describe the applied anatomy and physiology of stomach.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.10	Describe the applied anatomy of liver. Describe the Clinical features, Investigations and principles of management of Liver abscess, hydatid disease, Injuries and Tumors of the liver.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.11	Describe the applied anatomy of Spleen. Describe the clinical features, Investigations and principles of management of splenic injuries. Describe the Post-splenectomy sepsis- prophylaxis.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.12	Describe the applied anatomy of biliary system. Describe the clinical features, investigations and principles of management of diseases of biliary system.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.13	Describe the applied anatomy of small and large intestines	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.16	Describe applied anatomy including congenital anomalies of the rectum and anal canal	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
SU30.2	Describe the applied anatomy, clinical features, investigations and principles of management of Undescended testis.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU30.3	Describe the applied anatomy, clinical features, investigations and principles of management of Epididymo-orchitis	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU30.4	Describe the applied anatomy, clinical features, investigations and principles of management of Varicocele	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU30.5	Describe the applied anatomy, clinical features, investigations and principles of management of Hydrocele	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
Orthopaedics									
OR2.1	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fracture of clavicle	K/S	KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	1	Human Anatomy	
OR2.2	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fractures of proximal humerus	K	K/KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.3	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of supra condylar fracture of humerus	K	KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.4	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft of humerus and intercondylar fracture humerus with emphasis on neurovascular deficit	K/S	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.5	Describe and discuss the aetiopathogenesis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galeazzi and Monteggia injury	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.6	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of distal radius	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.7	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability	K	K/KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.8	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of spine injuries with emphasis on mobilisation of the patient	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.9	Describe and discuss the mechanism of injury, Clinical features, investigations and principle of management of acetabular fracture	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.10	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of proximal femur	K/S/A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.11	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of (a) Fracture patella (b) Fracture distal femur © Fracture proximal tibia with special focus on neurovascular injury and compartment syndrome	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.12	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fat embolism as a complication	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.13	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of: (a) Fracture both bones leg (b) Calcaneus (c) Small bones of foot	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.14	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of ankle fractures	K/S/C	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.15	Plan and interpret the investigations to diagnose complications of fractures like malunion, non-union, infection, compartmental syndrome	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	2	Human Anatomy	
OR2.16	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of open fractures with focus on secondary infection, prevention and management	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR11.1	Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture, Small Group discussion, case discussion	Written/ Viva voce/ OSCE		Human Anatomy	General Medicine, General surgery
OR12.1	Describe and discuss the Clinical features, Investigations and principles of management of Congenital and acquired malformations and deformities of: a. limbs and spine - Scoliosis and spinal bifida b. Congenital dislocation of Hip, Torticollis, c. congenital talipes equino varus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE		Human Anatomy	
Physical Medicine & Rehabilitation									
PM2.1	Describe the causes of disability in the patient with a cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	General Medicine
PM3.1	Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	Pediatrics
Pediatrics									
PE32.1	Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Down's Syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

PHYSIOLOGY (CODE: PY)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PHYSIOLOGY									
Topic: General Physiology Number of competencies: (09) Number of procedures that require certification : (NIL)									
PY1.1	Describe the structure and functions of a mammalian cell	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.2	Describe and discuss the principles of homeostasis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.3	Describe intercellular communication	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.4	Describe apoptosis – programmed cell death	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	
PY1.5	Describe and discuss transport mechanisms across cell membranes	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.6	Describe the fluid compartments of the body, its ionic composition & measurements	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY1.7	Describe the concept of pH & Buffer systems in the body	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY1.8	Describe and discuss the molecular basis of resting membrane potential and action potential in excitable tissue	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.9	Demonstrate the ability to describe and discuss the methods used to demonstrate the functions of the cells and its products, its communications and their applications in Clinical care and research.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Haematology Number of competencies: (13) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY2.1	Describe the composition and functions of blood components	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.2	Discuss the origin, forms, variations and functions of plasma proteins	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY2.3	Describe and discuss the synthesis and functions of Haemoglobin and explain its breakdown. Describe variants of haemoglobin	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY2.4	Describe RBC formation (erythropoiesis & its regulation) and its functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.5	Describe different types of anaemias & Jaundice	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	Biochemistry
PY2.6	Describe WBC formation (granulopoiesis) and its regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.7	Describe the formation of platelets, functions and variations.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.8	Describe the physiological basis of hemostasis and, anticoagulants. Describe bleeding & clotting disorders (Hemophilia, purpura)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	
PY2.9	Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion	K	KH	Y	Lecture, Small group discussion, ECE- Visit to blood bank	Written/Viva voce		Pathology	
PY2.10	Define and classify different types of immunity. Describe the development of immunity and its regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.11	Estimate Hb, RBC, TLC, RBC indices, DLC, Blood groups, BT/CT	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce		Pathology	
PY2.12	Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc	K	KH	Y	Demonstration	Written /Viva voce		Pathology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY2.13	Describe steps for reticulocyte and platelet count	K	KH	Y	Demonstration sessions	Written /Viva voce		Pathology	
Topic: Nerve and Muscle Physiology Number of competencies: (18) Number of procedures that require certification: (NIL)									
PY3.1	Describe the structure and functions of a neuron and neuroglia; Discuss Nerve Growth Factor & other growth factors/cytokines	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.2	Describe the types, functions & properties of nerve fibers	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.3	Describe the degeneration and regeneration in peripheral nerves	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY3.4	Describe the structure of neuro-muscular junction and transmission of impulses	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Anaesthesiology	
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Anaesthesiology, Pharmacology	
PY3.6	Describe the pathophysiology of Myasthenia gravis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	
PY3.7	Describe the different types of muscle fibres and their structure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.8	Describe action potential and its properties in different muscle types (skeletal & smooth)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.9	Describe the molecular basis of muscle contraction in skeletal and in smooth muscles	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.10	Describe the mode of muscle contraction (isometric and isotonic)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.11	Explain energy source and muscle metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY3.12	Explain the gradation of muscular activity	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY3.14	Perform Ergography	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.15	Demonstrate effect of mild, moderate and severe exercise and record changes in cardiorespiratory parameters	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.16	Demonstrate Harvard Step test and describe the impact on induced physiologic parameters in a simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.17	Describe Strength-duration curve	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.18	Observe with Computer assisted learning (i) amphibian nerve - muscle experiments (ii) amphibian cardiac experiments	S	KH	Y	Demonstration, Computer assisted learning methods	Practical / Viva voce			
Topic: Gastro-intestinal Physiology Number of competencies: (10) Number of procedures that require certification: (NIL)									
PY4.1	Describe the structure and functions of digestive system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY4.2	Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.3	Describe GIT movements, regulation and functions. Describe defecation reflex. Explain role of dietary fibre.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY4.4	Describe the physiology of digestion and absorption of nutrients	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY4.5	Describe the source of GIT hormones, their regulation and functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY4.6	Describe the Gut-Brain Axis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY4.7	Describe & discuss the structure and functions of liver and gall bladder	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.8	Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests	K	KH	Y	Lecture, Small group discussion, Demonstration Esophageal Manometry & endoscopy	Written/Viva voce			Biochemistry
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastro-oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Biochemistry
PY4.10	Demonstrate the correct clinical examination of the abdomen in a normal volunteer or simulated environment	S	SH	Y	DOAP session	Skill assessment/ Viva voce/OSCE			
Topic: Cardiovascular Physiology (CVS) Number of competencies: (16) Number of procedures that require certification: (03)									
PY5.1	Describe the functional anatomy of heart including chambers, sounds; and Pacemaker tissue and conducting system.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY5.2	Describe the properties of cardiac muscle including its morphology, electrical, mechanical and metabolic functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.3	Discuss the events occurring during the cardiac cycle	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.4	Describe generation, conduction of cardiac impulse	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.5	Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY5.7	Describe and discuss haemodynamics of circulatory system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.8	Describe and discuss local and systemic cardiovascular regulatory mechanisms	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.9	Describe the factors affecting heart rate, regulation of cardiac output & blood pressure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.10	Describe & discuss regional circulation including microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY5.11	Describe the patho-physiology of shock, syncope and heart failure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.12	Record blood pressure & pulse at rest and in different grades of exercise and postures in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce	1 each x 3		
PY5.13	Record and interpret normal ECG in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce		General Medicine	
PY5.14	Observe cardiovascular autonomic function tests in a volunteer or simulated environment	S	SH	N	DOAP sessions	Skill assessment/ Viva voce			
PY5.15	Demonstrate the correct clinical examination of the cardiovascular system in a normal volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce			
PY5.16	Record Arterial pulse tracing using finger plethysmography in a volunteer or simulated environment	S	SH	N	DOAP sessions, Computer assisted learning methods	Practical/OSPE/ Viva voce		General Medicine	
Topic: Respiratory Physiology Number of competencies: (10) Number of procedures that require certification: (01)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY6.1	Describe the functional anatomy of respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.2	Describe the mechanics of normal respiration, pressure changes during ventilation, lung volume and capacities, alveolar surface tension, compliance, airway resistance, ventilation, V/P ratio, diffusion capacity of lungs	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.3	Describe and discuss the transport of respiratory gases: Oxygen and Carbon dioxide	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.4	Describe and discuss the physiology of high altitude and deep sea diving	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.5	Describe and discuss the principles of artificial respiration, oxygen therapy, acclimatization and decompression sickness.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.6	Describe and discuss the pathophysiology of dyspnoea, hypoxia, cyanosis asphyxia; drowning, periodic breathing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.7	Describe and discuss lung function tests & their clinical significance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.8	Demonstrate the correct technique to perform & interpret Spirometry	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce		Respiratory Medicine	
PY6.9	Demonstrate the correct clinical examination of the respiratory system in a normal volunteer or simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE	1		
PY6.10	Demonstrate the correct technique to perform measurement of peak expiratory flow rate in a normal volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce			
Topic: Renal Physiology Number of competencies: (09) Number of procedures that require certification: (NIL)									
PY7.1	Describe structure and function of kidney	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.2	Describe the structure and functions of juxta glomerular apparatus and role of renin-angiotensin system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY7.3	Describe the mechanism of urine formation involving processes of filtration, tubular reabsorption & secretion; concentration and diluting mechanism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.4	Describe & discuss the significance & implication of Renal clearance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5	Describe the renal regulation of fluid and electrolytes & acid-base balance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.6	Describe the innervations of urinary bladder, physiology of micturition and its abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.7	Describe artificial kidney, dialysis and renal transplantation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY7.8	Describe & discuss Renal Function Tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY7.9	Describe cystometry and discuss the normal cystometrogram	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Endocrine Physiology Number of competencies: (06) Number of procedures that require certification : (NIL)									
PY8.1	Describe the physiology of bone and calcium metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.2	Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas and hypothalamus	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.3	Describe the physiology of Thymus & Pineal Gland	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.4	Describe function tests: Thyroid gland; Adrenal cortex, Adrenal medulla and pancreas	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY8.5	Describe the metabolic and endocrine consequences of obesity & metabolic syndrome, Stress response. Outline the psychiatry component pertaining to metabolic syndrome.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.6	Describe & differentiate the mechanism of action of steroid, protein and amine hormones	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Reproductive Physiology Number of competencies: (12) Number of procedures that require certification: (NIL)									
PY9.1	Describe and discuss sex determination; sex differentiation and their abnormalities and outline psychiatry and practical implication of sex determination.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY9.2	Describe and discuss puberty: onset, progression, stages; early and delayed puberty and outline adolescent clinical and psychological association.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.3	Describe male reproductive system: functions of testis and control of spermatogenesis & factors modifying it and outline its association with psychiatric illness	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.4	Describe female reproductive system: (a) functions of ovary and its control; (b) menstrual cycle - hormonal, uterine and ovarian changes	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.5	Describe and discuss the physiological effects of sex hormones	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology, Community Medicine	
PY9.7	Describe and discuss the effects of removal of gonads on physiological functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY9.8	Describe and discuss the physiology of pregnancy, parturition & lactation and outline the psychology and psychiatry-disorders associated with it.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
PY9.9	Interpret a normal semen analysis report including (a) sperm count, (b) sperm morphology and (c) sperm motility, as per WHO guidelines and discuss the results	K	KH	Y	Lecture, Small group discussion	OSPE/Viva voce			
PY9.10	Discuss the physiological basis of various pregnancy tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
PY9.11	Discuss the hormonal changes and their effects during perimenopause and menopause	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
PY9.12	Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
Topic: Neurophysiology Number of competencies: (20) Number of procedures that require certification: (09)									
PY10.1	Describe and discuss the organization of nervous system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.2	Describe and discuss the functions and properties of synapse, reflex, receptors	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.3	Describe and discuss somatic sensations & sensory tracts	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.4	Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture and equilibrium & vestibular apparatus	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.5	Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.6	Describe and discuss Spinal cord, its functions, lesion & sensory disturbances	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.7	Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
PY10.8	Describe and discuss behavioural and EEG characteristics during sleep and mechanism responsible for its production	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.9	Describe and discuss the physiological basis of memory, learning and speech	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.10	Describe and discuss chemical transmission in the nervous system. (Outline the psychiatry element).	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.11	Demonstrate the correct clinical examination of the nervous system: Higher functions, sensory system, motor system, reflexes, cranial nerves in a normal volunteer or simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE	1 each (total 5)		Human Anatomy
PY10.12	Identify normal EEG forms	S	S	Y	Small group teaching	OSPE/Viva voce		Psychiatry	
PY10.13	Describe and discuss perception of smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.14	Describe and discuss patho-physiology of altered smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.15	Describe and discuss functional anatomy of ear and auditory pathways & physiology of hearing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.16	Describe and discuss pathophysiology of deafness. Describe hearing tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.17	Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, refractive errors, colour blindness, physiology of pupil and light reflex	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.18	Describe and discuss the physiological basis of lesion in visual pathway	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
PY10.19	Describe and discuss auditory & visual evoke potentials	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
PY10.20	Demonstrate (i) Testing of visual acuity, colour and field of vision and (ii) hearing (iii) Testing for smell and (iv) taste sensation in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1 each (total 4)	ENT, Ophthalmology	
Topic: Integrated Physiology Number of competencies: (14) Number of procedures that require certification: (NIL)									
PY11.1	Describe and discuss mechanism of temperature regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.2	Describe and discuss adaptation to altered temperature (heat and cold)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.3	Describe and discuss mechanism of fever, cold injuries and heat stroke	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.4	Describe and discuss cardio-respiratory and metabolic adjustments during exercise; physical training effects	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.5	Describe and discuss physiological consequences of sedentary lifestyle	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.6	Describe physiology of Infancy	K	KH	N	Lecture, Small group discussion	Written/Viva voce		Pediatrics	
PY11.7	Describe and discuss physiology of aging; free radicals and antioxidants	K	KH	N	Lecture, Small group discussion	Written/Viva voce			
PY11.8	Discuss & compare cardio-respiratory changes in exercise (isometric and isotonic) with that in the resting state and under different environmental conditions (heat and cold)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY11.9	Interpret growth charts	K	KH	N	Small group teaching	Practical/OSPE/ Viva voce		Pediatrics	
PY11.10	Interpret anthropometric assessment of infants	K	KH	N	Small group teaching	Practical/OSPE/ Viva voce		Pediatrics	
PY11.11	Discuss the concept, criteria for diagnosis of Brain death and its implications	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.12	Discuss the physiological effects of meditation	K	KH	N	Lecture, Small group discussion	Written/Viva voce			
PY11.13	Obtain history and perform general examination in the volunteer / simulated environment	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce			
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine, Anaesthesiology	
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									
Integration									
Human Anatomy									
AN3.1	Classify muscle tissue according to structure & action	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.1	Differentiate between blood vascular and lymphatic system	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.2	Differentiate between pulmonary and systemic circulation	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.6	Describe the concept of anastomoses and collateral circulation with significance of end-arteries	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN5.7	Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses	K	KH	N	Lecture	Written			Physiology
AN5.8	Define thrombosis, infarction & aneurysm	K	KH	N	Lecture	Written		Pathology	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN7.2	List components of nervous tissue and their functions	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.3	Describe parts of a neuron and classify them based on number of neurites, size & function	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	Lecture	Written		General Medicine	Physiology
AN7.7	Describe various types of synapse	K	KH	N	Lecture	Written			Physiology
AN21.9	Describe & demonstrate mechanics and types of respiration	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/Viva voce/ skill assessment			Physiology
AN22.2	Describe & demonstrate external and internal features of each chamber of heart	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/Viva voce/ skill assessment			Physiology
AN22.3	Describe & demonstrate origin, course and branches of coronary arteries	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/Viva voce/ skill assessment			Physiology
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN24.3	Describe a bronchopulmonary segment	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.9	Demonstrate surface marking of lines of pleural reflection, Lung borders and fissures, Trachea, Heart borders, Apex beat & Surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Medicine, Pediatrics	Physiology
AN56.2	Describe circulation of CSF with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.5	Describe anatomical basis of syringomyelia	K	KH	N	Lecture	Written		General Medicine	Physiology
AN58.3	Enumerate cranial nerve nuclei in medulla oblongata with their functional group	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN58.4	Describe anatomical basis & effects of medial & lateral medullary syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
AN59.1	Identify external features of pons	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	Lecture	Written		General Medicine	Physiology
AN61.3	Describe anatomical basis & effects of Benedikt's and Weber's syndromme	K	KH	N	Lecture	Written		General Medicine	Physiology
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN62.3	Describe the white matter of cerebrum	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.4	Enumerate parts & major connections of basal ganglia & limbic lobe	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN63.1	Describe & demonstrate parts, boundaries & features of IIIrd, IVth & lateral ventricle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	Lecture	Written		Pediatrics	Physiology
AN66.1	Describe & identify various types of connective tissue with functional correlation	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			Physiology
AN67.2	Classify muscle and describe the structure-function correlation of the same	K	KH	Y	Lecture, Practical	Written			Physiology
AN68.2	Describe the structure-function correlation of neuron	K	KH	Y	Lecture, Practical	Written			Physiology
AN69.2	Describe the various types and structure-function correlation of blood vessel	K	KH	Y	Lecture, Practical	Written			Physiology
Biochemistry									
BI1.1	Describe the molecular and functional organization of a cell and its sub-cellular components.	K	KH	Y	Lecture, Small group discussions	Written assessment and Viva voce			Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
BI3.7	Describe the common poisons that inhibit crucial enzymes of carbohydrate metabolism (eg; fluoride, arsenate)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Physiology
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.3	Describe the common disorders associated with nucleotide metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physiology
BI6.7	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	Physiology
BI11.4	Perform urine analysis to estimate and determine normal and abnormal constituents	S	P	Y	DOAP session	Skill assessment	1	General Medicine	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Pathology									
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA27.3	Describe the etiology, types, stages pathophysiology pathology and complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	

Pharmacology

PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, antipsychotic, antidepressant drugs, anti-manics, opioid agonists and antagonists, drugs used for neurodegenerative disorders, antiepileptics Drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin angiotensin and aldosterone system	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: 1. Drugs used in anemias 2. Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	Pharmacology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Forensic Medicine & Toxicology									
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin.	S	KH	Y	Small group discussion, Lecture	Log book/ skill station/ Viva voce		Pathology, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & Rh blood group of a person.	S	SH	Y	Small group discussion, DOAP session	Log book/ skill station/ Viva voce		Pathology, Physiology	
Anesthesiology									
AS7.3	Observe and describe the management of an unconscious patient	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.4	Observe and describe the basic setup process of a ventilator	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine
AS8.1	Describe the anatomical correlates and physiologic principles of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy, Physiology	
AS8.2	Elicit and determine the level, quality and quantity of pain and its tolerance in patient or surrogate	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	
Ophtalmology									
OP1.1	Describe the physiology of vision.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
General Medicine									
IM1.1	Describe and discuss the epidemiology, pathogenesis clinical evolution and course of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Written		Pathology, Physiology	
IM1.3	Describe and discuss the aetiology microbiology pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.5	Describe discuss and differentiate the processes involved in R Vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.6	Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrhythmias anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.8	Describe and discuss the pathogenesis and development of common arrhythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology Community Medicine	
IM2.2	Discuss the aetiology of risk factors both modifiable and non modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
IM2.4	Discuss and describe the pathogenesis, natural history, evolution and complications of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, Physiology	
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.3	Describe and discuss the physiology of the hypothalamopituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	short notes		Pathology, Physiology	
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussions	short note/ Viva voce		Pathology, Physiology	General Surgery
IM18.6	Distinguish the lesion based on upper vs lower motor neuron, side, site and most probable nature of the lesion	K/S	SH	Y	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.7	Describe the clinical features and distinguish, based on clinical examination, the various disorders of speech	K/S	SH	N	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.8	Describe and distinguish, based on the clinical presentation, the types of bladder dysfunction seen in CNS disease	K	KH	Y	Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Human Anatomy, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM22.9	Enumerate the causes and describe the clinical and laboratory features of metabolic acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.10	Enumerate the causes of describe the clinical and laboratory features of metabolic alkalosis	K	KH	N	Lecture, small group discussion	Written/ Viva voce		Physiology	
IM22.11	Enumerate the causes and describe the clinical and laboratory features of respiratory acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.12	Enumerate the causes and describe the clinical and laboratory features of respiratory alkalosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.13	Identify the underlying acid based disorder based on an ABG report and clinical situation	S	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
Obstetrics & Gynaecology									
OG3.1	Describe the physiology of ovulation, menstruation, fertilization, implantation and gametogenesis	K	K	Y	Lecture, seminars	Theory		Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG7.1	Describe and discuss the changes in the genital tract, cardiovascular system, respiratory, haematology, renal and gastrointestinal systems in pregnancy	K	KH	Y	Lecture, seminars	Theory		Physiology	
Pediatrics									
PE7.2	Explain the physiology of lactation	K	KH	Y	Lecture, small group discussion	Written/ Viva voce		Physiology	
PE7.3	Describe the composition and types of breast milk and discuss the differences between cow's milk and human milk	K	KH	Y	Lecture, debate	Written/ Viva voce		Physiology	
PE10.1	Define, describe the etio-pathogenesis, classify including WHO classification, clinical features, complication and management of severe Acute Malnourishment and Moderate Acute Malnutrition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Biochemistry	
PE10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bed side clinics, Skill Lab	Skill station		Physiology, Biochemistry	
PE11.1	Describe the common etiology, clinical features and management of Obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	
PE11.2	Discuss the risk approach for obesity and discuss the prevention strategies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	P	Y	Bedside clinics, Skills lab	Document in log book	3	Biochemistry Physiology Pathology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Y	Bed side clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.13	Discuss the RDA, dietary sources of Vitamin K and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis, management and prevention of Deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE23.1	Discuss the Hemodynamic changes, clinical presentation, complications and management of Acyanotic Heart Diseases –VSD, ASD and PDA	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot's Physiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.6	Discuss the etio-pathogenesis and clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE29.1	Discuss the etio-pathogenesis, Clinical features, classification and approach to a child with anaemia	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, Physiology	
PE29.2	Discuss the etio-pathogenesis, clinical features and management of Iron Deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE29.3	Discuss the etiopathogenesis, Clinical features and management of VIT B12, Folate deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.4	Discuss the etio-pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sickle cell anaemia, Hereditary spherocytosis, Auto-immune hemolytic anaemia and hemolytic uremic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology Physiology	

General Surgery

SU1.1	Describe basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators	K	KH	Y	Lecture, Bed side clinic and Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
SU2.1	Describe Pathophysiology of shock. Types of shock. Principles of resuscitation including fluid replacement and monitoring	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
SU4.1	Elicit, document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
SU12.1	Enumerate the causes and consequences of malnutrition in the surgical patient.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU12.2	Describe and Discuss the methods of estimation and replacement the Fluid and electrolyte requirements in the surgical patient	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU28.5	Describe the applied Anatomy and physiology of esophagus	K	K	Y	Lecture, Small group Discussion, Demonstration	Written/ Viva voce		Human Anatomy, Physiology	

Respiratory Medicine

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT2.1	Define and classify obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.2	Describe and discuss the epidemiology risk factors and evolution of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.4	Describe and discuss the physiology and pathophysiology of hypoxia and hypercapnea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.5	Describe and discuss the genetics of alpha 1 antitrypsin deficiency in emphysema	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.11	Describe, discuss and interpret pulmonary function tests	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Physiology, Pathology	

BIOCHEMISTRY (CODE: BI)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BIOCHEMISTRY									
Topic: Basic Biochemistry		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
BI1.1	Describe the molecular and functional organization of a cell and its sub-cellular components.	K	KH	Y	Lecture, Small group discussion	Written assessment/ Viva voce			Physiology
Topic: Enzyme		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
BI2.1	Explain fundamental concepts of enzyme, isoenzyme, alloenzyme, coenzyme & co-factors. Enumerate the main classes of IUBMB nomenclature.	K	KH	Y	Lecture, case discussion	Written assessment/ Viva voce			
BI2.2	Observe the estimation of SGOT & SGPT	K	K	Y	Demonstration	Viva voce			
BI2.3	Describe and explain the basic principles of enzyme activity	K	KH	Y	Lecture, case discussion	Written/ Viva voce			
BI2.4	Describe and discuss enzyme inhibitors as poisons and drugs and as therapeutic enzymes	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, General Medicine	
BI2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, General Medicine	
BI2.6	Discuss use of enzymes in laboratory investigations (Enzyme-based assays)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.7	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions.	K	KH	Y	Lecture, Small group discussion, DOAP sessions	Written/ Viva voce		Pathology, General Medicine	
Topic: Chemistry and Metabolism of Carbohydrates		Number of competencies: (10)			Number of procedures that require certification: (NIL)				
BI3.1	Discuss and differentiate monosaccharides, di-saccharides and polysaccharides giving examples of main carbohydrates as energy fuel, structural element and storage in the human body	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI3.2	Describe the processes involved in digestion and assimilation of carbohydrates and storage.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
BI3.3	Describe and discuss the digestion and assimilation of carbohydrates from food.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
BI3.4	Define and differentiate the pathways of carbohydrate metabolism, (glycolysis, gluconeogenesis, glycogen metabolism, HMP shunt).	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI3.5	Describe and discuss the regulation, functions and integration of carbohydrate along with associated diseases/disorders.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI3.6	Describe and discuss the concept of TCA cycle as a amphibolic pathway and its regulation.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
BI3.7	Describe the common poisons that inhibit crucial enzymes of carbohydrate metabolism (eg; fluoride, arsenate)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Physiology
BI3.8	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, General Medicine	
BI3.9	Discuss the mechanism and significance of blood glucose regulation in health and disease.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI3.10	Interpret the results of blood glucose levels and other laboratory investigations related to disorders of carbohydrate metabolism.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Topic: Chemistry and Metabolism of Lipids Number of competencies: (07) Number of procedures that require certification: (NIL)									
BI4.1	Describe and discuss main classes of lipids (Essential/non-essential fatty acids, cholesterol and hormonal steroids, triglycerides, major phospholipids and sphingolipids) relevant to human system and their major functions.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI4.2	Describe the processes involved in digestion and absorption of dietary lipids and also the key features of their metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI4.3	Explain the regulation of lipoprotein metabolism & associated disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.4	Describe the structure and functions of lipoproteins, their functions, interrelations & relations with atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.5	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.6	Describe the therapeutic uses of prostaglandins and inhibitors of eicosanoid synthesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.7	Interpret laboratory results of analytes associated with metabolism of lipids.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Chemistry and Metabolism of Proteins Number of competencies: (05) Number of procedures that require certification: (NIL)									
BI5.1	Describe and discuss structural organization of proteins.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI5.3	Describe the digestion and absorption of dietary proteins.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI5.4	Describe common disorders associated with protein metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI5.5	Interpret laboratory results of analytes associated with metabolism of proteins.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Metabolism and homeostasis Number of competencies: (15) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI6.1	Discuss the metabolic processes that take place in specific organs in the body in the fed and fasting states.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.2	Describe and discuss the metabolic processes in which nucleotides are involved.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI6.3	Describe the common disorders associated with nucleotide metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physiology
BI6.4	Discuss the laboratory results of analytes associated with gout & Lesch Nyhan syndrome.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.5	Describe the biochemical role of vitamins in the body and explain the manifestations of their deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.6	Describe the biochemical processes involved in generation of energy in cells.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI6.7	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.8	Discuss and interpret results of Arterial Blood Gas (ABG) analysis in various disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.10	Enumerate and describe the disorders associated with mineral metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
Topic: Molecular biology Number of competencies: (07) Number of procedures that require certification: (NIL)									
BI7.1	Describe the structure and functions of DNA and RNA and outline the cell cycle.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.2	Describe the processes involved in replication & repair of DNA and the transcription & translation mechanisms.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.3	Describe gene mutations and basic mechanism of regulation of gene expression.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI7.4	Describe applications of molecular technologies like recombinant DNA technology, PCR in the diagnosis and treatment of diseases with genetic basis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
BI7.5	Describe the role of xenobiotics in disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.6	Describe the anti-oxidant defence systems in the body.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.7	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Nutrition Number of competencies: (05) Number of procedures that require certification: (NIL)									
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.3	Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI8.4	Describe the causes (including dietary habits), effects and health risks associated with being overweight/ obesity.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables.(macro-molecules & its importance)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
Topic: Extracellular Matrix Number of competencies: (03) Number of procedures that require certification: (NIL)									
BI9.1	List the functions and components of the extracellular matrix (ECM).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI9.2	Discuss the involvement of ECM components in health and disease.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI9.3	Describe protein targeting & sorting along with its associated disorders.	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Oncogenesis and immunity Number of competencies: (05) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI10.1	Describe the cancer initiation, promotion oncogenes & oncogene activation. Also focus on p53 & apoptosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	Physiology
BI10.5	Describe antigens and concepts involved in vaccine development.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
Topic: Biochemical Laboratory Tests Number of competencies: (24) Number of procedures that require certification: (05)									
BI11.1	Describe commonly used laboratory apparatus and equipments, good safe laboratory practice and waste disposal.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.2	Describe the preparation of buffers and estimation of pH.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.3	Describe the chemical components of normal urine.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.4	Perform urine analysis to estimate and determine normal and abnormal constituents	S	P	Y	DOAP session	Skill assessment	1	General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI11.5	Describe screening of urine for inborn errors & describe the use of paper chromatography	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.6	Describe the principles of colorimetry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.7	Demonstrate the estimation of serum creatinine and creatinine clearance	S	P	Y	Practical	Skills assessment	1		
BI11.8	Demonstrate estimation of serum proteins, albumin and A:G ratio	S	P	Y	Practical	Skills assessment	1		
BI11.9	Demonstrate the estimation of serum total cholesterol and HDL-cholesterol	S	P	Y	Practical	Skills assessment			
BI11.10	Demonstrate the estimation of triglycerides	S	P	Y	Practical	Skills assessment			
BI11.11	Demonstrate estimation of calcium and phosphorous	S	P	Y	Practical	Skills assessment			
BI11.12	Demonstrate the estimation of serum bilirubin	S	P	Y	Practical	Skills assessment			
BI11.13	Demonstrate the estimation of SGOT/ SGPT	S	P	Y	Practical	Skills assessment			
BI11.14	Demonstrate the estimation of alkaline phosphatase	S	P	Y	Practical	Skills assessment			
BI11.15	Describe & discuss the composition of CSF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI11.16	Observe use of commonly used equipments/techniques in biochemistry laboratory including: •pH meter •Paper chromatography of amino acid •Protein electrophoresis •TLC, PAGE •Electrolyte analysis by ISE •ABG analyzer •ELISA •Immunodiffusion •Autoanalyser •Quality control •DNA isolation from blood/ tissue	S	KH	Y	Demonstration	Skill assessment			
BI11.17	Explain the basis and rationale of biochemical tests done in the following conditions: - diabetes mellitus, - dyslipidemia, - myocardial infarction, - renal failure, gout, - proteinuria, - nephrotic syndrome, - edema, - jaundice, - liver diseases, pancreatitis, disorders of acid- base balance, thyroid disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI11.18	Discuss the principles of spectrophotometry.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.19	Outline the basic principles involved in the functioning of instruments commonly used in a biochemistry laboratory and their applications.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.20	Identify abnormal constituents in urine, interpret the findings and correlate these with pathological states.	S	SH	Y	DOAP sessions	Skill assessment	1		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI11.21	Demonstrate estimation of glucose, creatinine, urea and total protein in serum.	S	SH	Y	DOAP sessions	Skill assessment	1		
BI11.22	Calculate albumin: globulin (AG) ratio and creatinine clearance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.23	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.24	Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									
Integration									
Physiology									
PY3.11	Explain energy source and muscle metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.2	Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.4	Describe the physiology of digestion and absorption of nutrients	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.7	Describe & discuss the structure and functions of liver and gall bladder	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PY4.8	Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests	K	KH	Y	Lecture, Small group discussion, Demonstration Esophageal Manometry & endoscopy	Written/Viva voce			Biochemistry
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastro-oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Biochemistry
PY7.8	Describe & discuss Renal Function Tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY8.4	Describe function tests: Thyroid gland; Adrenal cortex, Adrenal medulla and pancreas	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Pathology

PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Pediatrics	
PA14.1	Describe iron metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.4	Describe the etiology, pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	

Dermatology, Venereology & Leprosy

DR17.1	Enumerate and identify the cutaneous findings in Vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill assessment Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	

Ophthalmology

OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Human Anatomy	

General Medicine

IM2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
IM2.12	Choose and interpret a lipid profile and identify the desirable lipid profile in the clinical context	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Biochemistry	
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology, Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM11.12	Perform and interpret a capillary blood glucose test	S	P	Y	Bed side clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	S	P	Y	Bed side clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Biochemistry	
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	

Pediatrics

PE9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Community Medicine, Biochemistry	
PE9.3	Explains the Calorific value of common Indian foods	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE10.1	Define Describe the etio-pathogenesis , Classify including WHO classification , clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bed side clinics, Skill Lab	Skill station		Physiology, Biochemistry	
PE11.1	Describe the common etiology, clinical features and management of Obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	
PE12.1	Discuss the (RDA) , dietary sources of Vitamin A and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.2	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin A	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.3	Identify the clinical features of dietary deficiency / excess of Vitamin A	S	SH	Y	Bed side clinics, Small group discussion	Document in log book		Biochemistry	
PE12.4	Diagnose patients with Vitamin A deficiency, Classify and plan management	S	SH	N	Bed side clinics, Skill Station	Document in log book		Biochemistry	
PE12.5	Discuss the Vitamin A prophylaxis program and their recommendations	K	K	Y	Lecture, Small group Discussion	Written/ Viva voce		Biochemistry	
PE12.6	Discuss the RDA, dietary sources of Vitamin D and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry, Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE12.9	Assess patients with Vitamin D deficiency, Diagnose, Classify and plan management	S	SH	Y	Bed side clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.11	Discuss the RDA, dietary sources of Vitamin E and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.12	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin E	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.13	Discuss the RDA , dietary sources of Vitamin K and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis , management and prevention of Deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.15	Discuss the RDA , dietary sources of Vitamin B and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.16	Describe the causes, clinical features, diagnosis and management of Deficiency of B complex Vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.17	Identify the clinical features of Vitamin B complex deficiency	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry	
PE12.18	Diagnose patients with Vitamin B complex deficiency and plan management	S	SH	Y	Bed side clinics, Skill lab	Document in log book		Biochemistry	
PE12.19	Discuss the RDA, dietary sources of Vitamin C and their role in Health and disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.20	Describe the causes, clinical features, diagnosis and management of Deficiency of Vitamin C (scurvy)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.21	Identify the clinical features Vitamin C deficiency	S	SH	N	Bed side clinics, Skill lab	Document in log book		Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE13.1	Discuss the RDA, dietary sources of Iron and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.2	Describe the causes, diagnosis and management of Fe deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	S	SH	Y	Bed side clinics, Skill Lab	Document in log book		Pathology, Biochemistry	
PE13.4	Interpret hemogram and Iron Panel	S	SH	Y	Bed side clinic, Small group discussion	Skill Assessment		Pathology, Biochemistry	
PE13.7	Discuss the RDA , dietary sources of Iodine and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.8	Describe the causes, clinical features, diagnosis and management of Deficiency of Iodine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.9	Identify the clinical features of Iodine deficiency disorders	S	SH	N	Lecture, Bed side clinic	Written/ Viva voce		Biochemistry	
PE13.10	Discuss the National Goiter control program and their recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Community Medicine	
PE13.11	Discuss the RDA, dietary sources of Calcium and its role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.12	Describe the causes, clinical features, diagnosis and management of Ca Deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.13	Discuss the RDA , dietary sources of Magnesium and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.14	Describe the causes, clinical features, diagnosis and management of Magnesium Deficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE19.1	Explain the components of the Universal immunization Program and the sub National Immunization Programs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.3	Vaccine description with regards to Classification of vaccines, Strain used, Dose, route, schedule, Risks benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, preterm, organ transplants, those who received blood and blood products, splenectomised children, Adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE21.11	Perform and interpret the common analytes in a Urine examination	S	SH	Y	Bed side clinic Labs, Skill lab	Skill assessment		Biochemistry, Pathology	
PE29.16	Discuss the Indications for Hemoglobin electrophoresis and interpret report	K	K	N	Small group discussion	Viva voce		Biochemistry	
PE33.6	Perform and interpret Urine Dip Stick for Sugar	S	P	Y	DOAP session	Skill assessment	3	Biochemistry	

General Surgery

SU1.1	Describe basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators.	K	KH	Y	Lecture, Bed side clinic and Small group discussion.	Written/ Viva voce.		Physiology, Biochemistry	
SU1.2	Describe the factors that affect the metabolic response to injury.	K	KH	Y	Lecture, Bed side clinic and Small group discussion.	Written/ Viva voce.		Biochemistry	
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient.	K	KH	Y	Lecture, Small group discussion.	Written/ Viva voce		Biochemistry, Microbiology, Pathology	
SU12.3	Discuss the nutritional requirements of surgical patients, the methods of providing nutritional support and their complications.	K	KH	Y	Lecture, Small group discussion, Bedside clinic discussion	Written/ Viva voce		Biochemistry	

PHARMACOLOGY (CODE: PH)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PHARMACOLOGY									
KNOWLEDGE: Topic: Pharmacology		Number of competencies: (64)			Number of procedures that require certification : (NIL)				
PH1.1	Define and describe the principles of pharmacology and pharmacotherapeutics	K	K	Y	Lecture	Written/ Viva voce			
PH1.2	Describe the basis of Evidence based medicine and Therapeutic drug monitoring	K	KH	Y	Lecture	Written/ Viva voce			
PH1.3	Enumerate and identify drug formulations and drug delivery systems	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
PH1.4	Describe absorption, distribution, metabolism & excretion of drugs	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.5	Describe general principles of mechanism of drug action	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.6	Describe principles of Pharmacovigilance & ADR reporting systems	K	KH	Y	Lecture, Practical	Written/ Viva voce			
PH1.7	Define, identify and describe the management of adverse drug reactions (ADR)	K/S	KH	Y	Lecture, Practical	Written/ Viva voce			
PH1.8	Identify and describe the management of drug interactions	K/S	KH	Y	Lecture, Practical	Written/ Viva voce			
PH1.9	Describe nomenclature of drugs i.e. generic, branded drugs	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
PH1.10	Describe parts of a correct, complete and legible generic prescription. Identify errors in prescription and correct appropriately	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
PH1.11	Describe various routes of drug administration, eg., oral, SC, IV, IM, SL	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction.	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine	
PH1.13	Describe mechanism of action, types, doses, side effects, indications and contraindications of adrenergic and anti-adrenergic drugs	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.14	Describe mechanism of action, types, doses, side effects, indications and contraindications of cholinergic and anticholinergic drugs	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.16	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti-histaminics, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.17	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of local anesthetics	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.18	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre-anesthetic medications	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti-psychotic, anti-depressant drugs, anti-maniacs, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti-epileptics drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.20	Describe the effects of acute and chronic ethanol intake	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.21	Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	Forensic Medicine
PH1.23	Describe the process and mechanism of drug deaddiction	K/S	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
PH1.24	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs affecting renal systems including diuretics, antidiuretics- vasopressin and analogues	K	KH	Y	Lecture	Written/ Viva voce			
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin-angiotensin and aldosterone system	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the antiarrhythmics	K	KH	N	Lecture	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.32	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid-peptic disease and GERD 2. Antiemetics and prokinetics 3. Antidiarrhoeals 4 .Laxatives 5. Inflammatory Bowel Disease 6. Irritable Bowel Disorders, biliary and pancreatic diseases	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		General Medicine	
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: 1.Drugs used in anemias 2.Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	Pharmacology
PH1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.37	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used as sex hormones, their analogues and anterior Pituitary hormones	K	KH	Y	Lecture	Written/ Viva voce			
PH1.38	Describe the mechanism of action, types, doses, side effects, indications and contraindications of corticosteroids	K	KH	Y	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.40	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.42	Describe general principles of chemotherapy	K	KH	Y	Lecture	Written/ Viva voce			
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology
PH1.44	Describe the first line antitubercular drugs, their mechanisms of action, side effects and doses.	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology
PH1.48	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV	K	KH	Y	Lecture	Written/Viva voce			Microbiology
PH1.49	Describe mechanism of action, classes, side effects, indications and contraindications of anticancer drugs	K	KH	Y	Lecture	Written/Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.50	Describe mechanisms of action, types, doses, side effects, indications and contraindications of immunomodulators and management of organ transplant rejection	K	KH	Y	Lecture	Written/ Viva voce			
PH1.51	Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents	K	KH/	Y	Lecture	Written/ Viva voce			
PH1.52	Describe management of common poisoning, insecticides, common sting and bites	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.53	Describe heavy metal poisoning and chelating agents	K	KH	N	Lecture	Written/ Viva voce			
PH1.54	Describe vaccines and their uses	K	KH	Y	Lecture	Written/ Viva voce			
PH1.55	Describe and discuss the following National Health Programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
PH1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	
PH1.57	Describe drugs used in skin disorders	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PH1.58	Describe drugs used in Ocular disorders	K	KH	Y	Lecture	Written/ Viva voce		Ophthalmology	
PH1.59	Describe and discuss the following: Essential medicines, Fixed dose combinations, Over the counter drugs, Herbal medicines	K	KH	Y	Lecture	Written/ Viva voce			
PH1.60	Describe and discuss Pharmacogenomics and Pharmacoeconomics	K	KH	N	Lecture	Written/ Viva voce			
PH1.61	Describe and discuss dietary supplements and nutraceuticals	K	KH	N	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.62	Describe and discuss antiseptics and disinfectants	K	KH	Y	Lecture	Written/ Viva voce			
PH1.63	Describe Drug Regulations, acts and other legal aspects	K	KH	Y	Lecture	Written/ Viva voce			
PH1.64	Describe overview of drug development, Phases of clinical trials and Good Clinical Practice	K	KH	Y	Lecture	Written/ Viva voce			
SKILLS: Topic: Clinical Pharmacy Number of competencies: (04) Number of procedures that require certification : (NIL)									
PH2.1	Demonstrate understanding of the use of various dosage forms (oral/local/parenteral; solid/liquid)	S/C	SH	Y	DOAP sessions	Skills assessment			
PH2.2	Prepare oral rehydration solution from ORS packet and explain its use	S/C	SH	Y	DOAP sessions	Skills assessment			
PH2.3	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment	S	SH	Y	DOAP sessions	Skills assessment			
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP sessions	Skills assessment		Pediatrics, General Medicine	
SKILLS: Topic: Clinical Pharmacology Number of competencies: (08) Number of procedures that require certification : (04)									
PH3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	S/C	P	Y	Skill station	Skill station	5	General Medicine	
PH3.2	Perform and interpret a critical appraisal (audit) of a given prescription	S	P	Y	Skill Lab	Maintenance of log book	3		
PH3.3	Perform a critical evaluation of the drug promotional literature	S	P	Y	Skill Lab	Maintenance of log book/ Skill station	3	General Medicine	
PH3.4	To recognise and report an adverse drug reaction	S	SH	Y	Skill station	Maintenance of log book/ Skill station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH3.5	To prepare and explain a list of P-drugs for a given case/condition	S	P	Y	Skill station	Maintenance of log book	3	General Medicine	
PH3.6	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs	S	SH	N	Skill station	maintenance of log book			
PH3.7	Prepare a list of essential medicines for a healthcare facility	S	SH	Y	Skill station	Maintenance of log book			
PH3.8	Communicate effectively with a patient on the proper use of prescribed medication	C/A	SH	Y	Skill Lab	Skill station			
SKILLS: Topic: Experimental Pharmacology Number of competencies: (02) Number of procedures that require certification :(NIL)									
PH4.1	Administer drugs through various routes in a simulated environment using mannequins	S	SH	Y	DOAP sessions	Skills assessment			
PH4.2	Demonstrate the effects of drugs on blood pressure (vasopressor and vaso-depressors with appropriate blockers) using computer aided learning	S	SH	Y	Skill lab	Skill station			
Communication Topic: Pharmacology Number of competencies: (07) Number of procedures that require certification : (NIL)									
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	A/C	SH	Y	Small group discussion	skill station		General Medicine	
PH5.2	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines	A/C	SH	Y	Small group discussion	Skill station			
PH5.3	Motivate patients with chronic diseases to adhere to the prescribed management by the health care provider	A/C	SH	Y	Small group discussion	short note/skill station			
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	A/C	SH	Y	Small group discussion	short note/ viva voce		General Medicine	
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	K	KH	Y	Small group discussion	short note/ Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	A/C	SH	Y	Small group discussion	Skill station		Psychiatry	
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	K	KH	Y	Small group discussion	short note/ Viva voce			Forensic Medicine

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Physiology									
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Anaesthesiology, Pharmacology	

Microbiology									
MI1.6	Describe the mechanisms of drug resistance, methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy.	K	K	Y	Lecture , Small group discussion	Written Viva			Pharmacology
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course, the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid Peptic Disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology

Community Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM3.8	Describe the mode of action & application cycle of commonly used insecticides and rodenticides	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
CM19.1	Define and describe the concept of Essential Medicine List (EML)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
CM19.2	Describe roles of essential medicine in primary health care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
CM19.3	Describe counterfeit medicine and its prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology

Forensic Medicine & Toxicology

FM4.11	Describe and discuss euthanasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.12	Discuss legal and ethical issues in relation to stem cell research	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.17	Describe and discuss ethical Principles: Respect for autonomy, non-maleficence, beneficence & justice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.22	Explain Oath – Hippocrates, Charaka and Sushruta and procedure for administration of Oath	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.23	Describe the modified Declaration of Geneva and its relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.25	Clinical research & Ethics: Discuss human experimentation including clinical trials	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.26	Discuss the constitution and functions of ethical committees	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.27	Describe and discuss Ethical Guidelines for Biomedical Research on Human Subjects & Animals	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM8.1	Describe the history of Toxicology	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM8.2	Define the terms Toxicology, Forensic Toxicology, Clinical Toxicology and poison	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.3	Describe the various types of poisons, Toxicokinetics & Toxicodynamics and diagnosis of poisoning in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.4	Describe the Laws in relations to poisons including NDPS Act, Medico-legal aspects of poisons	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.5	Describe Medico-legal autopsy in cases of poisoning including preservation and dispatch of viscera for chemical analysis	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSPE		Pharmacology	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce /OSCE		Pharmacology	
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce /OSCE		Pharmacology, General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Caustics Inorganic – sulphuric, nitric, and hydrochloric acid Organic- Carbolic Acid (phenol), Oxalic and acetylsalicylic acids.	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lectures, Small group discussion Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	Pharmacology
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepines, phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv. Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis vi. Gastro-Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	Pharmacology
Dermatology, Venereology & Leprosy									
DR5.3	Enumerate and describe the pharmacology, administration and adverse reaction of pharmacotherapies for scabies	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pediatrics	Pharmacology
DR7.3	Describe the pharmacology and action of antifungal (systemic and topical). agents Enumerate side effects of antifungal therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology ,Pharmacology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR8.7	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for common viral illnesses of the skin	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
DR9.4	Enumerate, describe and identify lepra reactions and supportive measures and therapy of lepra reactions	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on National Guidelines	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on WHO guidelines	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Psychiatry
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR14.5	Enumerate the indications and describe the pharmacology indications and adverse reactions of drugs used in the urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
DR15.3	Enumerate the indications and describe the pharmacology indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery	Microbiology, Pharmacology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Anesthesiology									
AS3.6	Choose and write a prescription for appropriate premedications for patients undergoing surgery	S	SH	Y	DOAP session, Bedside clinic session	Skill station		Pharmacology	
AS4.1	Describe and discuss the pharmacology of drugs used in induction and maintenance of general anaesthesia (including intravenous and inhalation induction agents, opiate and non-opiate analgesics, depolarising and non-depolarising muscle relaxants, anticholinesterases	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pharmacology	
AS4.3	Observe and describe the principles and the practical aspects of induction and maintenance of anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	
AS5.4	Observe and describe the pharmacology and correct use of commonly used drugs and adjuvant agents in regional anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	
AS8.3	Describe the pharmacology and use of drugs in the management of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	
AS8.4	Describe the principles of pain management in palliative care	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	General Medicine
AS8.5	Describe the principles of pain management in the terminally ill	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	General Medicine
AS10.4	Define and describe common medical and medication errors in anaesthesia	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	General Medicine

Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PS4.4	Describe the treatment of alcohol and substance abuse disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS4.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in alcohol and substance abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS5.3	Describe the treatment of schizophrenia including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS5.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in schizophrenia	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	
PS6.4	Describe the treatment of depression including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS6.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in depression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS7.4	Describe the treatment of bipolar disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS7.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in bipolar disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.4	Describe the treatment of anxiety disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in anxiety disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS10.4	Describe the treatment of somatoform disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PS11.4	Describe the treatment of personality disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS11.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in personality disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS12.4	Describe the treatment of psychosomatic disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS12.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychosomatic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS13.4	Describe the treatment of psychosexual and gender identity disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS18.1	Enumerate the indications and describe the pharmacology, dose and side effects of commonly use drugs in psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
General Medicine									
IM1.24	Describe and discuss the pharmacology of drugs including indications & contraindications in the management of heart failure including diuretics, ACE inhibitors, Beta blockers, aldosterone antagonists and cardiac glycosides	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Written		Microbiology Pharmacology	
IM1.30	Administer an intramuscular injection with an appropriate explanation to the patient	S	SH	Y	Bedside clinic, Skill assessment	log book documentation of completion		Pharmacology	
IM2.15	Discuss and describe the medications used in patients with an acute coronary syndrome based on the clinical presentation	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology, Biochemistry	
IM2.20	Discuss and describe the assessment and relief of pain in acute coronary syndromes	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	
IM2.23	Describe and discuss the indications for nitrates, anti platelet agents, gpIIb - IIIa inhibitors, beta blockers, ACE inhibitors etc in the management of coronary syndromes	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	
IM3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.13	Select, describe and prescribe based on culture and sensitivity appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM4.22	Describe and discuss the pharmacology, indications, adverse reactions, interactions of antimalarial drugs and basis of resistance	K	KH	Y	Small group, Lecture	Written/ Viva voce		Pharmacology	
IM4.23	Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and National Programs	S	SH	Y	Skill assessment	Skill assessment		Microbiology, Pharmacology	
IM4.26	Counsel the patient on malarial prevention	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pharmacology	
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group	Skill Assessment/ Written/ Viva voce		Pharmacology	General Surgery
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM6.17	Discuss and describe the principles of HAART, the classes of antiretrovirals used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.18	Discuss and describe the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM7.21	Select, prescribe and communicate appropriate medications for relief of joint pain	K/C	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	Orthopedics
IM7.22	Select, prescribe and communicate preventive therapy for crystalline arthropathies	K/C	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	
IM7.23	Select, prescribe and communicate treatment option for systemic rheumatologic conditions	K/C	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	
IM7.24	Describe the basis for biologic and disease modifying therapy in rheumatologic diseases	K	KH	Y	Bed side clinic, Small group discussion	Skill assessment/ written		Pharmacology	
IM8.14	Develop an appropriate treatment plan for essential hypertension	K	KH	Y	Small group discussion	Skill assessment/ Written/ Viva voce		Pharmacology	
IM8.15	Recognise, prioritise and manage hypertensive emergencies	S	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	
IM9.14	Prescribe replacement therapy with iron, B12, folate	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ written		Pharmacology	
IM9.15	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Community Medicine	
IM10.25	Identify and describe the priorities in the management of ARF including diet, volume management, alteration in doses of drugs, monitoring and indications for dialysis	K/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM11.16	Discuss and describe the pharmacologic therapies for diabetes their indications, contraindications, adverse reactions and interactions	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM11.18	Describe and discuss the pharmacology, indications, adverse reactions and interactions of drugs used in the prevention and treatment of target organ damage and complications of Type II Diabetes including neuropathy, nephropathy, retinopathy, hypertension, dyslipidemia and cardiovascular disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM11.19	Demonstrate and counsel patients on the correct technique to administer insulin	S/C	SH	Y	DOAP session	Skill assessment		Pharmacology	
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Viva voce/ short note		Pharmacology	General Surgery
IM12.14	Write and communicate to the patient appropriately a prescription for thyroxine based on age, sex, and clinical and biochemical status	S/C	SH	Y	Skill assessment	Skill assessment		Pharmacology	
IM12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and General Surgery in the management of thyrotoxicosis	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	General Surgery
IM13.6	Describe and distinguish the difference between curative and palliative care in patients with cancer	K	K	N	Lecture, Small group discussion	short note/ Viva voce		Pharmacology	
IM13.13	Describe and assess pain and suffering objectively in a patient with cancer	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	General Surgery
IM13.14	Describe the indications for General Surgery, radiation and chemotherapy for common malignancies	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	General Surgery
IM13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	Anesthesiology
IM14.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for obesity	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology	
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Viva voce/ short note		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology, Microbiology	General Surgery
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology, Microbiology	
IM16.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial and viral diarrhea	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	
IM16.16	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy including immunotherapy	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology	
IM17.11	Describe the indications, pharmacology, dose, side effects of abortive therapy in migraine	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Pharmacology	
IM17.12	Describe the indications, pharmacology, dose, side effects of prophylactic therapy in migraine	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Pharmacology	
IM17.13	Describe the pharmacology, dose, adverse reactions and regimens of drugs used in the treatment of bacterial, tubercular and viral meningitis	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Pharmacology	
IM17.14	Counsel patients with migraine on lifestyle changes and need for prophylactic therapy	A/C	SH	N	DOAP session	Skill Assessment		Pharmacology	
IM19.8	Discuss and describe the pharmacology, dose, side effects and interactions used in the drug therapy of Parkinson's syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM19.9	Enumerate the indications for use of surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Surgery
IM20.1	Enumerate the poisonous snakes of your area and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.7	Enumerate the indications and describe the pharmacology, dose, adverse reactions, hypersensitivity reactions of anti-snake venom	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM20.8	Describe the diagnosis, initial approach, stabilisation and therapy of scorpion envenomation	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM20.9	Describe the diagnosis, initial approach, stabilisation and therapy of bee sting allergy	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM21.1	Describe the initial approach to the stabilisation of the patient who presents with poisoning	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico-legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico-legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico-legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM22.3	Describe the approach to the management of hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	

Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE13.5	Propose a management plan for Fe Deficiency Anaemia	S	SH	Y	Bed side clinics, Skill lab	Skill Assessment		Pathology, Pharmacology	
PE13.6	Discuss the National Anaemia Control Program and its recommendations	K	K	Y	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology, Community Medicine	
PE14.1	Discuss the risk factors, clinical features, diagnosis and management of Lead Poisoning	K	KH	N	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology	
PE14.3	Discuss the risk factors, clinical features, diagnosis and management of Organo phosphorous poisoning	K	KH	N	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology	General Medicine
PE14.4	Discuss the risk factors, clinical features, diagnosis and management of paracetamol Poisoning	K	KH	N	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology	
PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti- emetics in acute diarrheal diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
General Surgery									
SU13.2	Discuss the Principles of immunosuppressive therapy. Enumerate indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	

Physical Medicine & Rehabilitation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM3.5	Enumerate the indications and describe the therapies for spasticity including medications, serial casts, nerve blocks, botulinum toxin injections	K	KH	Y	Lectures, Small group discussion			Pharmacology	Pediatrics, Orthopedics
PM7.6	Enumerate the indications and describe the pharmacology and side effects of commonly used drugs in neuropathic bladder	K	KH	Y	Lectures, Small group discussion	Written / Viva voce		Pharmacology	General Medicine
Respiratory Medicine									
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Pharmacology	
CT1.14	Describe and discuss the pharmacology of various antituberculous agents, their indications, contraindications, interactions and adverse reactions	K	KH	Y	Lecture, Small group discussion	short note/ Viva voce		Pharmacology, Microbiology	
CT1.15	Prescribe an appropriate antituberculosis regimen based on the location of disease, smear positivity and negativity and co-morbidities based on current national guidelines including directly observed tuberculosis therapy (DOTS)	K	SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment		Pharmacology, Community Medicine	
CT2.16	Discuss and describe therapies for OAD including bronchodilators, leukotriene inhibitors, mast cell stabilisers, theophylline, inhaled and systemic steroids, oxygen and immunotherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
Orthopaedics									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/S H	Y	Lecture, Small group Discussion, Video assisted lecture	Written/ Viva voce/ OSCE	–	Pathology, Microbiology	General surgery

PATHOLOGY (CODE: PA)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PATHOLOGY									
Topic: Introduction to Pathology Number of competencies: (03) Number of procedures that require certification: (NIL)									
PA1.1	Describe the role of a pathologist in diagnosis and management of disease	K	K	Y	Departmental orientation	Written/ Viva voce			
PA1.2	Enumerate common definitions and terms used in Pathology	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA1.3	Describe the history and evolution of Pathology	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Cell Injury and Adaptation Number of competencies: (08) Number of procedures that require certification: (NIL)									
PA2.1	Demonstrate knowledge of the causes, mechanisms, types and effects of cell injury and their clinical significance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.2	Describe the etiology of cell injury. Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.3	Intracellular accumulation of fats, proteins, carbohydrates, pigments	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.4	Describe and discuss Cell death- types, mechanisms, necrosis, apoptosis (basic as contrasted with necrosis), autolysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.5	Describe and discuss pathologic calcifications, gangrene	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.6	Describe and discuss cellular adaptations: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA2.7	Describe and discuss the mechanisms of cellular aging and apoptosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
PA2.8	Identify and describe various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens	S	SH	Y	DOAP session	Skill assessment			
Topic: Amyloidosis Number of competencies: (02) Number of procedures that require certification: (NIL)									
PA3.1	Describe the pathogenesis and pathology of amyloidosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA3.2	Identify and describe amyloidosis in a pathology specimen	S	SH	N	DOAP session	Skill assessment			
Topic: Inflammation Number of competencies:(04) Number of procedures that require certification: (NIL)									
PA4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.2	Enumerate and describe the mediators of acute inflammation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.3	Define and describe chronic inflammation including causes, types, non-specific and granulomatous; and enumerate examples of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA4.4	Identify and describe acute and chronic inflammation in gross and microscopic specimens	S	SH	Y	DOAP session	Skill assessment			
Topic: Healing and repair Number of competencies: (01) Number of procedures that require certification:(NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA5.1	Define and describe the process of repair and regeneration including wound healing and its types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Hemodynamic disorders Number of competencies: (07) Number of procedures that require certification :(NIL)									
PA6.1	Define and describe edema, its types, pathogenesis and clinical correlations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA6.2	Define and describe hyperemia, congestion, hemorrhage	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.3	Define and describe shock, its pathogenesis and its stages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA6.4	Define and describe normal haemostasis and the etiopathogenesis and consequences of thrombosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.5	Define and describe embolism and its causes and common types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.6	Define and describe Ischaemia/infarction its types, etiology, morphologic changes and clinical effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.7	Identify and describe the gross and microscopic features of infarction in a pathologic specimen	S	SH	Y	DOAP session	Skill Assessment			
Topic: Neoplastic disorders Number of competencies: (05) Number of procedures that require certification: (NIL)									
PA7.1	Define and classify neoplasia. Describe the characteristics of neoplasia including gross, microscopy, biologic, behaviour and spread. Differentiate between benign from malignant neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.2	Describe the molecular basis of cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA7.3	Enumerate carcinogens and describe the process of carcinogenesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.4	Describe the effects of tumor on the host including paraneoplastic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.5	Describe immunology and the immune response to cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Microbiology
Topic: Basic diagnostic cytology Number of competencies:(03) Number of procedures that require certification:(NIL)									
PA8.1	Describe the diagnostic role of cytology and its application in clinical care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.2	Describe the basis of exfoliative cytology including the technique & stains used	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		General Surgery	
PA8.3	Observe a diagnostic cytology and its staining and interpret the specimen	S	KH	Y	DOAP session	Skill assessment			
Topic: Immunopathology and AIDS Number of competencies: (07) Number of procedures that require certification: (NIL)									
PA9.1	Describe the principles and mechanisms involved in immunity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
PA9.2	Describe the mechanism of hypersensitivity reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.4	Define autoimmunity. Enumerate autoimmune disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.5	Define and describe the pathogenesis of systemic Lupus Erythematosus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA9.7	Define and describe the pathogenesis of other common autoimmune diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Infections and Infestations Number of competencies: (04) Number of procedures that require certification:(NIL)									
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
Topic: Genetic and paediatric diseases Number of competencies: (03) Number of procedures that require certification :(NIL)									
PA11.1	Describe the pathogenesis and features of common cytogenetic abnormalities and mutations in childhood	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA11.2	Describe the pathogenesis and pathology of tumor and tumour-like conditions in infancy and childhood	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA11.3	Describe the pathogenesis of common storage disorders in infancy and childhood	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Topic: Environmental and nutritional diseases Number of competencies:(03) Number of procedures that require certification:(NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine
PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Pediatrics	
PA12.3	Describe the pathogenesis of obesity and its consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Introduction to haematology Number of competencies: (05) Number of procedures that require certification:(NIL)									
PA13.1	Describe hematopoiesis and extramedullary hematopoiesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.2	Describe the role of anticoagulants in hematology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.3	Define and classify anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.4	Enumerate and describe the investigation of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.5	Perform, Identify and describe the peripheral blood picture in anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
Topic: Microcytic anemia Number of competencies: (03) Number of procedures that require certification:(NIL)									
PA14.1	Describe iron metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PA14.2	Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA14.3	Identify and describe the peripheral smear in microcytic anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
Topic: Macrocytic anemia Number of competencies: (04) Number of procedures that require certification:(NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA15.2	Describe laboratory investigations of macrocytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA15.3	Identify and describe the peripheral blood picture of macrocytic anemia	S	SH	Y	DOAP session	Skill assessment			
PA15.4	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Hemolytic anemia Number of competencies: (07) Number of procedures that require certification: (01)									
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.4	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.5	Describe the peripheral blood picture in different hemolytic anaemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA16.6	Prepare a peripheral blood smear and identify hemolytic anaemia from it	S	P	Y	DOAP session	Skill assessment	1		
PA16.7	Discribe the correct technique to perform a cross match	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Aplastic anemia Number of competencies: (02) Number of procedures that require certification:(NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA 17.1	Enumerate the etiology, pathogenesis and findings in aplastic anemia	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA17.2	Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Leukocyte disorders Number of competencies: (02) Number of procedures that require certification:(NIL)									
PA18.1	Enumerate and describe the causes of leucocytosis leucopenia lymphocytosis and leukemoid reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA`18.2	Describe the etiology, genetics, pathogenesis classification, features, hematologic features of acute and chronic leukemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lymph node and spleen Number of competencies: (07) Number of procedures that require certification:(NIL)									
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.3	Identify and describe the features of tuberculous lymphadenitis in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment			
PA19.4	Describe and discuss the pathogenesis, pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA19.6	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA19.7	Identify and describe the gross specimen of an enlarged spleen	S	SH	Y	DOAP session	Skill assessment			
Topic: Plasma cell disorders Number of competencies: (01) Number of procedures that require certification: (NIL)									
PA20.1	Describe the features of plasma cell myeloma	S	SH	Y	DOAP session	Skill assessment			
Topic: Hemorrhagic disorders Number of competencies: (05) Number of procedures that require certification:(NIL)									
PA21.1	Describe normal hemostasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA21.2	Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP and haemophilia's	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA21.3	Differentiate platelet from clotting disorders based on the clinical and hematologic features	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.5	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of Vitamin K deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Blood banking and transfusion Number of competencies: (07) Number of procedures that require certification: (NIL)									
PA22.1	Classify and describe blood group systems (ABO and RH)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA22.2	Enumerate the indications, describe the principles, enumerate and demonstrate the steps of compatibility testing	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.5	Enumerate and describe infections transmitted by blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA22.6	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA22.7	Enumerate the indications and describe the principles and procedure of autologous transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Clinical Pathology Number of competencies: (03) Number of procedures that require certification: (NIL)									
PA23.1	Describe abnormal urinary findings in disease states and identify and describe common urinary abnormalities in a clinical specimen	S	SH	Y	DOAP session	Skill Assessment			
PA23.2	Describe abnormal findings in body fluids in various disease states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA23.3	Describe and interpret the abnormalities in a panel containing semen analysis, thyroid function tests, renal function tests or liver function tests	S	SH	Y	DOAP session	Skill Assessment			
Topic: Gastrointestinal tract Number of competencies: (07) Number of procedures that require certification: (NIL)									
PA24.1	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dentistry	
PA24.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.3	Describe and identify the microscopic features of peptic ulcer	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA24.4	Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.5	Describe and etiology and pathogenesis and pathologic features of Tuberculosis of the intestine	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.6	Describe and etiology and pathogenesis and pathologic and distinguishing features of Inflammatory bowel disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.7	Describe the etiology, pathogenesis, pathology and distinguishing features of carcinoma of the colon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Hepatobiliary system Number of competencies: (06) Number of procedures that require certification: (01)									
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.3	Describe the etiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.6	Interpret liver function and viral hepatitis serology panel. Distinguish obstructive from non-obstructive jaundice based on clinical features and liver function tests	S	P	Y	DOAP session	Skill assessment	1	General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Respiratory system		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
PA26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance,metastases and complications of tumors of the lung and pleura	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
Topic: Cardiovascular system		Number of competencies: (10)			Number of procedures that require certification: (NIL)				
PA27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of arteriosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA27.3	Describe the etiology, types, stages pathophysiology, pathology and complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
Topic: Urinary Tract Number of competencies: (16) Number of procedures that require certification: (NIL)									
PA28.1	Describe the normal histology of the kidney	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA28.2	Define, classify and distinguish the clinical syndromes and describe the etiology, pathogenesis, pathology, morphology, clinical and laboratory and urinary findings, complications of renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.4	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA28.6	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.7	Enumerate and describe the findings in glomerular manifestations of systemic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.8	Enumerate and classify diseases affecting the tubular interstitium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features progression and complications of vascular disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28.12	Define classify and describe the genetics, inheritance, etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.13	Define classify and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression and complications of renal stone disease and obstructive uropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA28.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA28.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of urothelial tumors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Male Genital Tract Number of competencies: (05) Number of procedures that require certification: (NIL)									
PA29.1	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.3	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign prostatic hyperplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.4	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA29.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Female Genital Tract Number of competencies: (09) Number of procedures that require certification: (NIL)									
PA30.1	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.2	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.6	Describe the etiology and morphologic features of cervicitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.7	Describe the etiology, hormonal dependence, features and morphology of endometriosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.8	Describe the etiology and morphologic features of adenomyosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA30.9	Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Topic: Breast Number of competencies: (04) Number of procedures that require certification: (NIL)									
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.2	Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast	S	SH	N	DOAP session	Skill Assessment		General Surgery	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
Topic: Endocrine system Number of competencies: (09) Number of procedures that require certification: (NIL)									
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group	Written/ Viva voce		Physiology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.6	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
Topic: Bone and soft tissue Number of competencies: (05) Number of procedures that require certification: (NIL)									
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopaedics	Microbiology
PA33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA33.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Skin Number of competencies: (04) Number of procedures that require certification:(NIL)									
PA34.1	Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.2	Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors morphology clinical features and metastases of melanoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.4	Identify, distinguish and describe common tumors of the skin	S	SH	N	DOAP session	Skill Assessment		Dermatology, Venereology & Leprosy	
Topic: Central Nervous System Number of competencies:(03) Number of procedures that require certification: (01)									
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA35.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
Topic: Eye Number of competencies: (01) Number of procedures that require certification:(NIL)									
PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, S - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									
Integration									
Human Anatomy									
AN5.8	Define thrombosis, infarction & aneurysm	K	KH	N	Lecture	Written		Pathology	Physiology
AN66.2	Describe the ultrastructure of connective tissue	K	KH	N	Lecture, Practical	Written		Pathology	
AN70.1	Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN70.2	Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node, spleen, thymus, tonsil and correlate the structure with function	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN71.1	Identify bone under the microscope, Classify various types and describe the structure-function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
AN71.2	Identify cartilage under the microscope & describe various types and structure- function correlation of the same describe various types and structure-function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
Physiology									
PY1.4	Describe apoptosis – programmed cell death	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PY2.5	Describe different types of anemia & Jaundice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	Biochemistry
PY2.8	Describe the physiological basis of hemostasis and anticoagulants. Describe bleeding & clotting disorders (Hemophilia, purpura)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PY2.9	Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion	K	KH	Y	Lecture, Small group discussion, ECE- Visit to blood bank	Written/ Viva voce		Pathology	
PY2.11	Estimate Hb, RBC, TLC, RBC indices, DLC, Blood groups, BT/CT	S	SH	Y	DOAP sessions	Practical/OSPE/ viva voce		Pathology	
PY2.12	Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc	K	KH	Y	Demonstration	Written/ Viva voce		Pathology	
PY2.13	Describe steps for reticulocyte and platelet count	K	KH	Y	Demonstration sessions	Written/ Viva voce		Pathology	
PY3.6	Describe the pathophysiology of Myasthenia gravis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
Biochemistry									
BI2.4	Describe and discuss enzyme inhibitors as poisons and drugs and as therapeutic enzymes	K	KH	Y	Lecture, small group discussions	Written/ Viva voce		Pathology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
BI2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, small group discussions	Written/ Viva voce		Pathology, General Medicine	
BI2.6	Discuss use of enzymes in laboratory investigations (Enzyme-based assays)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.7	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion /DOAP sessions	Written/ Viva voce		Pathology, General Medicine	
BI3.8	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI7.7	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.4	Describe the causes (including dietary habits), effects and health risks associated with being overweight/obesity	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables (macro-molecules & its importance)	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
BI10.1	Describe the cancer initiation, promotion oncogenes & oncogene activation	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	Physiology
BI10.5	Describe antigens and concepts involved in vaccine development	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
BI11.17	Explain the basis and rationale of biochemical tests done in the following conditions: diabetes mellitus, dyslipidemia, myocardial infarction, renal failure, gout, proteinuria, nephrotic syndrome, edema, jaundice, liver diseases, pancreatitis, disorders of acid-base balance, thyroid disorders	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	
Microbiology									
MI1.7	Describe the immunological mechanisms in health	K	KH	Y	Lecture	Written/ Viva voce			Pathology
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	Pathology
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic heart disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia	K	KH	Y	Lecture, Small group discussion	Written/ viva voce		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kala azar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, Small group discussion	Written/ viva voce		General Medicine	Pathology
MI2.7	Describe the epidemiology, the etio-pathogenesis, evolution, complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course, the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.6	Describe the etio-pathogenesis of Acid Peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis, and prevention of viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis	K	KH	Y	small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y	Lecture	Written		General Medicine	Pathology
Community Medicine									
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
Forensic Medicine & Toxicology									
FM2.1	Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical death and Brainstem death	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.2	Describe and discuss natural and unnatural deaths	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.3	Describe and discuss issues related to sudden natural deaths	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.5	Discuss moment of death, modes of death-coma, asphyxia and syncope	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.11	Describe and discuss autopsy procedures including post-mortem examination, different types of autopsies, aims and objectives of post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/viva voce/ OSPE			Pathology
FM2.12	Describe the legal requirements to conduct post-mortem examination and procedures to conduct medico-legal post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/viva voce/ OSPE			Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
FM2.13	Describe and discuss obscure autopsy	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/viva voce		Obstetrics & Gynaecology, Pathology	
FM6.1	Describe different types of specimens and tissues to be collected both in the living and dead: body fluids (blood, urine, semen, faeces, saliva), skin, nails, tooth pulp, vaginal smear, viscera, skull, specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Fingerprinting. Describe Locard's Exchange Principle	K	K/KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin	S	KH	Y	Small group discussion, Lecture	Log book/ skill station/ Viva voce		Forensic Medicne, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & RH blood group of a person	S	SH	Y	Small group discussion, DOAP session	Log book/ skill station/ Viva voce		Forensic Medicne, Physiology	
Dermatology, Venereology & Leprosy									
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment	1	General Medicine	Pathology, Microbiology
DR14.1	Describe the etiology, pathogenesis and clinical precipitating features and classification of Urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pathology
DR16.1	Identify and distinguish skin lesions of SLE	S	SH	Y	Bedside clinic discussion	Skill assessment	2	General Medicine	Pathology
DR16.2	Identify and distinguish Raynaud's phenomenon	S	SH	Y	Bedside clinic discussion	Skill assessment	2	General Medicine	Pathology
Anesthesiology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
AS9.4	Enumerate blood products and describe the use of blood products in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	General Surgery
ENT									
EN1.2	Describe the pathophysiology of common diseases in ENT	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	
Ophthalmology									
OP7.2	Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Pathology	
Dentistry									
DE4.1	Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity	K	K	N	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.2	Discuss the role of etiological factors in the formation of precancerous /cancerous lesions	K	KH	Y	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.3	Identify potential pre-cancerous / cancerous lesions	S	SH	N	Observation, Bed side clinics	Skill assessment		Pathology	ENT
DE4.4	Counsel patients to risks of oral cancer with respect to tobacco, smoking, alcohol and other causative factors.	A/C	SH	Y	DOAP session	Document in Log book	2	Pathology	ENT
General Medicine									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM1.1	Describe and discuss the epidemiology, pathogenesis clinical evolution and course of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Written		Pathology, Physiology	
IM1.3	Describe and discuss the aetiology, microbiology, pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.5	Describe, discuss and differentiate the processes involved in R vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.6	Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrhythmias, anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.8	Describe and discuss the pathogenesis and development of common arrhythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.9	Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Community Medicine	
IM2.2	Discuss the aetiology of risk factors both modifiable and non-modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.4	Discuss and describe the pathogenesis natural history, evolution and complications of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.5	Define the various acute coronary syndromes and describe their evolution, natural history and outcomes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture , Small group discussion	short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Microbiology	
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	written		Pathology, Microbiology	
IM4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bed side clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM4.16	Enumerate the indications and describe the findings in tests of inflammation and specific rheumatologic tests, serologic testing for pathogens including HIV, bone marrow aspiration and biopsy	K	KH	N	Lecture, Small group discussion	written		Pathology	
IM4.17	Observe and assist in the performance of a bone marrow aspiration and biopsy in a simulated environment	S	SH	N	skills lab	log book documentation/ DOAP session		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, Physiology	
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM5.3	Describe and discuss the pathologic changes in various forms of liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM5.5	Describe and discuss the pathophysiology and clinical evolution of alcoholic liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.6	Describe and discuss the pathophysiology, clinical evolution and complications of cirrhosis and portal hypertension including ascites, spontaneous bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pharmacology	
IM5.12	Choose and interpret appropriate diagnostic tests including: CBC, bilirubin, function tests, Hepatitis serology and ascitic fluid examination in patient with liver diseases	S	KH	Y	Bedside clinic, DOAP session	Skill assessment		Pathology	
IM5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	S	SH	Y	Bedside clinic, Small group discussion	viva voce/ written		Pathology, Microbiology	
IM6.5	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related malignancies	K	KH	Y	Lecture, Small group discussion	short notes/ Viva voce		Pathology, Microbiology	
IM6.6	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related skin and oral lesions	K	KH	Y	Lecture, Small group discussion	short notes/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM6.10	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	K	KH	Y	Bed side clinic, DOAP session, Small group discussion	written/ Skill assessment		Pathology, Microbiology	
IM6.19	Enumerate the indications of and discuss about prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM7.1	Describe the pathophysiology of autoimmune disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.2	Describe the genetic basis of autoimmune disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.16	Enumerate the indications for and interpret the results of: CBC, anti CCP (Anti-cyclic citrullinated peptide), RA, ANA, DNA and other tests of autoimmunity	K	SH	Y	Bed side clinic, small group	Skill assessment/ written		Pathology	
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.3	Describe and discuss the genetic basis of hypertension	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.4	Define and classify hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.5	Describe and discuss the differences between primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.7	Describe and discuss the clinical manifestations of the various aetiologies of secondary causes of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.8	Describe, discuss and identify target organ damage due to hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM9.1	Define, describe and classify anemia based on red blood cell size and reticulocyte count	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.2	Describe and discuss the morphological characteristics, aetiology and prevalence of each of the causes of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.6	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bed side clinic, DOAP session, Small group discussion	Skill assessment/ written		Pathology	
IM9.7	Describe the appropriate diagnostic work up based on the presumed aetiology	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ written		Pathology	
IM9.8	Describe and discuss the meaning and utility of various components of the hemogram	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.9	Describe and discuss the various tests for iron deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.10	Order and interpret tests for anemia including hemogram, red cell indices, reticulocyte count, iron studies, B12 and folate.	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ written		Pathology	
IM9.11	Describe, perform and interpret a peripheral smear and stool occult blood	S	SH	P	Bed side clinic, DOAP session	Skill assessment/ written		Pathology	
IM9.12	Describe the indications and interpret the results of a bone marrow aspirations and biopsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.13	Describe, develop a diagnostic plan to determine the aetiology of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.18	Describe the indications for blood transfusion and the appropriate use of blood components	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM10.1	Define, describe and differentiate between acute and chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM10.2	Classify, describe and differentiate the pathophysiologic causes of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.3	Describe the pathophysiology and causes of pre renal ARF, renal and post renal ARF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.4	Describe the evolution, natural history and treatment of ARF	K	KH	Y	Lecture, small group	Written/ Viva voce		Pathology	
IM10.5	Describe and discuss the aetiology of CRF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.6	Stage Chronic Kidney Disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.7	Describe and discuss the pathophysiology and clinical findings of uraemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.8	Classify, describe and discuss the significance of proteinuria in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.9	Describe and discuss the pathophysiology of anemia and hyperparathyroidism in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.10	Describe and discuss the association between CKD glycemia and hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.11	Describe and discuss the relationship between CAD risk factors and CKD and in dialysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.16	Enumerate the indications for and interpret the results of: renal function tests, calcium, phosphorus, PTH, urine electrolytes, osmolality, Anion gap	K	KH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM10.17	Describe and calculate indices of renal function based on available laboratories including FENa (Fractional Excretion of Sodium) and CrCl (Creatinine Clearance)	S	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM11.2	Describe and discuss the epidemiology and pathogenesis and risk factors and clinical evolution of type 1 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM11.3	Describe and discuss the epidemiology and pathogenesis and risk factors, economic impact and clinical evolution of type 2 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.5	Describe and discuss the pathogenesis and temporal evolution of microvascular and macrovascular complications of diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.11	Order and interpret laboratory tests to diagnose diabetes and its complications including: glucoses, glucose tolerance test, glycosylated hemoglobin, urinary micro albumin, ECG, electrolytes, ABG, ketones, renal function tests and lipid profile	S	SH	Y	Bed side clinic, DOAP session, Small group discussion	Skill assessment		Pathology	
IM11.12	Perform and interpret a capillary blood glucose test	S	P	Y	Bed side clinic, DOAP session, Small group discussion	Skill assessment	2	Pathology, Biochemistry	
IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	S	P	Y	Bed side clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.3	Describe and discuss the physiology of the hypothalamo-pituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	short notes		Pathology, Physiology	
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Biochemistry	
IM13.2	Describe the genetic basis of selected cancers	K	K	N	Lecture, Small group discussion	short note/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Microbiology	
IM13.4	Describe the natural history, presentation, course, complications and cause of death for common cancers	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM13.15	Describe the need, tests involved, their utility in the prevention of common malignancies	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pathology	
IM14.2	Describe and discuss the aetiology of obesity including modifiable and non-modifiable risk factors and secondary causes	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology	
IM14.3	Describe and discuss the monogenic forms of obesity	K	K	N	Lecture, Small group discussion	short note/ Viva voce		Pathology	
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Community Medicine	
IM14.5	Describe and discuss the natural history of obesity and its complications	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology	
IM15.1	Enumerate, describe and discuss the aetiology of upper and lower GI bleeding	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology	General Surgery
IM15.2	Enumerate, describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Written/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Short note/ viva voce		Pathology, Physiology	General Surgery
IM15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Short note/ Viva voce		Pathology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM15.11	Develop document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Short note/ viva voce		Pathology	General Surgery
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Short note/ viva voce		Pathology	General Surgery
IM15.13	Observe cross matching and blood / blood component transfusion	S	SH	Y	Bedside clinic	Short note/ Viva voce/ Skill assessment		Pathology	General Surgery
IM16.4	Elicit and document and present an appropriate history that includes the natural history, dietary history, travel, sexual history and other concomitant illnesses	S	SH	Y	Bedside clinic skills lab	Skill assessment		Microbiology, Pathology	
IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce		Microbiology, Pathology	
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM16.15	Distinguish, based on the clinical presentation, Crohn's disease from ulcerative colitis	S	SH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	K	K	Y	Small group, Bedside clinic	Skill Assessment		Microbiology, Pathology	
IM17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	S	SH	Y	DOAP session	Skill assessment		Microbiology, Pathology	
IM17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	S	SH	Y	Small group discussion, Bedside clinic	Skill assessment		Microbiology, Pathology	
IM18.2	Classify cerebrovascular accidents and describe the aetiology, predisposing genetic and risk factors pathogenesis of hemorrhagic and non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM18.3	Elicit and document and present an appropriate history including onset, progression precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the cerebrovascular accident	S	SH	Y	Bedside clinic	Skill assessment		Pathology	
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM22.4	Enumerate the components and describe the genetic basis of the multiple endocrine neoplasia syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM25.7	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, blood biochemistry, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bed side clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
Obstetrics & Gynaecology									
OG10.2	Enumerate the indications and describe the appropriate use of blood and blood products, their complications and management	K	KH	Y	Lecture, Small group discussion			Pathology	
Pediatrics									
PE11.1	Describe the common etiology, clinical features and management of obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	
PE11.2	Discuss the risk approach for obesity and discuss the prevention strategies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE12.7	Describe the causes, clinical features, diagnosis and management of deficiency /excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	p	Y	Bedside clinics, Skills lab	Document in log book	3	Biochemistry, Physiology Pathology	
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Y	Bed side clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.13	Discuss the RDA , dietary sources of Vitamin K and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis, management and prevention of Deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE13.1	Discuss the RDA, dietary sources of Iron and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.2	Describe the causes, diagnosis and management of Fe deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology Biochemistry	
PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	S	SH	Y	Bed side clinics, Skill Lab	Document in log book		Pathology, Biochemistry	
PE13.4	Interpret hemogram and Iron Panel	S	P	Y	Bed side clinic, Small group discussion	Skill Assessment	5	Pathology, Biochemistry	
PE13.5	Propose a management plan for Fe Deficiency Anaemia	S	SH	Y	Bed side clinics, Skill lab	Skill Assessment		Pathology, Pharmacology	
PE21.2	Enumerate the etio-pathogenesis, clinical features, complications and management of Acute post streptococcal Glomerular Nephritis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.3	Discuss the approach and referral criteria to a child with Proteinuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE21.5	Enumerate the etio-pathogenesis clinical features, complications and management of Acute Renal Failure in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.6	Enumerate the etio-pathogenesis, clinical features, complications and management of Chronic renal Failure in Children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.7	Enumerate the etio-pathogenesis clinical features, complications and management of Wilms Tumor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.11	Perform and interpret the common analytes in a Urine examination	S	SH	Y	Bed side clinic Labs, Skill lab	Skill assessment		Biochemistry, Pathology	
PE23.1	Discuss the Hemodynamic changes, clinical presentation, complications and management of Acyanotic Heart Diseases –VSD, ASD and PDA	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot's Physiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.6	Discuss the etio-pathogenesis and clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE24.1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE25.1	Discuss the etio-pathogenesis, clinical presentation and management of Malabsorption in children and its causes including celiac disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.4	Discuss the etio-pathogenesis, clinical features and management of Portal Hypertension in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology	
PE26.9	Interpret Liver Function Tests, viral markers, ultra sonogram report	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Pathology	
PE29.1	Discuss the etio-pathogenesis, clinical features, classification and approach to a child with anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.2	Discuss the etio-pathogenesis, clinical features and management of Iron Deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.3	Discuss the etiopathogenesis, clinical features and management of VIT B12, Folate deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.4	Discuss the etio-pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sick cell anaemia, Hereditary spherocytosis, Auto-immune hemolytic anaemia and hemolytic uremic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE29.6	Discuss the cause of thrombocytopenia in children: describe the clinical features and management of Idiopathic Thrombocytopenic Purpura (ITP)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.7	Discuss the etiology, classification, pathogenesis and clinical features of Hemophilia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.8	Discuss the etiology, clinical presentation and management of Acute Lymphoblastic Leukemia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.9	Discuss the etiology, clinical presentation and management of lymphoma in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
General Surgery									
SU2.1	Describe pathophysiology of shock, types of shock, principles of resuscitation including fluid replacement and monitoring	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
SU3.1	Describe the indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce.		Pathology	
SU5.1	Describe normal wound healing and factors affecting healing.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Microbiology, Pathology	
SU22.2	Describe the etiopathogenesis of thyroidal swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology,	
Respiratory Medicine									
CT2.1	Define and classify obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.2	Describe and discuss the epidemiology, risk factors and evolution of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
CT2.4	Describe and discuss the physiology and pathophysiology of hypoxia and hypercapnia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.5	Describe and discuss the genetics of alpha 1 antitrypsin deficiency in emphysema	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.6	Describe the role of the environment in the cause and exacerbation of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
CT2.7	Describe and discuss allergic and non-allergic precipitants of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology,	
CT2.11	Describe, discuss and interpret pulmonary function tests	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Physiology, Pathology	
Orthopaedics									
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/S H	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	General surgery
OR4.1	Describe and discuss the clinical features, investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE		Pathology	General surgery
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce OSCE		Pathology	General surgery, Radiotherapy
Radiotherapy									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
RT1.3	Enumerate, describe and discuss classification and staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, General Medicine
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture and Bed side clinic	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bed side clinic, Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

MICROBIOLOGY (CODE: MI)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MICROBIOLOGY									
Topic: General Microbiology and Immunity Number of competencies: (11) Number of procedures that require certification : (01)									
MI1.1	Describe the different causative agents of Infectious diseases+A208, the methods used in their detection, and discuss the role of microbes in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI1.2	Perform and identify the different causative agents of Infectious diseases by Gram Stain, ZN stain and stool routine microscopy	S	P	Y	DOAP session	Skill assessment	5		
MI1.3	Describe the epidemiological basis of common infectious diseases	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	K	KH	Y	Small group discussion, Case discussion	Written/Viva voce/ OSPE		General Surgery	
MI1.6	Describe the mechanisms of drug resistance, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
MI1.7	Describe the immunological mechanisms in health	K	KH	Y	Lecture	Written/ Viva voce			Pathology
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI1.9	Discuss the immunological basis of vaccines and describe the Universal Immunisation schedule	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection.	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI1.11	Describe the immunological mechanisms of transplantation and tumor immunity	K	KH	Y	Lecture	Written/ Viva voce			
Topic: CVS and Blood Number of competencies: (7) Number of procedures that require certification : (NIL)									
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic Heart Disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.6	Identify the causative agent of malaria and filariasis	K/S	SH	Y	DOAP session	Skill assessment		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI2.7	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
Topic: Gastrointestinal and hepatobiliary system Number of competencies: (8) Number of procedures that require certification : (NIL)									
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course and the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers	K	KH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology
Topic: Musculoskeletal system skin and soft tissue infections Number of competencies: (3) Number of procedures that require certification : (NIL)									
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections	K	KH	Y	Lecture	Written/ Viva voce		Orthopaedics	
MI4.3	Describe the etio-pathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy, General Surgery	
Topic: Central Nervous System infections Number of competencies: (3) Number of procedures that require certification : (NIL)									
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Pediatrics	
Topic: Respiratory tract infections Number of competencies: (3) Number of procedures that require certification : (02)									
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain)	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
Topic: Genitourinary & Sexually transmitted infections Number of competencies: (3) Number of procedures that require certification : (NIL)									
MI7.1	Describe the etio-pathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI7.2	Describe the etio-pathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy, Obstetrics & Gynaecology	
MI7.3	Describe the etio-pathogenesis, clinical features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Zoonotic diseases and miscellaneous Number of competencies: (16) Number of procedures that require certification : (01)									
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course, laboratory diagnosis and prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y	Lecture	Written		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.6	Describe the basics of Infection control	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	General Surgery	Community Medicine
MI8.8	Describe the methods used and significance of assessing the microbial contamination of food, water and air	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.9	Discuss the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing infectious diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.10	Demonstrate the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing Infectious diseases	S	SH	Y	DOAP session	Skill assessment			
MI8.11	Demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases	A	SH	Y	DOAP session	Skill assessment			
MI8.12	Discuss confidentiality pertaining to patient identity in laboratory results	A	KH	Y	Lecture, Small group discussion	Viva voce			
MI8.13	Choose the appropriate laboratory test in the diagnosis of the infectious disease	K	KH	Y	Small group discussions, Case discussion	Written/ Viva voce/ OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI8.14	Demonstrate confidentiality pertaining to patient identity in laboratory results	A	SH	Y	DOAP session	Skill assessment		AETCOM	
MI8.15	Choose and Interpret the results of the laboratory tests used in diagnosis of the infectious diseases	K/S	SH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE			
MI8.16	Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)	K	K	Y	Lecture	Written/ Viva voce			Community Medicine
	*causative agents of Infectious diseases are inclusive of bacterial, viral, parasites and fungal agents causing various clinical conditions.								
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Biochemistry									
BI10.5	Describe antigens and concepts involved in vaccine development.	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
Pathology									
PA7.5	Describe the immunology and the immune response to cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.1	Describe the principles and mechanisms involved in immunity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
PA9.2	Describe the mechanism of hypersensitivity reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PA9.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA22.5	Enumerate and describe infections transmitted by blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive Airway Disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology, microscopic appearance and complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic, features diagnosis and complications of infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopaedics	Microbiology
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
Pharmacology									
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics	Microbiology
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PH1.48	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV	K	KH	Y	Lecture	Written/Viva voce			Microbiology
Community Medicine									
CM3.3	Describe the aetiology and basis of water borne diseases/ jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Microbiology, General Medicine, Pediatrics	
CM3.6	Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
CM3.7	Identify and describe the identifying features and life cycles of vectors of Public Health importance and their control measures	S	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Microbiology	
CM5.7	Describe food hygiene	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
CM7.7	Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	Microbiology
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
CM14.1	Define and classify hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written/ Viva voce			Microbiology
CM14.2	Describe various methods of treatment of hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written/ Viva voce			Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
CM14.3	Describe laws related to hospital waste management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
Dermatology, Venereology & Leprosy									
DR6.1	Describe the etiology pathogenesis and diagnostic features of pediculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR7.1	Describe the etiology microbiology pathogenesis and clinical presentations and diagnostic features of dermatophytes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR7.2	Identify candida species in fungal scrapings and KOH mount	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR7.3	Describe the pharmacology and action of antifungal (systemic and topical) agents. Enumerate side effects of antifungal therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology ,Pharmacology
DR8.1	Describe the etiology microbiology pathogenesis and clinical presentations and diagnostic features of common viral infections of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR9.1	Classify, describe the epidemiology, etiology, microbiology, pathogenesis and clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology, Community Medicine
DR10.1	Identify and classify syphilis based on the presentation and clinical manifestations	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.2	Identify spirochete in a dark ground microscopy	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
DR10.6	Describe the etiology, diagnostic and clinical features of non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
DR10.7	Identify and differentiate based on the clinical features non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
DR11.1	Describe the etiology, pathogenesis and clinical features of the dermatologic manifestations of HIV and its complications including opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
DR11.2	Identify and distinguish the dermatologic manifestations of HIV its complications, opportunistic infections and adverse reactions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology Microbiology
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology, Microbiology
DR14.1	Describe the etiology, pathogenesis and clinical precipitating features and classification of Urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pathology
DR15.2	Identify staphylococcus on a gram stain	S	SH	Y	Bedside clinic	Skill assessment			Microbiology
DR15.3	Enumerate the indications and describe the pharmacology, indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	Microbiology, Pharmacology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Dentistry									
DE1.2	Discuss the role of causative microorganisms in the aetio-pathogenesis of dental caries	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology	
DE1.4	Discuss the role of dental caries as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology, General Medicine	
General Medicine									
IM1.3	Describe and discuss the aetiology, microbiology, pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.9	Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
IM1.22	Assist and demonstrate the proper technique in collecting specimen for blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Written		Microbiology, Pharmacology	
IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM3.2	Discuss and describe the aetiology of various kinds of pneumonia and their microbiology depending on the setting and immune status of the host	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Microbiology	
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	KH	Y	Lecture , Small group discussion	short note/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.10	Demonstrate the correct technique in a mannequin and interpret results of a blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.13	Select, describe and prescribe based on culture and sensitivity appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum.	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.14	Perform and interpret a sputum gram stain and AFB	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM3.19	Discuss, describe and enumerate the indications and communicate to patients on pneumococcal and influenza vaccines	S/C	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM4.1	Describe and discuss the febrile response and the influence of host immune status, risk factors and co-morbidities on the febrile response	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.2	Describe and discuss the influence of special populations on the febrile response including: the elderly, immune suppression, malignancy and neutropenia, HIV and travel	K	K	Y	Lecture, Small group discussion	Written		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g. Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM4.4	Describe and discuss the pathophysiology and manifestations of inflammatory causes of fever	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	Written		Pathology, Microbiology	
IM4.6	Discuss and describe the pathophysiology and manifestations of malaria	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.8	Discuss and describe the pathophysiology, aetiology and clinical manifestations of fever of unknown origin (FUO) including in a normal host, neutropenic host, nosocomial host and a host with HIV disease	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.9	Elicit document and present a medical history that helps delineate the aetiology of fever that includes the evolution and pattern of fever, associated symptoms, immune status, comorbidities, risk factors, exposure through occupation, travel and environment and medication use	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Microbiology	
IM4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bedside clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM4.13	Perform and interpret a sputum gram stain	S	SH	Y	DOAP session	Log book documentation		Microbiology	
IM4.14	Perform and interpret a sputum AFB	S	SH	Y	DOAP session	Log book documentation		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM4.15	Perform and interpret a malarial smear	S	SH	Y	DOAP session	Log book documentation/ Skill assessment		Microbiology	
IM4.19	Assist in the collection of blood and wound cultures	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.20	Interpret a PPD (Mantoux)	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.23	Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and national programs	S	SH	Y	Small group discussion	Skill assessment		Microbiology, Pharmacology	
IM4.26	Counsel the patient on malarial prevention	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	S	SH	Y	Bedside clinic,Small group discussion	Viva voce/ Written		Pathology, Microbiology	
IM5.17	Enumerate the indications precautions and counsel patients on vaccination for hepatitis	K/C	SH	Y	written Small group discussion	Written/ Viva voce		Microbiology	
IM6.1	Describe and discuss the symptoms and signs of acute HIV seroconversion	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.2	Define and classify HIV AIDS based on the CDC criteria	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.3	Describe and discuss the relationship between CDC count and the risk of opportunistic infections	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.4	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM6.10	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	K	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment		Pathology, Microbiology	
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM6.14	Perform and interpret a gram stain of the sputum	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM6.17	Describe and discuss the principles of HAART, the classes of antiretroviral used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.18	Describe and discuss the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.19	Enumerate the indications of and discuss about prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	Short notes/ Viva voce		Pathology, Microbiology	General Surgery
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM16.1	Describe and discuss the aetiology of acute and chronic diarrhea including infectious and non-infectious causes	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
IM6.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce		Microbiology, Pathology	
IM16.9	Identify common parasitic causes of diarrhea under the microscope in a stool specimen	S	SH	Y	DOAP session	Skill assessment		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM16.10	Identify Vibrio cholera in a hanging drop specimen	S	SH	Y	DOAP session	Skill Assessment		Microbiology	
IM16.11	Enumerate the indications for stool cultures and blood cultures in patients with acute diarrhea	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Microbiology	
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lectures, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	K	K	Y	Small group discussion, Bedside clinic	Skill Assessment		Microbiology, Pathology	
IM17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	S	SH	Y	DOAP session	Skill assessment		Microbiology, Pathology	
IM17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	S	SH	Y	Small group discussion, Bedside clinic	Skill assessment		Microbiology, Pathology	
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic disease (eg. Leptospirosis, Rabies) and non febrile infectious disease (eg. Tetanus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.2	Describe and discuss the common causes pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.3	Describe and discuss the pathophysiology and manifestations of these diseases	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM25.9	Assist in the collection of blood and other specimen cultures	S	SH	Y	DOAP session	Log book documentation		Microbiology	
IM25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Pediatrics									
PE19.1	Explain the components of the Universal immunization Program and the sub National Immunization Programs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, preterm, organ transplants, those who received blood and blood products, splenectomised children, adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE21.1	Enumerate the etio-pathogenesis clinical features, complications and management of Urinary Tract infection in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE23.6	Discuss the etio-pathogenesis and clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE24.1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti- emetics in acute diarrheal diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE24.6	Discuss the causes, clinical presentation and management of persistent diarrhoea in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.12	Perform and interpret stool examination including Hanging Drop	S	P	N	Bed side clinics, Skills lab	log book	2	Microbiology	
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.12	Discuss the prevention of Hep B infection – Universal precautions and Immunisation	K	KH	Y	Lecture, Small group discussion activity	Written/ Viva voce		Microbiology	
PE30.1	Discuss the etio-pathogenesis, clinical features, complications, management and prevention of meningitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.2	Distinguish bacterial, viral and tuberculous meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.13	Discuss the etio-pathogenesis, clinical features, management and prevention of Poliomyelitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.21	Interpret and explain the findings in a CSF analysis	S	SH	Y	Small group discussion	Log book		Microbiology	Respiratory Medicine
PE34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine Pharmacology	Respiratory Medicine
PE34.6	Identify a BCG scar	S	P	Y	Bed side clinics, Skills lab	Skill Assessment	3	Microbiology	Respiratory Medicine
PE34.7	Interpret a Mantoux test	S	P	Y	Bed side clinics Skills lab	Skill assessment	3	Microbiology	Respiratory Medicine
PE34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	SH	N	Bed side clinics, Small group discussion	Log book		Microbiology	Respiratory Medicine
PE34.10	Discuss the various samples for demonstrating the organism eg Gastric Aspirate, Sputum, CSF, FNAC	K	KH	Y	Bed side clinics, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.11	Perform AFB staining	S	P	Y	DOAP session	Log book/journal	3	Microbiology	Respiratory Medicine
PE34.12	Enumerate the indications and Discuss the limitation of methods of culturing M.Tuberculi	K	KH	Y	Small group discussion	Written/ Viva voce		Microbiology	
General Surgery									
SU6.1	Define and describe the aetiology and pathogenesis of surgical infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Microbiology, Pathology	
SU13.1	Describe the immunological basis of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU13.2	Discuss the Principles of immunosuppressive therapy.Enumerate Indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
SU14.1	Describe aseptic techniques, sterilization and disinfection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU15.1	Describe Classification of hospital waste and appropriate methods of disposal	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU29.3	Describe the Clinical features, Investigations and principles of management of urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
Orthopaedics									
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	
Respiratory Medicine									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
CT1.2	Describe and discuss the microbiology of tubercle bacillus, mode of transmission, pathogenesis, clinical evolution and natural history of pulmonary and extra pulmonary forms (including lymph node, bone and CNS).	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
CT1.3	Discuss and describe the impact of confection with HIV and other co-morbid conditions like diabetes on the natural history of tuberculosis	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Pharmacology	
CT1.7	Perform and interpret a PPD (Mantoux) and describe and discuss the indications and pitfalls of the test	S	P	Y	DOAP session	Maintenance of log book		Microbiology	
CT1.10	Perform and interpret an AFB stain	S	P	Y	DOAP session	Skill assessment	1	Microbiology	
CT1.12	Enumerate the indications for tests including: serology, special cultures and polymerase chain reaction and sensitivity testing	K	KH	Y	Small group discussion, Lecture	Short note/ Viva voce		Microbiology	
CT1.13	Describe and discuss the origins, indications, technique of administration, efficacy and complications of the BCG vaccine	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	

FORENSIC MEDICINE INCLUDING TOXICOLOGY (CODE: FM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FORENSIC MEDICINE & TOXICOLOGY									
Topic: General Information		Number of competencies: (11)			Number of procedures that require certification: (NIL)				
FM1.1	Demonstrate knowledge of basics of Forensic Medicine like definitions of Forensic medicine, Clinical Forensic Medicine, Forensic Pathology, State Medicine, Legal Medicine and Medical Jurisprudence	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.2	Describe history of Forensic Medicine	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.3	Describe legal procedures including Criminal Procedure Code, Indian Penal Code, Indian Evidence Act, Civil and Criminal Cases, Inquest (Police Inquest and Magistrate's Inquest), Cognizable and Non-cognizable offences	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.4	Describe Courts in India and their powers: Supreme Court, High Court, Sessions court, Magistrate's Court, Labour Court, Family Court, Executive Magistrate Court and Juvenile Justice Board	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.5	Describe Court procedures including issue of Summons, conduct money, types of witnesses, recording of evidence oath, affirmation, examination in chief, cross examination, re-examination and court questions, recording of evidence & conduct of doctor in witness box	K	KH	N	Lecture, Small Group Discussion, Moot Court	Written/ Viva voce			
FM1.6	Describe Offenses in Court including Perjury; Court strictures vis-a-vis Medical Officer	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.7	Describe Dying Declaration & Dying Deposition	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.8	Describe the latest decisions/notifications/resolutions/circulars/standing orders related to medico-legal practice issued by Courts/Government authorities etc.	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially - maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. - maintenance of medico-legal register like accident register. - documents of issuance of wound certificate - documents of issuance of drunkenness certificate. - documents of issuance of sickness and fitness certificate. - documents for issuance of death certificate. -documents of Medical Certification of Cause of Death - Form Number4 and 4A - documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	
FM1.10	Select appropriate cause of death in a particular scenario by referring ICD 10 code	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.11	Write a correct cause of death certificate as per ICD 10 document	S	SH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
Topic: Forensic Pathology Number of competencies: (35) Number of procedures that require certification : (NIL)									
FM2.1	Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical Death and Brainstem Death	K	KH	Y	Lecture/Small group discussion	Written/ Viva voce		Pathology	
FM2.2	Describe and discuss natural and unnatural deaths	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Pathology	
FM2.3	Describe and discuss issues related to sudden natural deaths	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Pathology	
FM2.4	Describe salient features of the Organ Transplantation and The Human Organ Transplant (Amendment) Act 2011 and discuss ethical issues regarding organ donation	K	KH	Y	Lecture/Small group discussion	Written/ Viva voce		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.5	Discuss moment of death, modes of death - coma, asphyxia and syncope	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Psychiatry, Pathology	
FM2.6	Discuss presumption of death and survivorship	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM2.7	Describe and discuss suspended animation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.8	Describe and discuss postmortem changes including signs of death, cooling of body, post-mortem lividity, rigor mortis, cadaveric spasm, cold stiffening and heat stiffening	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.9	Describe putrefaction, mummification, adipocere and maceration	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.10	Discuss estimation of time since death	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.11	Describe and discuss autopsy procedures including post-mortem examination, different types of autopsies, aims and objectives of post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pathology	
FM2.12	Describe the legal requirements to conduct post-mortem examination and procedures to conduct medico-legal post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pathology	
FM2.13	Describe and discuss obscure autopsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
FM2.14	Describe and discuss examination of clothing, preservation of viscera on post-mortem examination for chemical analysis and other medico-legal purposes, post-mortem artefacts	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM 2.15	Describe special protocols for conduction of medico-legal autopsies in cases of death in custody or following violation of human rights as per National Human Rights Commission Guidelines	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.16	Describe and discuss examination of mutilated bodies or fragments, charred bones and bundle of bones	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ OSPE			
FM2.17	Describe and discuss exhumation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.18	Crime Scene Investigation:- Describe and discuss the objectives of crime scene visit, the duties & responsibilities of doctors on crime scene and the reconstruction of sequence of events after crime scene investigation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.19	Investigation of anaesthetic, operative deaths: Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
FM2.20	Mechanical asphyxia: Define, classify and describe asphyxia and medico-legal interpretation of post-mortem findings in asphyxial deaths	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.21	Mechanical asphyxia: Describe and discuss different types of hanging and strangulation including clinical findings, causes of death, post-mortem findings and medico-legal aspects of death due to hanging and strangulation including examination, preservation and dispatch of ligature material	K	KH	Y	Lecture/Small group discussion, Autopsy DOAP session	Written/ Viva voce/ OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.22	Mechanical asphyxia: Describe and discuss patho-physiology, clinical features, post-mortem findings and medico-legal aspects of traumatic asphyxia, obstruction of nose & mouth, suffocation and sexual asphyxia	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.23	Describe and discuss types, patho-physiology, clinical features, post-mortem findings and medico-legal aspects of drowning, diatom test and, gettler test.	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.24	Thermal deaths: Describe the clinical features, post-mortem finding and medicolegal aspects of injuries due to physical agents like heat (heat-hyper-pyrexia, heat stroke, sun stroke, heat exhaustion/prostration, heat cramps [miner's cramp] or cold (systemic and localized hypothermia, frostbite, trench foot, immersion foot)	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce			
FM2.25	Describe types of injuries, clinical features, patho-physiology, post-mortem findings and medico-legal aspects in cases of burns, scalds, lightening, electrocution and radiations	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		General Surgery	
FM2.26	Describe and discuss clinical features, post-mortem findings and medico-legal aspects of death due to starvation and neglect	K	KH	Y	Lecture/Small group discussion	Written/ Viva voce			
FM2.27	Define and discuss infanticide, foeticide and stillbirth	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden Infants Death syndrome and Munchausen's syndrome by proxy	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/Viva voce / OSCE		Pediatrics, Human Anatomy	
FM2.29	Demonstrate respect to the directions of courts, while appearing as witness for recording of evidence under oath or affirmation, examination in chief, cross examination, re-examination and court questions, recording of evidence	A and C	SH	Y	Lecture, Small group discussion, Moot Court, Court visits, Role Play	Role Play during internal assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.30	Have knowledge/awareness of latest decisions/notifications/resolutions/circulars/standing orders related to medico-legal practice issued by Courts/Government authorities etc	A	K	Y	Lecture/Small group discussion	Written/ Viva voce			
FM2.31	Demonstrate ability to work in a team for conduction of medico-legal autopsies in cases of death following alleged negligence medical dowry death, death in custody or following violation of human rights as per National Human Rights Commission Guidelines on exhumation	A	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.32	Demonstrate ability to exchange information by verbal, or nonverbal communication to the peers, family members, law enforcing agency and judiciary	A and C	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	
FM2.33	Demonstrate ability to use local resources whenever required like in mass disaster situations	A and C	KH	Y	Lecture/Small group discussion	Written/ Viva voce		Community Medicine	
FM2.34	Demonstrate ability to use local resources whenever required like in mass disaster situations	A and C	KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Medicine, AETCOM	
FM2.35	Demonstrate professionalism while conducting autopsy in medicolegal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A and C	KH/SH		Lecture, small group discussions, DOAP session	Written/ Viva voce/ OSPE		AETCOM	
Topic: Clinical Forensic Medicine Number of competencies:(33) Number of procedures that require certification:(NIL)									
FM3.1	IDENTIFICATION Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion, stature, age determination using morphology, teeth-eruption, decay, bite marks, bones-ossification centres, medico-legal aspects of age	K	KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/Viva voce/ skill assessment		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.2	IDENTIFICATION Describe and discuss identification of criminals, unknown persons, dead bodies from the remains-hairs, fibers, teeth, anthropometry, dactylography, foot prints, scars, tattoos, poroscopy and superimposition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM3.3	Mechanical injuries and wounds: Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self-inflicted/fabricated wounds and their medico-legal aspects	K	KH	Y	Lecture, Small group discussion Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		General Surgery	
FM3.4	Mechanical injuries and wounds: Define injury, assault & hurt. Describe IPC pertaining to injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
FM3.5	Mechanical injuries and wounds: Describe accidental, suicidal and homicidal injuries. Describe simple, grievous and dangerous injuries. Describe ante-mortem and post-mortem injuries	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce			
FM3.6	Mechanical injuries and wounds: Describe healing of injury and fracture of bones with its medico-legal importance	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery	
FM3.7	Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.8	Mechanical injuries and wounds: Describe and discuss different types of weapons including dangerous weapons and their examination	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.9	Firearm injuries: Describe different types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/ OSCE		General Surgery, Orthopaedics	
FM3.11	Regional Injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
FM3.12	Regional Injuries Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
FM3.13	Describe different types of sexual offences. Describe various sections of IPC regarding rape including definition of rape (Section 375 IPC), Punishment for Rape (Section 376 IPC) and recent amendments notified till date	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE/OSPE		Obstetrics & Gynaecology	
FM3.14	SEXUAL OFFENCES Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.15	SEXUAL OFFENCES Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.16	SEXUAL OFFENCES Describe and discuss adultery and unnatural sexual offences- sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM3.17	Describe and discuss the sexual perversions fetishism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM3.18	Describe anatomy of male and female genitalia, hymen and its types. Discuss the medico-legal importance of hymen. Define virginity, defloration, legitimacy and its medicolegal importance	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.19	Discuss the medicolegal aspects of pregnancy and delivery, signs of pregnancy, precipitate labour superfoetation, superfecundation and signs of recent and remote delivery in living and dead	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.20	Discuss disputed paternity and maternity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.21	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC&PNDT) - Prohibition of Sex Selection Act 2003 and Domestic Violence Act 2005	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, AETCOM	
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Medicine	
FM3.23	Discuss Sterilization of male and female, artificial insemination, Test Tube Baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.24	Discuss the relative importance of surgical methods of contraception (vasectomy and tubectomy) as methods of contraception in the National Family Planning Programme	K	K/KH	N	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.25	Discuss the major results of the National Family Health Survey	K	K/KH	N	Lecture	Written		Obstetrics & Gynaecology	
FM3.26	Discuss the national Guidelines for accreditation, supervision & regulation of ART Clinics in India	K	K/KH	Y	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.27	Define, classify and discuss abortion, methods of procuring MTP and criminal abortion and complication of abortion. MTP Act 1971	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, AETCOM	
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Pathology	
FM3.29	Describe and discuss child abuse and battered baby syndrome	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
FM3.30	Describe and discuss issues relating to torture, identification of injuries caused by torture and its sequelae, management of torture survivors	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM3.31	Torture and Human rights Describe and discuss guidelines and Protocols of National Human Rights Commission regarding torture	K	K/KH	N	Lecture/Small group discussion	Written/ Viva voce			
FM3.32	Demonstrate the professionalism while preparing reports in medicolegal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A and C	SH	Y	Lecture, Small group discussion	OSPE/Viva voce		AETCOM	
FM3.33	Should be able to demonstrate the professionalism while dealing with victims of torture and human right violations, sexual assaults- psychological consultation, rehabilitation	A and C	K/KH/S H	Y	Lecture/Small group discussion	Written/ Viva voce		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Medical Jurisprudence (Medical Law and ethics)		Number of competencies: (30)			Number of procedures that require certification : (NIL)				
FM4.1	Describe Medical Ethics and explain its historical emergence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.2	Describe the Code of Medical Ethics 2002 conduct, Etiquette and Ethics in medical practice and unethical practices & the dichotomy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.3	Describe the functions and role of Medical Council of India and State Medical Councils	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.4	Describe the Indian Medical Register	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.5	Rights/privileges of a medical practitioner, penal erasure, infamous conduct, disciplinary Committee, disciplinary procedures, warning notice and penal erasure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.6	Describe the Laws in Relation to medical practice and the duties of a medical practitioner towards patients and society	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.7	Describe and discuss the ethics related to HIV patients	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.8	Describe the Consumer Protection Act-1986 (Medical Indemnity Insurance, Civil Litigations and Compensations), Workman's Compensation Act & ESI Act	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.9	Describe the medico - legal issues in relation to family violence, violation of human rights, NHRC and doctors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.10	Describe communication between doctors, public and media	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.11	Describe and discuss euthanasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM4.12	Discuss legal and ethical issues in relation to stem cell research	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.13	Describe social aspects of Medico-legal cases with respect to victims of assault, rape, attempted suicide, homicide, domestic violence, dowry- related cases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.14	Describe & discuss the challenges in managing medico-legal cases including development of skills in relationship management – Human behaviour, communication skills, conflict resolution techniques	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.15	Describe the principles of handling pressure – definition, types, causes, sources and skills for managing the pressure while dealing with medico-legal cases by the doctor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.16	Describe and discuss Bioethics	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.17	Describe and discuss ethical Principles: Respect for autonomy, non-maleficence, beneficence & justice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.18	Describe and discuss medical negligence including civil and criminal negligence, contributory negligence, corporate negligence, vicarious liability, Res Ipsa Loquitor, prevention of medical negligence and defenses in medical negligence litigations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.19	Define Consent. Describe different types of consent and ingredients of informed consent. Describe the rules of consent and importance of consent in relation to age, emergency situation, mental illness and alcohol intoxication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.20	Describe therapeutic privilege, Malingering, Therapeutic Misadventure, Professional Secrecy, Human Experimentation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM4.21	Describe Products liability and Medical Indemnity Insurance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.22	Explain Oath – Hippocrates, Charaka and Sushruta and procedure for administration of Oath.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.23	Describe the modified Declaration of Geneva and its relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.24	Enumerate rights, privileges and duties of a Registered Medical Practitioner. Discuss doctor- patient relationship: professional secrecy and privileged communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.25	Clinical research & Ethics Discuss human experimentation including clinical trials	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.26	Discuss the constitution and functions of ethical committees	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.27	Describe and discuss Ethical Guidelines for Biomedical Research on Human Subjects & Animals	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.28	Demonstrate respect to laws relating to medical practice and Ethical code of conduct prescribed by Medical Council of India and rules and regulations prescribed by it from time to time	A and C	SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.29	Demonstrate ability to communicate appropriately with media, public and doctors	A and C	KH/SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.30	Demonstrate ability to conduct research in pursuance to guidelines or research ethics	A and C	KH/SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
Topic: Forensic Psychiatry Number of competencies: (06) Number of procedures that require certification: (NIL)									
FM5.1	Classify common mental illnesses including post-traumatic stress disorder (PTSD)	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM5.2	Define, classify and describe delusions, hallucinations, illusion, lucid interval and obsessions with exemplification	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.3	Describe Civil and criminal responsibilities of a mentally ill person	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.4	Differentiate between true insanity from feigned insanity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry, General Medicine	
FM5.6	Describe the Indian Mental Health Act, 1987 with special reference to admission, care and discharge of a mentally ill person	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
Topic: Forensic Laboratory investigation in medical legal practice Number of competencies: (03) Number of procedures that require certification: (NIL)									
FM6.1	Describe different types of specimen and tissues to be collected both in the living and dead: Body fluids (blood, urine, semen, faeces saliva), Skin, Nails, tooth pulp, vaginal smear, viscera, skull, specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Fingerprinting. Describe Locard's Exchange Principle	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
FM6.2	Describe the methods of sample collection, preservation, labelling, dispatch, and interpretation of reports	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM6.3	Demonstrate professionalism while sending the biological or trace evidences to Forensic Science laboratory, specifying the required tests to be carried out, objectives of preservation of evidences sent for examination, personal discussions on interpretation of findings	A and C	KH/SH	Y	Lecture, Small group discussions, DOAP sessions	Viva voce / OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Emerging technologies in Forensic Medicine Number of competencies: (01) Number of procedures that require certification:(NIL)									
FM7.1	Enumerate the indications and describe the principles and appropriate use for: - DNA profiling Facial reconstruction - Polygraph (Lie Detector) - Narcoanalysis, - Brain Mapping, - Digital autopsy, - Virtual Autopsy, - Imaging technologies	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Toxicology: General Toxicology Number of competencies: (10) Number of procedures that require certification: (NIL)									
FM8.1	Describe the history of Toxicology	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.2	Define the terms Toxicology, Forensic Toxicology, Clinical Toxicology and poison	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.3	Describe the various types of poisons, Toxicokinetics, and Toxicodynamics and diagnosis of poisoning in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/viva voce		Pharmacology	
FM8.4	Describe the Laws in relations to poisons including NDPS Act, Medico-legal aspects of poisons	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.5	Describe Medico-legal autopsy in cases of poisoning including preservation and dispatch of viscera for chemical analysis	K	K/KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pharmacology	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM8.9	Describe the procedure of intimation of suspicious cases or actual cases of foul play to the police, maintenance of records, preservation and despatch of relevant samples for laboratory analysis.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM8.10	Describe the general principles of Analytical Toxicology and give a brief description of analytical methods available for toxicological analysis: Chromatography – Thin Layer Chromatography, Gas Chromatography, Liquid Chromatography and Atomic Absorption Spectroscopy	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Toxicology : Chemical Toxicology Number of competencies: (06) Number of procedures that require certification : (NIL)									
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: Caustics Inorganic – sulphuric, nitric, and hydrochloric acids; Organic- Carbolic Acid (phenol), Oxalic and acetylsalicylic acids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
Topic: Toxicology : Pharmaceutical Toxicology Number of competencies: (01) Number of procedures that require certification : (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepins phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv .Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis vi.Gastro-Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
Topic: Toxicology : Biotoxicology Number of competencies: (01) Number of procedures that require certification : (NIL)									
FM11.1	Describe features and management of Snake bite, scorpion sting, bee and wasp sting and spider bite	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/ Viva voce		General Medicine	
Topic: Toxicology : Sociomedical Toxicology Number of competencies: (01) Number of procedures that require certification : (NIL)									
FM12.1	Describe features and management of abuse/poisoning with following camicals: Tobacco, cannabis, amphetamines, cocaine, hallucinogens, designer drugs & solvent	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/ Viva voce		General Medicine	
Topic: Toxicology : Environmental Toxicology Number of competencies: (02) Number of procedures that require certification : (NIL)									
FM13.1	Describe toxic pollution of environment, its medico-legal aspects & toxic hazards of occupation and industry	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
FM13.2	Describe medico-legal aspects of poisoning in Workman's Compensation Act	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Skills in Forensic Medicine & Toxicology Number of competencies: (22) Number of procedures that require certification: (NIL)									
FM14.1	Examine and prepare Medico-legal report of an injured person with different etiologies in a simulated/ supervised environment	S	SH/P	Y	Bedside clinic (ward/ casualty), Small group discussion	Log book/ Skill station/ Viva voce / OSCE			
FM14.2	Demonstrate the correct technique of clinical examination in a suspected case of poisoning & prepare medico-legal report in a simulated/ supervised environment	S	SH	Y	Bedside clinic (ward/casualty), Small Group discussion	Log book/ Skill station/ Viva voce / OSCE		General Medicine	
FM14.3	Assist and demonstrate the proper technique in collecting, preserving and dispatch of the exhibits in a suspected case of poisoning, along with clinical examination	S	SH	Y	Bedside clinic, Small Group discussion, DOAP session	Skill lab/ Viva voce		General Medicine	
FM14.4	Conduct and prepare report of estimation of age of a person for medico-legal and other purposes & prepare medico-legal report in a simulated/ supervised environment	S	KH	Y	Small group discussion, Demonstration	Log book/ Skill station/ Viva voce / OSCE			
FM14.5	Conduct & prepare post-mortem examination report of varied etiologies (at least 15) in a simulated/ supervised environment	S	KH	Y	Small group discussion, Autopsy, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.6	Demonstrate and interpret medico-legal aspects from examination of hair (human & animal) fibre, semen & other biological fluids	S	KH	Y	Small group discussion, Lecture	Log book/ Skill station/ Viva voce / OSCE			
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin	S	KH	Y	Small group discussion, Lecture	Log book/Skill station/Viva voce		Pathology, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & RH blood group of a person	S	SH	Y	Small group discussion, DOAP session	Log book/Skill station/Viva voce		Pathology, Physiology	
FM14.9	Demonstrate examination of & present an opinion after examination of skeletal remains in a simulated/ supervised environment	S	SH	Y	Small group discussion, DOAP session	Log book/Skill station/Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM14.10	Demonstrate ability to identify & prepare medicolegal inference from specimens obtained from various types of injuries e.g. contusion, abrasion, laceration, firearm wounds, burns, head injury and fracture of bone	S	KH	Y	Small group discussion, DOAP session	Log book/Skill station/ Viva voce/ OSPE			
FM14.11	To identify & describe weapons of medicolegal importance which are commonly used e.g. lathi, knife, kripa, axe, gadda, gupta, farsha, dagger, bhalla, razor & stick. Able to prepare report of the weapons brought by police and to give opinion regarding injuries present on the person as described in injury report/ PM report so as to connect weapon with the injuries. (Prepare injury report/ PM report must be provided to connect the weapon with the injuries)	S	KH	Y	Small group discussion, DOAP session	Log book/Skill station/ Viva voce/ OSPE			
FM14.12	Describe the contents and structure of bullet and cartridges used & to provide medico-legal interpretation from these	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/Viva voce			
FM14.13	To estimate the age of foetus by post-mortem examination	S	KH	Y	Small group discussion, DOAP session	Theory/ Clinical assessment/ Viva voce			
FM14.14	To examine & prepare report of an alleged accused in rape/unnatural sexual offence in a simulated/ supervised environment	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.15	To examine & prepare medico-legal report of a victim of sexual offence/unnatural sexual offence in a simulated/ supervised environment	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.16	To examine & prepare medico-legal report of drunk person in a simulated/ supervised environment	S	KH	Y	Small group discussion, Bed side clinic, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.17	To identify & draw medico-legal inference from common poisons e.g. dhatura, castor, cannabis, opium, aconite copper sulphate, pesticides compounds, marking nut, oleander, Nux vomica, abrus seeds, Snakes, capsicum, calotropis, lead compounds & tobacco.	S	KH	Y	Small group discussion, DOAP session	Log book/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM14.18	To examine & prepare medico-legal report of a person in police, judicial custody or referred by Court of Law and violation of human rights as requirement of NHRC, who has been brought for medical examination	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.19	To identify & prepare medico-legal inference from histo-pathological slides of Myocardial Infarction, pneumonitis, tuberculosis, brain infarct, liver cirrhosis, brain haemorrhage, bone fracture, Pulmonary oedema, brain oedema, soot particles, diatoms & wound healing	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce			
FM14.20	To record and certify dying declaration in a simulated/ supervised environment	S	KH	Y	Small group discussion, Role Play, Bed side clinic DOAP session	Log book/ Skill station/ Viva voce /OSCE			
FM14.21	To collect, preserve, seal and dispatch exhibits for DNA-Finger printing using various formats of different laboratories.	S	KH	Y	Small group discussion, Lecture	Log book/ Skill station/Viva voce			
FM14.22	To give expert medical/ medico-legal evidence in Court of law	S	KH	Y	Small group discussion, Lecture, DOAP session, role play, Court Visits	Log book/ Viva voce/OSCE			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Human Anatomy									
AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia	K	KH	Y	Lecture	Viva voce/Practicals		Forensic Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Pharmacology									
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Forensic Medicine
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	K	KH	Y	Small group discussion	short note/Viva voce			Forensic Medicine
Radiodiagnosis									
RD1.13	Describe the components of the PC & PNDT act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics & Gynaecology, Forensic Medicine	
Psychiatry									
PS19.3	Describe and discuss the basic legal and ethical issues in psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine AETCOM	
General Medicine									
IM20.1	Enumerate the poisonous snakes of your area and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.2	Describe, demonstrate in a volunteer or a mannequin and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	S	SH	Y	DOAP session	Skill assessment/ Written/ Viva voce		Forensic Medicine	
IM20.3	Describe the initial approach to the stabilisation of the patient who presents with snake bite	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
IM20.4	Elicit and document and present an appropriate history, the circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Forensic Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
Obstetrics & Gynaecology									
OG1.3	Define and Discuss still birth and abortion	K	KH	Y	Lecture, Small group discussions	Short notes		Forensic Medicine	
OG9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation	S	SH	Y	DOAP session, Bedside clinic	Viva voce		Forensic Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG20.1	Enumerate the indications and describe and discuss the legal aspects, indications, methods for first and second trimester MTP; complications and management of complications of medical termination of pregnancy	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Forensic Medicine	
OG20.2	In a simulated environment administer informed consent to a person wishing to undergo medical termination of pregnancy	S/A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine	
OG20.3	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC& PNDT) Act 1994 & its amendments	K	K/KH	Y	Lecture, Small group discussions	Written/ Viva voce		Forensic Medicine	
General Surgery									
SU8.1	Describe the principles of Ethics as it pertains to surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	
SU8.2	Demonstrate Professionalism and empathy to the patient undergoing surgery	A/C	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	
SU8.3	Discuss Medico legal issues in surgical practice	A/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	

List of contributing subject Experts

1. Human Anatomy

- Dr. Praveen R Singh, Professor & Head, Department of Anatomy, Pramukhswami Medical College, Karamsad, Gujarat
- Dr. Nachiket Shankar, Associate Professor, Department of Anatomy, St. John's Medical College & Hospital, Bangalore

2. Physiology

- Dr. Mario Vaz, Professor, Department of Physiology, St. John's Medical College & Hospital, Bangalore
- Dr. Jayashree Sengupta, Former Professor & Head, Department of Physiology, All India Institute of Medical Sciences, New Delhi.
- Dr Hasmukh D Shah, Professor & Head, Department of Physiology, Pramukhswami Medical College, Karamsad, Gujarat

3. Biochemistry

- Dr. Nibhriti Das, Professor, Department of Biochemistry, All India Institute of Medical Sciences, New Delhi
- Dr. S. P. Singh, Professor, Department of Biochemistry, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh
- Dr. Hitesh N Shah, Professor & Head, Department of Biochemistry, Pramukhswami Medical College, Karamsad, Gujarat

4. Pharmacology

- Dr. S. K. Maulik, Professor, Department of Pharmacology, All India Institute of Medical Sciences, New Delhi
- Dr. Vandana Roy, Professor, Department of Pharmacology, Maulana Azad Medical College, New Delhi

5. Pathology

- Dr. S. Datta Gupta, Professor, Department of Pathology, All India Institute of Medical Sciences, New Delhi
- Dr. Uma Chaturvedi, Professor, C-1303, Freedom Park Life, Sector- 57, Gurugram

6. Microbiology

- Dr. S. Geetalakshmi, Dean, Professor, Department of Microbiology, Stanley Medical College, Chennai, Tamil Nadu.
- Dr. Padma Srikanth, Professor, Department of Microbiology, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suman Singh, Professor, Department of Microbiology, Pramukhswami Medical College, Karamsad, Gujarat

7. Forensic Medicine & Toxicology

- Dr. Sanjeev Lalwani, Professor & Registrar (Academics), Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. T. D. Dogra, Former Director & Former Head, Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi; currently, Vice Chancellor, SGT University, Gurugram
- Col. Ravi Rautji, Professor & Head, Department of Forensic Medicine, Commanding Officer, Directorate General of Medical Services (Army), New Delhi
- Dr. S.D. Nanandkar, Professor & Head, Department of Forensic Medicine, Grant Government Medical College & Sir J.J. Group of Hospitals, Mumbai
- Dr. Indrajit L. Khandekar, In-charge CFMU and Associate Professor, Department of Forensic Medicine & Toxicology, MGIMS and Kasturba Hospital, Sewagram, Wardha.
- Dr. S. B. Punpale, Professor & Head, Department of Forensic Medicine, B. J. Medical College, Pune, Maharashtra

8. Community Medicine

- Dr. B. S. Garg, Professor & Head, Department of Community Medicine, Mahatama Gandhi Institute of Medical Sciences, Wardha, Sewagram, Maharashtra
- Dr. Umesh Kapil, Professor, Department of Community Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. Sanjay Zodpey, Director, Public Health Foundation of India, Isid Campus, 4 Institutional Area, Vasant Kunj, New Delhi
- Dr. Saudan Singh, Professor, Department of Community Medicine, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. Dinesh Kumar, Professor, Department of Community Medicine, Pramukhswami Medical College, Karamsad, Gujarat
- Dr. Pankaj B. Shah, Professor, Department of Community Medicine, Sri Ramachandra Medical College & Research Institute, Chennai.

9. General Medicine & Respiratory Medicine

- Dr. Krishna G. Seshadri, Visiting Professor, Endocrinology & Metabolism, Balaji Vidyapeeth, Puducherry
- Dr. M. K. Bhatnagar, Director Professor, Department of General Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Aparna Agarwal, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Anil Gurtoo, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi

10. Pediatrics

- Dr. Harish Chellani, Professor of Pediatrics, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. A. K. Dutta, Former Head, Kalawati Saran Children's Hospital, New Delhi

- Dr. S. Aneja, Director Professor & Head, Department of Pediatrics, Kalawati Saran Children's Hospital, New Delhi
- Dr. Latha Ravichandran, Professor, Deartment of Paediatrics, Sri Ramachandra Medical College & Research Institute, Chennai.

11. Psychiatry

- Dr. Rakesh Kumar Chadda, Department of Psychiatry, All India Institute of Medical Sciences, New Delhi
- Dr. N. M. Patil, Professor, Department of Psychiatry, Jawaharlal Nehru Medical College, Belagavi
- Dr. Rajesh Rastogi, Consultant & Head Department of Psychiatry, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi.
- Dr. Jagdish R Varma, Associate Professor, Department of Psychiatry, Pramukhswami Medical College, Karamsad, Gujarat

12. Dermatology, Venereology & Leprosy

- Dr. R. K. Gautam, Professor, Department of Dermatology, Venereology & Leprosy, Dr. Ram Manohar Lohia Hospital, New Delhi.
- Dr. Sujay Khandpur, Professor, Department of Dermatology, Venereology & Leprosy, All India Institute of Medical Sciences, New Delhi
- Dr. S. Murugan, Associate Professor of Dermatology, Sri Ramachandra Medical College & Research Institute, Chennai

13. Physical Medicine and Rehabilitation

- Dr. Sanjay Wadhwa, Professor, Department of Physical Medicine & Rehabilitation, All India Institute of Medical Sciences, New Delhi
- Dr. George Tharion, Head, Department of Physical Medicine & Rehabilitation, Christian Medical College, Vellore, Tamil Nadu

- Dr. Jagdish Menon, Professor & Head, Department of Orthopaedics and Dept. of Physical & Rehabilitative Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry

14. General Surgery

- Dr. N Ananthakrishnan, 2A Vairam Enclave, Siddhananda Nagar, Pondicherry -605005.
- Dr. P. V. Chalam, Former Professor, Department of Surgery, Gandhi Medical College, Secunderabad, Telengana.
- Dr. Dinesh Bhatnagar, Professor, Department of General Surgery, North Delhi Municipal Corporation Medical College, Hindu Rao Hospital, Malka Ganj, Delhi

15. Ophthalmology

- Dr. Smita Singh, Professor, Department of Ophthalmology, Mahatma Gandhi Institute of Medical Sciences, Wardha

16. Oto-rhino-laryngology

- Dr. Achal Gulati, Director Professor, Department of ENT, Maulana Azad Medical College, New Delhi
- Dr. Ravi Kumar, Professor & Head, Department of ENT, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suma Mathew, Professor, Department of ENT, Christian Medical College, Vellore, Tamil Nadu

17. Obstetrics and Gynaecology

- Dr. Neerja Bhatla, Professor, Department of Obstetrics & Gynecology, All India Institute of Medical Sciences, New Delhi
- Dr. Annie Regi, Professor & Head, Department of Obstetrics & Gynecology, Christian Medical College, Vellore, Tamil Nadu
- Dr. Usha Vishwanath, Professor, Department of Obstetrics & Gynecology, Sri Ramachandra Medical College & Research Institute, Chennai

18. Orthopaedics

- Dr. P.V. Vijayaraghavan, Vice Chancellor & Professor of Orthopedics, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Raj Bahadur, Professor & Head, Department of Orthopaedics, Postgraduate Institute of Medical Sciences, Chandigarh
- Dr. SC. Goel, Professor, Department of Orthopaedics, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh

19. Anaesthesiology

- Dr. Baljit Singh, Director Professor of Anaesthesia, G. B. Pant Hospital, Delhi
- Dr. Ramesh Keshav, Department of Anaesthesia, Dr. Ram Manohar Lohia Hospital, New Delhi
- Dr. Mridula Pawar, Consultant & Head, Department of Anaesthesia, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi

20. Radio- Diagnosis

- Dr. Kishor Taori (late), Professor & Head, Department of Radiodiagnosis, Government Medical College, Nagpur

21. Radiotherapy

- Dr. P. K. Jhulka, Dean & Professor of Radiotherapy, All India Institute of Medical Sciences, New Delhi.
- Dr. Shyam Shrivastava, Head, Department of Radiation, Tata Memorial Hospital, Mumbai

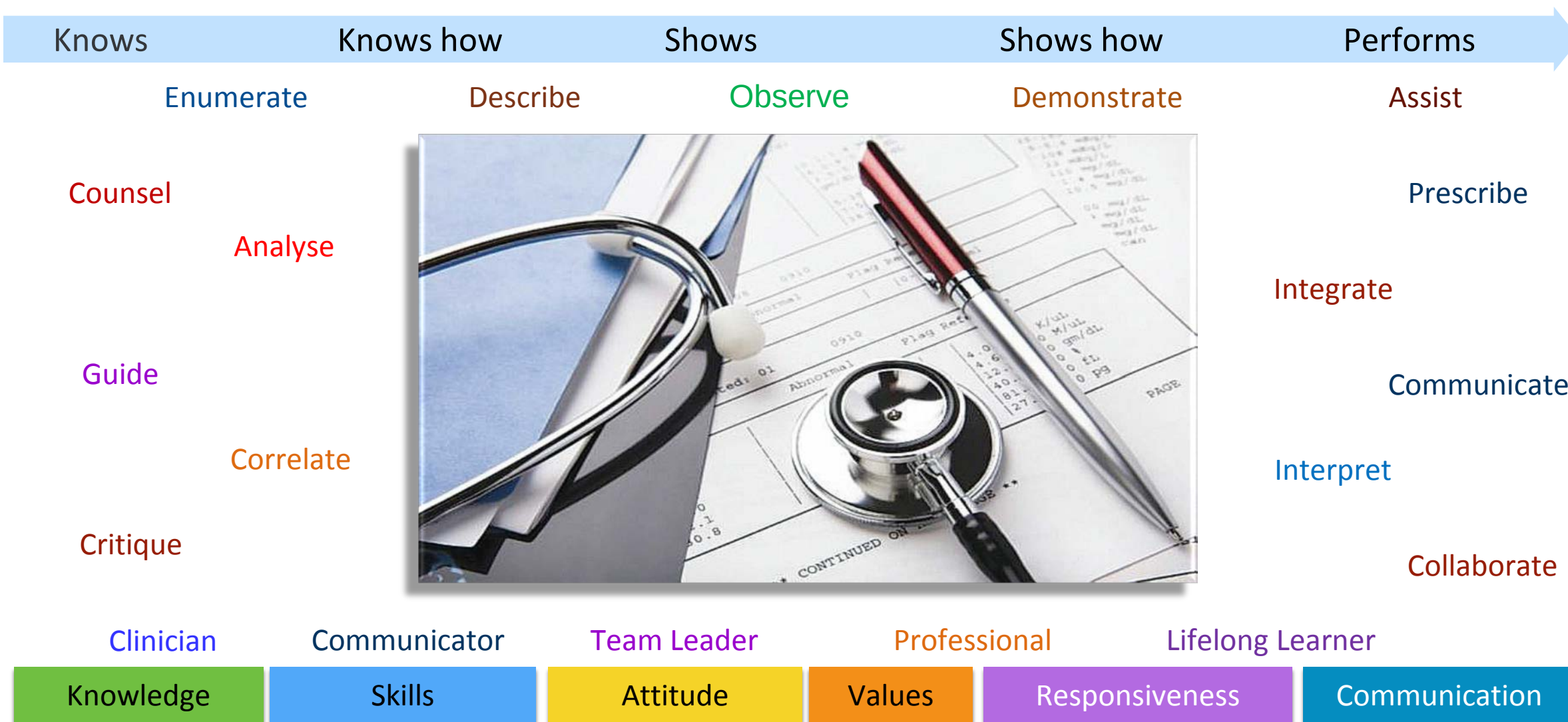
22. Dentistry

- Dr. Sridevi Padmanabhan, Professor, Department of Orthodontics, Faculty of Dental Sciences, Sri Ramchandra Medical College & Research Institute, Chennai



MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



**COMPETENCY BASED UNDERGRADUATE CURRICULUM
FOR THE
INDIAN MEDICAL GRADUATE
2018**



**Medical Council of India
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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड

BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

FOREWORD

The Medical Council of India, aware of its responsibilities in creation of trained health manpower, has been engaged for the past few years in updating the medical curriculum for undergraduates and postgraduates to be in consonance with the changing health needs of the country. The task of updating and reorganization of the postgraduate curriculum in nearly 50 broad specialty disciplines to the competency pattern was accomplished by the Academic Cell of the Council with the help of subject experts and members of its Reconciliation Board and have been uploaded on the Council Website for use of the medical fraternity.

The Council visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. The student should be trained to effectively communicate with patients and their relatives in a manner respectful of the patient's preferences, values, beliefs, confidentiality and privacy and to this purpose, a book on Attitude, Ethics & Communication was prepared by the Medical Council of India; the teaching faculty of medical colleges have been receiving training on this module since 2015.

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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड
BOARD OF GOVERNORS
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-2-

Competency based Medical Education provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies. Keeping this objective as the core ingredient, the Medical Council of India with the help of panel of experts drawn from across the country, laid the basic framework for the revised undergraduate medical curriculum. Over the past four years, a group of highly committed medical professionals working as Members of the MCI Reconciliation Board developed this information into a document incorporating appropriate teaching-learning strategies, tools and techniques of teaching, and modes of assessment which have culminated in the current competency based undergraduate curriculum. We understand that maximum efforts were made to encourage integrated teaching between traditional subject areas using a problem-based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both the understanding and resolution of the problem. All efforts have been made to de-emphasize compartmentalisation of disciplines so as to achieve both horizontal and vertical integration in different phases. We are proud of their work accomplishment and congratulate them in the onerous task accomplished.

It gives us great satisfaction to state that the '**competency based undergraduate curriculum**' that has been prepared by the Medical Council of India would definitely serve the cause of medical education and in creating a competent Indian Medical Graduate to serve the community.

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COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Preamble

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide health care to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using “broad competencies”; instead, the reports have written end of phase subject (sub) competencies. These “sub-competencies” can be mapped to the global competencies in the Graduate Medical Education Regulations.

A significant attempt has been made in the outcome driven undergraduate curriculum to provide the orientation and the skills necessary for life-long learning to enable proper care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged. In the pre-internship years,- the highest level of skill acquisition is a show how (SH) in a simulated or guided environment; few skills require independent performance and certification - these are marked with P (for performance). Opportunity to ‘perform’ these skills will be available during internship.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above, an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self directed learning and co-curricular activities.

Formative and internal assessments have been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened, increasing the involvement of Curriculum Committee and Medical Education Departments/Units.

The curriculum document in conjunction with the new Graduate Medical Education Regulations (GMR), when notified, must be seen as a “living document” that should evolve as stakeholder requirements and aspirations change. We hope that the current GMR does just that. The Medical Council of India is

grateful to all the teachers, subject experts, process experts, patients, students and trainees who have contributed through invaluable inputs, intellectual feedbacks and valuable time spent to make this possible. This document would not have been possible without the dedicated and unstinting intellectual, mental and time-consuming efforts of the members of the Reconciliation Board of the Council and the Academic Cell of MCI.

How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. They must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

2. Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession fulfill his/her social obligations towards realization of this goal.
- (b) learn every aspect of National policies on health and devote herself/himself to its practical implementation.
- (c) achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

- (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH);
 - (ii) Sanitation and water supply;
 - (iii) Prevention and control of communicable and non-communicable diseases;
 - (iv) Immunization;
 - (v) Health Education;
 - (vi) Indian Public Health Standards (IPHS) at various level of service delivery;
 - (vii) Bio-medical waste disposal; and
 - (viii) Organizational and or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, General and hospital management, principal inventory skills and counseling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2. 3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

- 3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- 3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - i) Disease prevention,
 - ii) Health promotion and cure,
 - iii) Pain and distress alleviation, and
 - iv) Rehabilitation and palliation.

- 3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

- 3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- 3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- 3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- 3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. *Communicator with patients, families, colleagues and community*

- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically reevaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. *Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession*

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise outcomes

Section 2 contains subject-wise outcomes so called “sub-competencies” that must be achieved at the end of instruction in that subject. These are organised in tables and have two parts. The core subject outcomes are in first part. The second part in the same document (titled Integration) contains outcomes/competencies in other subjects which have been identified by experts in those subjects as requiring alignment or integration with the core subject.

Outcomes (competencies) in each subject are grouped according to topics number-wise. It is important to review the individual outcomes (competencies) in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section “definitions used in this document”. The suggested number of times a skill must be performed independently for certification in the learner’s log book is also given. Last two columns indicate subjects within the same phase and other phases with which the topic can be taught - together - aligned (temporal coordination), shared, correlated or nested.

The number of topics and competencies in each subject are given below:

Topics & outcomes in Pre-clinical & Para-clinical subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Human Anatomy	82	409
2.	Physiology	11	137
3.	Biochemistry	11	89
4.	Pharmacology	05	85
5.	Pathology	36	182
6.	Microbiology	08	54
7.	Forensic Medicine & Toxicology	14	162
	Total	167	1118

Topics & outcomes in Medicine and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Community Medicine	20	107
2.	General Medicine	26	506
3.	Respiratory Medicine	02	47
4.	Pediatrics	35	406
5.	Psychiatry	19	117
6.	Dermatology, Venereology & Leprosy	18	73
7.	Physical Medicine & Rehabilitation	09	43
	Total	129	1299

Topics & outcomes in Surgery and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	General Surgery	30	133
2.	Ophthalmology	09	60
3.	Otorhinolaryngology	04	76
4.	Obstetrics & Gynaecology	38	126
5.	Orthopedics	14	39
6.	Anesthesiology	10	46
7.	Radiodiagnosis	01	13
8.	Radiotherapy	05	16
9.	Dentistry	05	23
	Total	116	532

Section 3

Sample topics used for alignment & integration

Section 3 contains a sample selection of topics that run across the phases which can be used for alignment and integration. These are suggestions and institutions can select their own set of topics which can run across phases.

It is important to design the curriculum with a view to ensure with several broad outcomes in mind: a) achievement of the broad competencies by the learner at the end of the MBBS program, b) retain the subject - wise character of learning and assessment and ensure that phase-wise subject outcomes are met and assessed, c) teaching topics that are similar together thereby reducing redundancy and allowing the learner to integrate the concept as the most important step in integration (alignment or temporal coordination) (see document on integration), and d) align learning and assessment experiences to the outcome and the level of achievement specified.

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H	I	J
No.	Competencies	Domain	K/KH/SH/P	Core	Suggested Teaching Learning Method	Suggested Assessment method	No. required to certify (P)	Vertical Integration	Horizontal Integration
Physiology									
Summary Name of Topic: General Physiology Number of Competencies: (08)									
PY1.1	Describe the structure and functions of a	K	KH	Y	Lectures, Small group discussion	Written/Viva			Biochemistry
IM25.4	Elicit <i>document</i> and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	Skill assessment		Community Medicine	

Unique number of the competency. First two alphabets represent the subject (see list); number following alphabet reflects topic number, following period is a running number.

Description of competency

Identifies the domain or domains addressed
 K - Knowledge
 S - Skill
 A - Attitude
 C - Communication

Identifies the level of competency required based on the Miller's pyramid
 K - Knows
 KH - Knows How
 S - Skill
 SH - Show How
 P - Perform independently

Identifies if the competency is core or desirable.
 Y indicates Core;
 N-non-core

Identifies the suggested learning method.
 DOAP - Demonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
 Skill assessment - Clinics, Skills lab, Practicals etc.

no of times a skill needs to be done independently to be certified for independent performance;
 Rarely used in UG

Subject (s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject (s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

PA42.1*	At the end of the session the phase II student must be able to enumerate the most common causes of meningitis correctly
PA42.2*	At the end of the session the phase II student must be able to enumerate the components of CSF analysis correctly
PA42.3*	At the end of the session the phase II student must be able to describe the CSF features for a given etiology of meningitis accurately
PA42.4*	At the end of the session the phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters

Audience - who will do the behavior

Behavior - What should the learner be able to do?

Condition - Under what conditions should the learner be able to do it?

Degree – How well must it be done

Objective: Statement of what a learner should be able to do at the end of a specific learning experience
***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning methods from competencies

Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Lecture	small group discussion
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Related objectives can be combined into one teaching session	
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given etiologic of meningitis accurately		
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	small group discussion, practical session	

*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies-1

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the ~~Phase II student~~ must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given aetiology of meningitis accurately	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document

Deriving assessment methods from competencies-2

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

MI2.4*	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine	Pathology

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the morphology of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects -teachers from both subjects usually not needed. Ensure redundancy and duplication by reviewing both subjects



Horizontally aligned and integrated with pathology

Vertically integrated with General Medicine



Integrate concept - not necessarily teachers Plan session with teachers from both phases. Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient). Using teachers from both phases is rarely required

The concept of integration

Concept of integration used in the Manual

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application. The GMR 2018 applies these principles to the extent that will retain the strengths of silo - based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind, the Regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be thought separately but during the same time frame (Figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to Share (Figure 1b) topics or Correlate (Figure 1c) topics by using an integration session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. Care must be taken to ensure that achievement phase - based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasized that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may be involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting (Figure 1d) (Harden). Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year.

Assessment will continue to be subject based. However, efforts must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application.

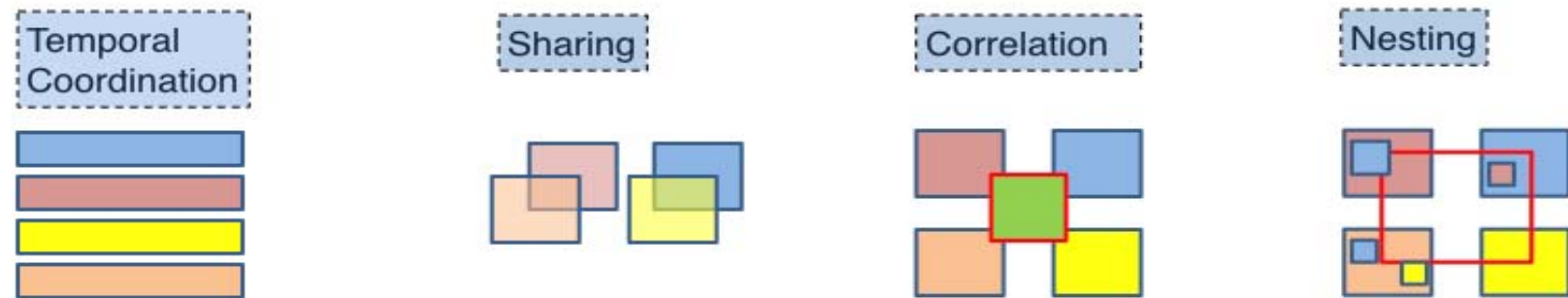


Figure 1 : Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Definitions used in the Manual

- 1. Goal:** A projected state of affairs that a person or system plans to achieve.
In other words: Where do you want to go? or What do you want to become?
- 2. Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.
In other words: What should you have? or What should have changed?
- 3. Objective:** Statement of what a learner should be able to do at the end of a specific learning experience.
In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Interpret	
Elicit		
Report		

Note:

1. Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.
2. The word ‘perform’ or ‘do’ is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
3. Most tasks that require performance during undergraduate years will be performed under supervision.
4. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

Lecture	Any instructional large group method including traditional lecture and interactive lecture
Small group discussion	Any instructional method involving small groups of students in an appropriate learning context
DOAP (Demonstration- Observation - Assistance - Performance)	A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently
Skill assessment	A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands
Core	A competency that is necessary in order to complete the requirements of the subject (traditional must know)
Non-Core	A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified.

Volume III

Competency based Undergraduate Curriculum in Surgery and Allied subjects

GENERAL SURGERY (CODE: SU)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
GENERAL SURGERY									
Topic: Metabolic response to injury Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU1.1	Describe Basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators.	K	KH	Y	Lecture, Bed side clinic, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
SU1.2	Describe the factors that affect the metabolic response to injury.	K	KH	Y	Lecture, Bed side clinic, Small group discussion	Written/ Viva voce		Biochemistry	
SU1.3	Describe basic concepts of perioperative care.	K	KH	Y	Lecture, Bed side clinic, Small group discussion	Written/ Viva voce			
Topic: Shock Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU2.1	Describe Pathophysiology of shock, types of shock & principles of resuscitation including fluid replacement and monitoring.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
SU2.2	Describe the clinical features of shock and its appropriate treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU2.3	Communicate and counsel patients and families about the treatment and prognosis of shock demonstrating empathy and care	A/C	SH	Y	DOAP session	Skill assessment		AETCOM	
Topic: Blood and blood components Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU3.1	Describe the Indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
SU3.2	Observe blood transfusions.	S	SH	Y	Small group discussion, DOAP session	Skills assessment/ Log book			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU3.3	Counsel patients and family/ friends for blood transfusion and blood donation.	A/C	SH	Y	DOAP session	Skills assessment			
Topic: Burns Number of competencies: (04) Number of procedures that require certification: (NIL)									
SU4.1	Elicit document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
SU4.2	Describe Clinical features, Diagnose type and extent of burns and plan appropriate treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU4.3	Discuss the Medicolegal aspects in burn injuries.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU4.4	Communicate and counsel patients and families on the outcome and rehabilitation demonstrating empathy and care.	A /C	SH	Y	Small group discussion, Role play, Skills assessment	Viva voce			
Topic: Wound healing and wound care Number of competencies: (04) Number of procedures that require certification: (NIL)									
SU5.1	Describe normal wound healing and factors affecting healing.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
SU5.2	Elicit, document and present a history in a patient presenting with wounds.	C	SH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU5.3	Differentiate the various types of wounds, plan and observe management of wounds.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU5.4	Discuss medico legal aspects of wounds	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Surgical infections Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU6.1	Define and describe the aetiology and pathogenesis of surgical Infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU6.2	Enumerate Prophylactic and therapeutic antibiotics Plan appropriate management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Surgical Audit and Research Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU7.1	Describe the Planning and conduct of Surgical audit	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
SU7.2	Describe the principles and steps of clinical research in General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
Topic: Ethics Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU8.1	Describe the principles of Ethics as it pertains to General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment	-	Forensic Medicine, AETCOM	
SU8.2	Demonstrate Professionalism and empathy to the patient undergoing General Surgery	A/C	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Forensic Medicine, AETCOM	
SU8.3	Discuss Medico-legal issues in surgical practice	A/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Forensic Medicine, AETCOM	
Topic: Investigation of surgical patient Number of competencies (03) Number of procedures that require certification: (NIL)									
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	C	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Microbiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU9.2	Biological basis for early detection of cancer and multidisciplinary approach in management of cancer	C	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU9.3	Communicate the results of surgical investigations and counsel the patient appropriately	C	SH	Y	DOAP session	Skill assessment			
Topic: Pre, intra and post- operative management. Number of competencies: (04) Number of procedures that require certification: (NIL)									
SU10.1	Describe the principles of perioperative management of common surgical procedures	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU10.2	Describe the steps and obtain informed consent in a simulated environment	S/A/C	SH	Y	DOAP session	Skill assessment/ Log book		AETCOM	
SU10.3	Observe common surgical procedures and assist in minor surgical procedures; Observe emergency lifesaving surgical procedures.	S	KH	Y	DOAP sessions	Log book			
SU10.4	Perform basic surgical Skills such as First aid including suturing and minor surgical procedures in simulated environment	S	P	Y	DOAP session	Skill assessment			
Topic: Anaesthesia and pain management Number of competencies: (06) Number of procedures that require certification: (NIL)									
SU11.1	Describe principles of Preoperative assessment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anaesthesiology
SU11.2	Enumerate the principles of general, regional, and local Anaesthesia.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anaesthesiology
SU11.3	Demonstrate maintenance of an airway in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			Anaesthesiology
SU11.4	Enumerate the indications and principles of day care General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU11.5	Describe principles of providing post-operative pain relief and management of chronic pain.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anaesthesiology
SU11.6	Describe Principles of safe General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Nutrition and fluid therapy Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU12.1	Enumerate the causes and consequences of malnutrition in the surgical patient	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU12.2	Describe and discuss the methods of estimation and replacement of the fluid and electrolyte requirements in the surgical patient	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU12.3	Discuss the nutritional requirements of surgical patients, the methods of providing nutritional support and their complications	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Biochemistry	
Topic: Transplantation Number of competencies: (04) Number of procedures that require certification: (NIL)									
SU13.1	Describe the immunological basis of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU13.2	Discuss the Principles of immunosuppressive therapy.Enumerate Indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
SU13.3	Discuss the legal and ethical issues concerning organ donation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
SU13.4	Counsel patients and relatives on organ donation in a simulated environment	S	SH	Y	DOAP session	Skill assessment		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Basic Surgical Skills		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
SU14.1	Describe Aseptic techniques, sterilization and disinfection.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU14.2	Describe Surgical approaches, incisions and the use of appropriate instruments in Surgery in general.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU14.3	Describe the materials and methods used for surgical wound closure and anastomosis (sutures, knots and needles)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU14.4	Demonstrate the techniques of asepsis and suturing in a simulated environment	S	SH	Y	DOAP session	Skill assessment/ Log book			
Topic: Biohazard disposal		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
SU15.1	Describe classification of hospital waste and appropriate methods of disposal.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
Topic: Minimally invasive General Surgery		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
SU16.1	Minimally invasive General Surgery: Describe indications advantages and disadvantages of Minimally invasive General Surgery	K	K	Y	Lecture, Demonstration, Bedside clinic, Discussion	Theory/ Practical / Orals/Written/ Viva voce			
Topic: Trauma		Number of competencies: (10)			Number of procedures that require certification: (NIL)				
SU17.1	Describe the Principles of FIRST AID	S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Anaesthesiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU17.3	Describe the Principles in management of mass casualties	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.4	Describe Pathophysiology, mechanism of head injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.5	Describe clinical features for neurological assessment and GCS in head injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.6	Chose appropriate investigations and discuss the principles of management of head injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.7	Describe the clinical features of soft tissue injuries. Chose appropriate investigations and discuss the principles of management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.8	Describe the pathophysiology of chest injuries.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.9	Describe the clinical features and principles of management of chest injuries.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.10	Demonstrate Airway maintenance. Recognize and manage tension pneumothorax, hemothorax and flail chest in simulated environment.	S	SH	Y	DOAP session	Skill assessment/ Log book			Anaesthesiology
Topic: Skin and subcutaneous tissue Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU18.1	Describe the pathogenesis, clinical features and management of various cutaneous and subcutaneous infections.	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce			
SU18.2	Classify skin tumors Differentiate different skin tumors and discuss their management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU18.3	Describe and demonstrate the clinical examination of surgical patient including swelling and order relevant investigation for diagnosis. Describe and discuss appropriate treatment plan.	S	SH	Y	Bedside clinic, Small group discussion, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Developmental anomalies of face, mouth and jaws Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU19.1	Describe the etiology and classification of cleft lip and palate	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce		Human Anatomy	
SU19.2	Describe the Principles of reconstruction of cleft lip and palate	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce		Human Anatomy	
Topic: Oropharyngeal cancer Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU20.1	Describe etiopathogenesis of oral cancer symptoms and signs of oropharyngeal cancer.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
SU20.2	Enumerate the appropriate investigations and discuss the Principles of treatment.	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Disorders of salivary glands Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU21.1	Describe surgical anatomy of the salivary glands, pathology, and clinical presentation of disorders of salivary glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU21.2	Enumerate the appropriate investigations and describe the Principles of treatment of disorders of salivary glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Endocrine General Surgery: Thyroid and parathyroid Number of competencies: (06) Number of procedures that require certification: (NIL)									
SU22.1	Describe the applied anatomy and physiology of thyroid	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU22.2	Describe the etiopathogenesis of thyroidal swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU22.3	Demonstrate and document the correct clinical examination of thyroid swellings and discuss the differential diagnosis and their management	S	SH	Y	Bedside clinic	Skill assessment			
SU22.4	Describe the clinical features, classification and principles of management of thyroid cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU22.5	Describe the applied anatomy of parathyroid	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU22.6	Describe and discuss the clinical features of hypo - and hyperparathyroidism and the principles of their management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Topic: Adrenal glands Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU23.1	Describe the applied anatomy of adrenal glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU23.2	Describe the etiology, clinical features and principles of management of disorders of adrenal gland	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
SU23.3	Describe the clinical features, principles of investigation and management of Adrenal tumors	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Pancreas		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
SU24.1	Describe the clinical features, principles of investigation, prognosis and management of pancreatitis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU24.2	Describe the clinical features, principles of investigation, prognosis and management of pancreatic endocrine tumours	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU24.3	Describe the principles of investigation and management of Pancreatic disorders including pancreatitis and endocrine tumors.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
Topic: Breast		Number of competencies: (05)			Number of procedures that require certification: (NIL)				
SU25.1	Describe applied anatomy and appropriate investigations for breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU25.2	Describe the etiopathogenesis, clinical features and principles of management of benign breast disease including infections of the breast	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU25.3	Describe the etiopathogenesis, clinical features, Investigations and principles of treatment of benign and malignant tumours of breast.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
SU25.4	Counsel the patient and obtain informed consent for treatment of malignant conditions of the breast	A/ C	SH	Y	DOAP session	Skill assessment			
SU25.5	Demonstrate the correct technique to palpate the breast for breast swelling in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			
Topic: Cardio-thoracic General Surgery- Chest - Heart and Lungs		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
SU26.1	Outline the role of surgery in the management of coronary heart disease, valvular heart diseases and congenital heart diseases	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU26.3	Describe the clinical features of mediastinal diseases and the principles of management	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
SU26.4	Describe the etiology, pathogenesis, clinical features of tumors of lung and the principles of management	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Vascular diseases Number of competencies: (08) Number of procedures that require certification: (NIL)									
SU27.1	Describe the etiopathogenesis, clinical features, investigations and principles of treatment of occlusive arterial disease.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU27.2	Demonstrate the correct examination of the vascular system and enumerate and describe the investigation of vascular disease	S	SH	Y	DOAP session	Skill assessment			
SU27.3	Describe clinical features, investigations and principles of management of vasospastic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU27.4	Describe the types of gangrene and principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU27.5	Describe the applied anatomy of venous system of lower limb	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
SU27.6	Describe pathophysiology, clinical features, Investigations and principles of management of DVT and Varicose veins	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
SU27.7	Describe pathophysiology, clinical features, investigations and principles of management of Lymph edema, lymphangitis and Lymphomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU27.8	Demonstrate the correct examination of the lymphatic system	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
Topic: Abdomen Number of competencies: (18) Number of procedures that require certification: (NIL)									
SU28.1	Describe pathophysiology, clinical features, Investigations and principles of management of Hernias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU28.2	Demonstrate the correct technique to examine the patient with hernia and identify different types of hernias.	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
SU28.3	Describe causes, clinical features, complications and principles of mangament of peritonitis	K	K	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce			
SU28.4	Describe pathophysiology, clinical features, investigations and principles of management of Intra-abdominal abscess, mesenteric cyst, and retroperitoneal tumors	K	K	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU28.5	Describe the applied Anatomy and physiology of esophagus	K	K	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy, Physiology	
SU28.6	Describe the clinical features, investigations and principles of management of benign and malignant disorders of esophagus	K	K	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU28.7	Describe the applied anatomy and physiology of stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU28.8	Describe and discuss the aetiology, the clinical features, investigations and principles of management of congenital hypertrophic pyloric stenosis, Peptic ulcer disease, Carcinoma stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU28.9	Demonstrate the correct technique of examination of a patient with disorders of the stomach	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
SU28.10	Describe the applied anatomy of liver. Describe the clinical features, Investigations and principles of management of liver abscess, hydatid disease, injuries and tumors of the liver	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	
SU28.11	Describe the applied anatomy of spleen. Describe the clinical features, investigations and principles of management of splenic injuries. Describe the post-splenectomy sepsis - prophylaxis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU28.12	Describe the applied anatomy of biliary system. Describe the clinical features, investigations and principles of management of diseases of biliary system	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	
SU28.13	Describe the applied anatomy of small and large intestine	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	
SU28.14	Describe the clinical features, investigations and principles of management of disorders of small and large intestine including neonatal obstruction and Short gut syndrome	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU28.15	Describe the clinical features, investigations and principles of management of diseases of Appendix including appendicitis and its complications.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
SU28.16	Describe applied anatomy including congenital anomalies of the rectum and anal canal	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU28.17	Describe the clinical features, investigations and principles of management of common anorectal diseases	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
SU28.18	Describe and demonstrate clinical examination of abdomen. Order relevant investigations. Describe and discuss appropriate treatment plan	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment			
Topic: Urinary System Number of competencies: (11) Number of procedures that require certification: (NIL)									
SU29.1	Describe the causes, investigations and principles of management of Hematuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.2	Describe the clinical features, investigations and principles of management of congenital anomalies of genitourinary system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU29.3	Describe the Clinical features, Investigations and principles of management of urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU29.4	Describe the clinical features, investigations and principles of management of hydronephrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.5	Describe the clinical features, investigations and principles of management of renal calculi	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.6	Describe the clinical features, investigations and principles of management of renal tumours	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.7	Describe the principles of management of acute and chronic retention of urine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.8	Describe the clinical features, investigations and principles of management of bladder cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.9	Describe the clinical features, investigations and principles of management of disorders of prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU29.10	Demonstrate a digital rectal examination of the prostate in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			
SU29.11	Describe clinical features, investigations and management of urethral strictures	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
Topic: Penis, Testis and scrotum Number of competencies: (06) Number of procedures that require certification: (NIL)									
SU30.1	Describe the clinical features, investigations and principles of management of phimosis, paraphimosis and carcinoma penis.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU30.2	Describe the applied anatomy clinical features, investigations and principles of management of undescended testis.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.3	Describe the applied anatomy clinical features, investigations and principles of management of epididymo-orchitis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.4	Describe the applied anatomy clinical features, investigations and principles of management of varicocele	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.5	Describe the applied anatomy, clinical features, investigations and principles of management of Hydrocele	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.6	Describe classification, clinical features, investigations and principles of management of tumours of testis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
	Column C: K- Knowledge, S – Skill , A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Human Anatomy									
AN6.3	Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system	K	KH	N	Lecture	Written		General Surgery	
AN9.2	Breast-Describe the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied anatomy of breast	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN10.4	Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN10.6	Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis	K	KH	N	Lecture	Written		General Surgery	
AN10.7	Explain anatomical basis of enlarged axillary lymph nodes	K	KH	N	Lecture	Written		General Surgery	
AN11.3	Describe the anatomical basis of Venepuncture of cubital veins	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN12.8	Describe anatomical basis of Claw hand	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN12.10	Explain infection of fascial spaces of palm	K	KH	N	Lecture	Written		General Surgery	
AN12.11	Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN12.12	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN12.13	Describe the anatomical basis of Wrist drop	K	KH	Y	Lecture	Written/Viva voce		General Surgery	
AN12.14	Identify & describe compartments deep to extensor retinaculum	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN15.3	Describe and demonstrate boundaries, floor, roof and contents of femoral triangle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN15.4	Explain anatomical basis of Psoas abscess & Femoral hernia	K	KH	N	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.2	Describe anatomical basis of sciatic nerve injury during gluteal intramuscular injections	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.3	Explain the anatomical basis of Trendelenburg sign	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN18.3	Explain the anatomical basis of foot drop	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN19.3	Explain the concept of "Peripheral heart"	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN20.4	Explain anatomical basis of enlarged inguinal lymph nodes	K	KH	N	Lecture	Written/ Viva voce		General Surgery	
AN20.5	Explain anatomical basis of varicose veins and deep vein thrombosis	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN20.9	Identify & demonstrate palpation of vessels (femoral, popliteal, dorsalis pedis, post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, great and small saphenous veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Medicine General Surgery	
AN23.1	Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN23.2	Describe & demonstrate the extent, relations, tributaries of thoracic duct and enumerate its applied anatomy	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN23.7	Mention the extent, relations and applied anatomy of lymphatic duct	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN27.1	Describe the layers of scalp, its blood supply, its nerve supply and surgical importance	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN28.8	Explain surgical importance of deep facial vein	K	KH	Y	Lecture	Written		General Surgery	
AN28.9	Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN28.10	Explain the anatomical basis of Frey's syndrome	K	KH	N	Lecture	Written		General Surgery	
AN29.2	Explain anatomical basis of Erb's & Klumpke's palsy	K	KH	Y	Lecture	Written		General Surgery	
AN29.3	Explain anatomical basis of wry neck	K	KH	N	Lecture	Written		General Surgery	
AN30.1	Describe the cranial fossae & identify related structures.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/Skill assessment		General Surgery	
AN30.2	Describe & identify major foramina with structures passing through them	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN33.2	Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN33.4	Explain the clinical significance of pterygoid venous plexus	K	KH	Y	Lecture	Written		General Surgery	
AN33.5	Describe the features of dislocation of temporomandibular joint	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN34.1	Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibular ganglion	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN34.2	Describe the basis of formation of submandibular stones	K	KH	N	Lecture	Written		General Surgery	
AN35.2	Describe & demonstrate location, parts, borders, surfaces, relations & blood supply of thyroid gland	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN35.5	Describe & demonstrate extent, drainage & applied anatomy of cervical lymph nodes	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN35.8	Describe the anatomically relevant clinical features of Thyroid swellings	K	KH	N	Lecture	Written		General Surgery	
AN35.9	Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib	K	KH	N	Lecture	Written		General Surgery	
AN43.5	Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels	K/S	SH	Y	Practical	Viva voce/ Skill assessment		General Surgery	
AN43.6	Demonstrate surface projection of Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & Accessory nerve	K/S	SH	N	Practical	Viva voce/ Skill assessment		General Surgery	
AN44.1	Describe & demonstrate the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN44.4	Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN44.5	Explain the anatomical basis of inguinal hernia.	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN44.6	Describe & demonstrate attachments of muscles of anterior abdominal wall	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN44.7	Enumerate common Abdominal incisions	K	KH	N	Lecture	Written		General Surgery	
AN46.1	Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN46.4	Explain the anatomical basis of varicocele	K	KH	N	Lecture	Written		General Surgery	
AN46.5	Explain the anatomical basis of Phimosi s & Circumcision	K	KH	N	Lecture	Written		General Surgery	
AN47.1	Describe & identify boundaries and recesses of Lesser & Greater sac	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN47.2	Name & identify various peritoneal folds & pouches with its explanation.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN47.3	Explain anatomical basis of Ascites & Peritonitis	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN47.4	Explain anatomical basis of Subphrenic abscess	K	KH	N	Lecture	Written		General Surgery	
AN47.5	Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written		General Surgery	
AN47.6	Explain the anatomical basis of Splenic notch, accessory spleens, Kehr's sign, different types of vagotomy, liver biopsy (site of needle puncture), referred pain in cholecystitis, Obstructive jaundice, referred pain around umbilicus, radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach	K	KH	N	Lecture	Written		General Surgery	
AN47.7	Mention the clinical importance of Calot's triangle	K	KH	N	Lecture	Written		General Surgery	
AN47.10	Enumerate the sites of portosystemic anastomosis	K	KH	Y	Lecture	Written		General Surgery	
AN47.11	Explain the anatomic basis of hematemesis & caput medusae in portal hypertension	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN47.14	Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia	K	KH	N	Lecture	Written		General Surgery	
AN48.5	Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation	K	KH	N	Lecture	Written		General Surgery	
AN48.6	Describe neurological basis of automatic bladder	K	KH	N	Lecture	Written		General Surgery	
AN48.7	Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN48.8	Mention the structures palpable during vaginal & rectal examination	K	KH	N	Lecture	Written		Obstetrics & Gynaecology General Surgery	
AN49.4	Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN52.5	Describe the development and congenital anomalies of diaphragm	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.6	Describe the development and congenital anomalies of foregut, midgut & hindgut	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.7	Describe the development of urinary system	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN53.1	Identify & hold the bone in the anatomical position, describe the salient features, articulations & demonstrate the attachments of muscle groups	K/S	SH	Y	Lecture, DOAP session	Viva voce/ Skill assessment		General Surgery, Obstetrics & Gynaecology	
AN55.1	Demonstrate the surface marking of regions and planes of abdomen, superficial inguinal ring, deep inguinal ring, McBurney's point, Renal Angle & Murphy's point	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Surgery	
AN55.2	Demonstrate the surface projections of: stomach, liver, fundus of gall bladder, spleen, duodenum, pancreas, ileocaecal junction, kidneys & root of mesentery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Surgery	
Biochemistry									
BI10.1	Describe the cancer initiation promotion oncogenes & oncogene activation.	K	KH	Y	Lectures, Small group discussion	Written/ viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy.	K	KH	Y	Lectures, Small group discussion	Written/ viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lectures, Small group discussion	Written/ viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
Pathology									
PA4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.2	Enumerate and describe the mediators of acute inflammation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA5.1	Define and describe the process of repair and regeneration including wound healing and its types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA6.3	Define and describe shock, its pathogenesis and its stages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.1	Describe the diagnostic role of cytology and its application in clinical care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.2	Describe the basis of exfoliative cytology including the technique, stains used	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		General Surgery	
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.4	Describe and discuss the pathogenesis pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment		General Surgery	
PA19.6	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA24.4	Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.5	Describe and etiology and pathogenesis and pathologic features of Tuberculosis of the intestine	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.6	Describe and etiology and pathogenesis and pathologic and distinguishing features of inflammatory bowel disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.7	Describe the etiology and pathogenesis and pathologic and distinguishing features of carcinoma of the colon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA28.13	Define, classify and describe the etiology, pathogenesis, pathology, laboratory urinary findings, distinguishing features, progression and complications of renal stone disease and obstructive uropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA28.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of urothelial tumors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.1	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.3	Describe the pathogenesis, pathology, hormonal dependency, presenting and distinguishing features, urologic findings and diagnostic tests of benign prostatic hyperplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.4	Describe the pathogenesis, pathology, hormonal dependency, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.2	Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast	S	SH	N	DOAP session	Skill assessment		General Surgery	
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy , Physiology, General Medicine, Pathology	
PA32.6	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
Microbiology									
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	K	KH	Y	Small group discussions, Case discussion	Written/ Viva voce/ OSPE		General Surgery	
MI7.1	Describe the etio-pathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	General Surgery	Community Medicine
Community Medicine									
CM13.1	Define and describe the concept of Disaster management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
CM13.2	Describe disaster management cycle	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
CM13.3	Describe man-made disasters in the world and in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.4	Describe the details of the National Disaster management Authority	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
Forensic Medicine & Toxicology									
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially --maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. -- documents of issuance of wound certificate -- documents of issuance of drunkenness certificate. -- documents of issuance of sickness and fitness certificate. -- documents for issuance of death certificate. -- documents of Medical Certification of Cause of Death - Form Number 4 and 4A -- documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.19	Investigation of anaesthetic, operative deaths:Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
FM2.25	Describe types of injuries, clinical features, patho-physiology, post-mortem findings and medico-legal aspects in cases of burns, scalds, lightening, electrocution and radiations.	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		General Surgery	
FM3.3	Mechanical injuries and wounds: Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self-inflicted/fabricated wounds and their medico-legal aspects.	K	KH	Y	Lectures, Small group discussion, Bed side clinic/ DOAP session	Written/ Viva voce/ OSCE		General Surgery	
FM3.4	Mechanical injuries and wounds: define injury, assault & hurt. Describe IPC pertaining to injuries	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		General Surgery	
FM3.6	Mechanical injuries and wounds:Describe healing of injury and fracture of bones with its medico-legal importance	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
FM3.8	Mechanical injuries and wounds:Describe and discuss different types of weapons including dangerous weapons and their examination.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.9	Firearm injuries:Describe different types of firearms including structure and components, along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking.	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		General Surgery, Orthopaedics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		General Surgery, Orthopaedics	
FM3.11	Regional Injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
FM3.12	Regional Injuries: Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine.	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
Dermatology, Venereology & Leprosy									
DR15.3	Enumerate the indications and describe the pharmacology, indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery	Microbiology, Pharmacology
DR15.4	Enumerate the indications for surgical referral	S	KH	Y	DOAP session	Written/Viva voce		General Surgery	
Anesthesiology									
AS3.1	Describe the principles of preoperative evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery, General Medicine
AS3.2	Elicit, present and document an appropriate history including medication history in a patient undergoing Surgery as it pertains to a preoperative anaesthetic evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AS3.3	Demonstrate and document an appropriate clinical examination in a patient undergoing General Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.4	Choose and interpret appropriate testing for patients undergoing Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.5	Determine the readiness for General Surgery in a patient based on the preoperative evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS5.6	Observe and describe the principles and steps/ techniques involved in common blocks used in Surgery(including brachial plexus blocks)	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS6.3	Describe the common complications encountered by patients in the recovery room, their recognition and principles of management	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS9.3	Describe the principles of fluid therapy in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS9.4	Enumerate blood products and describe the use of blood products in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	General Surgery
AS10.3	Describe the role of communication in patient safety	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	General Surgery
General Medicine									
IM5.8	Describe and discuss the pathophysiology, clinical evolution and complications of cholelithiasis and cholecystitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	K	K	Y	Bed side clinic, Small group discussion	Written/ Viva voce		Radiodiagnosis	General Surgery
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites, spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group discussion	Skill assessment/ Written/ Viva voce		Pharmacology	General Surgery
IM5.18	Enumerate the indications for hepatic transplantation	K	K	Y	Written, Small group discussion	Written/ Viva voce			General Surgery
IM12.6	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and severity including systemic signs of thyrotoxicosis and hypothyroidism, palpation of the pulse for rate and rhythm abnormalities, neck palpation of the thyroid and lymph nodes and cardiovascular findings	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			General Surgery
IM12.7	Demonstrate the correct technique to palpate the thyroid	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Surgery
IM12.8	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	K	KH	Y	Bedside clinic, small group discussion	Short case			General Surgery
IM12.9	Order and interpret diagnostic testing based on the clinical diagnosis including CBC, thyroid function tests and ECG and radio iodine uptake and scan	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			General Surgery
IM12.10	Identify atrial fibrillation, pericardial effusion and bradycardia on ECG	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.11	Interpret thyroid function tests in hypo-and hyperthyroidism	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Viva voce/ Short note		Pharmacology	General Surgery
IM12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and Surgery in the management of thyrotoxicosis	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce, Skill assessment		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM13.7	Elicit document and present a history that will help establish the aetiology of cancer and includes the appropriate risk factors, duration and evolution	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.8	Perform and demonstrate a physical examination that includes an appropriate general and local examination that excludes the diagnosis, extent spread and complications of cancer	S	SH	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.9	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	S	K	Y	Bedside clinic	Skill assessment/ Short case		Human Anatomy	General Surgery
IM13.10	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.13	Describe and assess pain and suffering objectively in a patient with cancer	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM13.14	Describe the indications for General Surgery, radiation and chemotherapy for common malignancies	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM14.14	Describe and enumerate the indications and side effects of bariatric surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.1	Enumerate,describe and discuss the aetiology of upper and lower GI bleeding	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.2	Enumerate describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Written/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Physiology	General Surgery
IM15.4	Elicit document and present an appropriate history that identifies the route of bleeding, quantity, grade, volume loss, duration, etiology, comorbid illnesses and risk factors	S	SH	Y	Bedside clinic	Skill assessment			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.5	Perform, demonstrate and document a physical examination based on the history that includes general examination, volume assessment and appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			General Surgery
IM15.6	Distinguish between upper and lower gastrointestinal bleeding based on the clinical features	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.7	Demonstrate the correct technique to perform an anal and rectal examination in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			General Surgery
IM15.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ Short note/ Viva voce			General Surgery
IM15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test.	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Short note/ Viva voce		Pathology	General Surgery
IM15.10	Enumerate the indications for endoscopy, colonoscopy and other imaging procedures in the investigation of Upper GI bleeding	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce			General Surgery
IM15.11	Develop, document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion, and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.13	Observe cross matching and blood / blood component transfusion	S	SH	Y	Bedside clinic	Short note/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	General Surgery
IM15.16	Enumerate the indications for endoscopic interventions and Surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.17	Determine appropriate level of specialist consultation	S	K	Y	Small group discussion				General Surgery
IM15.18	Counsel the family and patient in an empathetic non-judgmental manner on the diagnosis and therapeutic options	S	SH	Y	DOAP session	Skill assessment			General Surgery
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM16.15	Distinguish, based on the clinical presentation, Crohn's disease from ulcerative colitis	S	SH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM16.17	Describe and enumerate the indications for Surgery in inflammatory bowel disease	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM18.15	Enumerate the indications for Surgery in a hemorrhagic stroke	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
IM19.9	Enumerate the indications for use of Surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Surgery
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.11	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology, General Surgery
Obstetrics & Gynaecology									
OG26.2	Describe the causes, prevention, clinical features, principles of management of genital injuries and fistulae	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Surgery
OG33.2	Describe the principles of management including Surgery and radiotherapy of benign, pre-malignant (CIN) and malignant Lesions of the Cervix	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Surgery
Pediatrics									
PE21.8	Elicit, document and present a history pertaining to diseases of the Genitourinary tract00	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			General Surgery
PE21.14	Recognize common surgical conditions of the abdomen and genitourinary system and enumerate the indications for referral including acute and subacute intestinal obstruction, appendicitis pancreatitis perforation intussusception, Phimosis, undescended testis, Chordee, hypospadiasis, Torsion testis, hernia Hydrocele, Vulval Synechiae	S	SH	Y	Bed side clinics, Skills lab	Log book assessment			General Surgery
Orthopedics									
OR1.1	Describe and discuss the principles of pre-hospital care and casualty management of a trauma victim including principles of triage	K/S/A/C	K/KH	Y	Lecture with video, Small group discussion	Written/ Viva voce/ OSCE/ Simulation			General Surgery - Anaesthesiology
OR1.2	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of shock	K/S	K/KH	Y	Lecture	Written/ Viva voce/ OSCE/ Simulation			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR1.3	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of soft tissue injuries	K	KH/ SH	Y	Lecture, Small group discussion	Written/ OSCE			General Surgery
OR1.4	Describe and discuss the principles of management of soft tissue injuries	K	K/KH	Y	Lecture, Small group discussion	Written Assesment/ Viva voce			General Surgery
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/ SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	General surgery
OR3.3	Participate as a member in team for procedures like drainage of abscess, sequestrectomy/ saucerisation and arthrotomy	K/S/A/C	SH	Y	DOAP session, Video demonstration	Viva voce/ OSCE/ Skills assessment			General Surgery
OR4.1	Describe and discuss the clinical features, Investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE		Pathology	General surgery
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce OSCE		Pathology	General surgery, Radiotherapy
OR11.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture Small Group discussion, Case discussion	Written/ Viva voce/ OSCE		Human Anatomy	General Medicine, General surgery
Physical Medicine & Rehabilitation									
PM5.1	Enumerate the indications and describe the principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM7.8	Enumerate the causes of, describe, classify Pressure sores, prevention, and treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
PM7.9	Enumerate the indications of debridement, and Split thickness skin grafting.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics, General Surgery
Radiotherapy									
RT1.1	Describe and discuss definition of radiation, mechanism of action of radiation, types of radiation	K	KH	Y	Lecture	Written/ Viva voce			General Surgery Anaesthesiology
RT1.3	Enumerate, describe and discuss and classify staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, General Medicine
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture, Bed side clinic	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bedside clinic, Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.8	Describe oncological emergencies and palliative care	K/A/S	K/KH	Y	Lecture, Group discussion	Written/ Viva voce			General Surgery, Obstetrics & Gynaecology
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

OPHTHALMOLOGY (CODE: OP)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OPHTHALMOLOGY									
Topic: Visual Acuity Assessment		Number of Competenscs: (05)			Number of procedures that require certification : (NIL)				
OP1.1	Describe the physiology of vision	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
OP1.2	Define, classify and describe the types and methods of correcting refractive errors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP1.3	Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, colour vision, the pin hole test and the menace and blink reflexes	S	SH	Y	DOAP session, Lecture	Skill assessment/ Logbook			
OP1.4	Enumerate the indications and describe the principles of refractive surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP1.5	Define, enumerate the types and the mechanism by which strabismus leads to amblyopia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lids and Adnexa, Orbit		Number of Competencies: (08)			Number of procedures that require certification: (NIL)				
OP2.1	Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP2.2	Demonstrate the symptoms & clinical signs of conditions enumerated in OP2.1	S	S	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP2.3	Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ ectropion, perform the regurgitation test of lacrimal sac. massage technique in cong. dacryocystitis, and trichiatic cilia removal by epilation	S	SH	Y	DOAP session, Lecture	Skill assessment			
OP2.4	Describe the aetiology, clinical presentation. Discuss the complications and management of orbital cellulitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.5	Describe the clinical features on ocular examination and management of a patient with cavernous sinus thrombosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.6	Enumerate the causes and describe the differentiating features, and clinical features and management of proptosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.7	Classify the various types of orbital tumours. Differentiate the symptoms and signs of the presentation of various types of ocular tumours	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.8	List the investigations helpful in diagnosis of orbital tumors. Enumerate the indications for appropriate referral	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Conjunctiva Number of Competencies (09) Number of procedures that require certification: (NIL)									
OP3.1	Elicit document and present an appropriate history in a patient presenting with a “red eye” including congestion, discharge, pain	S	SH	Y	DOAP session	Skill Assessment			
OP3.2	Demonstrate document and present the correct method of examination of a “red eye” including vision assessment, corneal lustre, pupil abnormality, ciliary tenderness	S	SH	Y	DOAP session	Skill Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP3.3	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications. and management of various causes of conjunctivitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.4	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of trachoma.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.5	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.6	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.7	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of symblepharon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.8	Demonstrate correct technique of removal of foreign body from the eye in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
OP3.9	Demonstrate the correct technique of instillation of eye drops in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Corneas Number of Competencies: (10) Number of procedures that require certification: (NIL)									
OP4.1	Enumerate, describe and discuss the types and causes of corneal ulceration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP4.2	Enumerate and discuss the differential diagnosis of infective keratitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP4.3	Enumerate the causes of corneal edema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.4	Enumerate the causes and discuss the management of dry eye	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.5	Enumerate the causes of corneal blindness	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.6	Enumerate the indications and the types of keratoplasty	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.7	Enumerate the indications and describe the methods of tarsorrhaphy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.8	Demonstrate technique of removal of foreign body in the cornea in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
OP4.9	Describe and discuss the importance and protocols involved in eye donation and eye banking	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.10	Counsel patients and family about eye donation in a simulated environment	A/C	SH	Y	DOAP session	Skill assessment			
Topic: Sclera Number of competencies: (02) Number of procedures that require certification : (NIL)									
OP5.1	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features complications indications for referral and management of episcleritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP5.2	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features, complications, indications for referral and management of scleritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Iris and Anterior chamber Number of Competencies (10) Number of procedures that require certification: (NIL)									
OP6.1	Describe clinical signs of intraocular inflammation and enumerate the features that distinguish granulomatous from non-granulomatous inflammation. Identify acute iridocyclitis from chronic condition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.2	Identify and distinguish acute iridocyclitis from chronic iridocyclitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.3	Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
OP6.4	Describe and distinguish hyphema and hypopyon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.5	Describe and discuss the angle of the anterior chamber and its clinical correlates	K	KH		Lecture, Small group discussion	Written/ Viva voce			
OP6.6	Identify and demonstrate the clinical features and distinguish and diagnose common clinical conditions affecting the anterior chamber	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
OP6.7	Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP6.8	Enumerate and choose the appropriate investigation for patients with conditions affecting the Uvea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.9	Choose the correct local and systemic therapy for conditions of the anterior chamber and enumerate their indications, adverse events and interactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.10	Counsel patients with conditions of the iris and anterior chamber about their diagnosis, therapy and prognosis in an empathetic manner in a simulated environment	A/C	SH	Y	DOAP session	Skill assessment			
Topic: Lens Number of Competencies: (06) Number of procedures that require certification: (NIL)									
OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Human Anatomy	
OP7.2	Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
OP7.3	Demonstrate the correct technique of ocular examination in a patient with a cataract	S	SH	Y	DOAP session	Skill assessment			
OP7.4	Enumerate the types of cataract surgery and describe the steps, intra-operative and post-operative complications of extracapsular cataract extraction surgery.	S	KH	Y	DOAP session, Lecture, Small group discussion	Written/ Viva voce			
OP7.5	To participate in the team for cataract surgery	S	SH	Y	DOAP session	Skill assessment/ Logbook documentation			
OP7.6	Administer informed consent and counsel patients for cataract surgery in a simulated environment	S	SH	Y	DOAP session	Skill Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Retina & optic Nerve Number of Competencies (05) Number of procedures that require certification : (NIL)									
OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Pathology	
OP8.2	Enumerate the indications for laser therapy in the treatment of retinal diseases (including retinal detachment, retinal degenerations, diabetic retinopathy & hypertensive retinopathy)	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
OP8.3	Demonstrate the correct technique of a fundus examination and describe and distinguish the funduscopic features in a normal condition and in conditions causing an abnormal retinal exam	S	SH	Y	Lecture, Small group discussion	Skill Assessment			
OP8.4	Enumerate and discuss treatment modalities in management of diseases of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP8.5	Describe and discuss the correlative anatomy, aetiology, clinical manifestations, diagnostic tests, imaging and management of diseases of the optic nerve and visual pathway	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Miscellaneous Number of Competencies (05) Number of procedures that require certification: (01)									
OP9.1	Demonstrate the correct technique to examine extra ocular movements (Uniocular & Binocular)	S	P	Y	DOAP session	Skill Assessment	5		
OP9.2	Classify, enumerate the types, methods of diagnosis and indications for referral in a patient with heterotropia/ strabismus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment			
OP9.3	Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP9.4	Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine
OP9.5	Describe the evaluation and enumerate the steps involved in the stabilisation, initial management and indication for referral in a patient with ocular injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Human Anatomy									
AN30.5	Explain effect of pituitary tumours on visual pathway	K	KH	N	Lecture	Written		Ophthalmology	
AN31.3	Describe anatomical basis of Horner's syndrome	K	KH	N	Lecture	Written		Ophthalmology	
AN31.5	Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus	K	KH	Y	Lecture	Written		Ophthalmology	
AN41.1	Describe & demonstrate parts and layers of eyeball	K/S	SH	Y	Practical, Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	
AN41.2	Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion	K	KH	N	Lecture	Written		Ophthalmology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN41.3	Describe the position, nerve supply and actions of intraocular muscles	K	KH	N	Lecture	Written		Ophthalmology	
Physiology									
PY10.17	Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, Refractive errors, colour blindness, Physiology of pupil and light reflex	K	KH	Y	Lecture, Small group discussion	Written/viva		Ophthalmology	
PY10.18	Describe and discuss the physiological basis of lesion in visual pathway	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
PY10.19	Describe and discuss auditory & visual evoke potentials	K	KH	Y	Lecture, Small group discussion	Written/ viva		Ophthalmology	
PY10.20	Demonstrate testing of visual acuity, colour and field of vision in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1	ENT, Ophthalmology	
Pathology									
PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	
Pharmacology									
PH1.58	Describe drugs used in Ocular disorders	K	KH	Y	Lecture	Written/ Viva voce		Ophthalmology	
General Medicine									
IM24.15	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Ophthalmology

OTORHINOLARYNGOLOGY (ENT) (CODE: EN)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OTORHINOLARYNGOLOGY (ENT)									
Topic: Anatomy and Physiology of ear, nose, throat, head & neck		Number of competencies:(02)			Number of procedures that require certification:(NIL)				
EN1.1	Describe the Anatomy & physiology of ear, nose, throat, head & neck	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
EN1.2	Describe the pathophysiology of common diseases in ENT	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Pathology	
Topic: Clinical Skills		Number of competencies: (15)			Number of procedures that require certification : (NIL)				
EN2.1	Elicit document and present an appropriate history in a patient presenting with an ENT complaint	K/S/A/C	SH	Y	Lecture, Small group discussion, Demonstration	Skill assessment			
EN2.2	Demonstrate the correct use of a headlamp in the examination of the ear, nose and throat	S	SH	Y	DOAP session	Skill assessment/ OSCE			
EN2.3	Demonstrate the correct technique of examination of the ear including Otoscopy	K/S/A	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.4	Demonstrate the correct technique of performance and interpret tuning fork tests	K/S/A	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.5	Demonstrate the correct technique of examination of the nose & paranasal sinuses including the use of nasal speculum	S	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.6	Demonstrate the correct technique of examining the throat including the use of a tongue depressor	S	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.7	Demonstrate the correct technique of examination of neck including elicitation of laryngeal crepitus	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN2.8	Demonstrate the correct technique to perform and interpret pure tone audiogram & impedance audiogram	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.9	Choose correctly and interpret radiological, microbiological & histological investigations relevant to the ENT disorders	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment			
EN2.10	Identify and describe the use of common instruments used in ENT surgery	K	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.11	Describe and identify by clinical examination malignant & pre- malignant ENT diseases	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN2.12	Counsel and administer informed consent to patients and their families in a simulated environment	S/A/C	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.13	Identify, resuscitate and manage ENT emergencies in a simulated environment (including tracheostomy, anterior nasal packing, removal of foreign bodies in ear, nose, throat and upper respiratory tract)	K/S/A	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.14	Demonstrate the correct technique to instilling topical medications into the ear, nose and throat in a simulated environment	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.15	Describe the national programs for prevention of deafness, cancer, noise & environmental pollution	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
Topic: Diagnostic and Therapeutic procedures in ENT Number of competencies:(06) Number of procedures that require certification:(NIL)									
EN3.1	Observe and describe the indications for and steps involved in the performance of Otomicroscopic examination in a simulated environment	S	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN3.2	Observe and describe the indications for and steps involved in the performance of diagnostic nasal Endoscopy	S	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN3.3	Observe and describe the indications for and steps involved in the performance of Rigid/Flexible Laryngoscopy	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN3.4	Observe and describe the indications for and steps involved in the removal of foreign bodies from ear, nose & throat	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN3.5	Observe and describe the indications for and steps involved in the surgical procedures in ear, nose & throat	K	KH	N	Lecture, small group discussion, Demonstration	Written/ Viva voce			
EN3.6	Observe and describe the indications for and steps involved in the skills of emergency procedures in ear, nose & throat	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
Topic: Management of diseases of ear, nose & throat Number of competencies: (53) Number of procedures that require certification : (NIL)									
EN4.1	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Otagia	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.2	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of diseases of the external Ear	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.3	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of ASOM	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.4	Demonstrate the correct technique to hold visualize and assess the mobility of the tympanic membrane and its mobility and interpret and diagrammatically represent the findings	K/S/A	SH	Y	Clinical, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.5	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of OME	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.6	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Discharging ear	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.7	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of CSOM	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.8	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of CSOM	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.9	Demonstrate the correct technique for syringing wax from the ear in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
EN4.10	Observe and describe the indications for and steps involved in myringotomy and myringoplasty	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.11	Enumerate the indications describe the steps and observe a mastoidectomy	K/S	KH	Y	DOAP session	Written/ Viva voce			
EN4.12	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Hearing loss	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.13	Describe the clinical features, investigations and principles of management of Otosclerosis	K	KH	Y	Lecture, Small group discussion; Demonstration	Written/ Viva voce/ Skill assessment			
EN4.14	Describe the clinical features, investigations and principles of management of Sudden Sensorineural Hearing Loss	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.15	Describe the clinical features, investigations and principles of management of Noise Induced Hearing Loss	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.16	Observe and describe the indications for and steps involved in the performance of pure tone audiometry	S	KH	Y	DOAP session	Written/ Viva			
EN4.17	Enumerate the indications and interpret the results of an audiogram	S	SH	Y	DOAP session	Skill assessment			
EN4.18	Describe the clinical features, investigations and principles of management of Facial Nerve palsy	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.19	Describe the clinical features, investigations and principles of management of Vertigo	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.20	Describe the clinical features, investigations and principles of management of Meniere's Disease	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.21	Describe the clinical features, investigations and principles of management of Tinnitus	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.22	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Nasal Obstruction	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.23	Describe the clinical features, investigations and principles of management of DNS	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.24	Enumerate the indications observe and describe the steps in a septoplasty	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.25	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Nasal Polyps	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.26	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Adenoids	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.27	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Allergic Rhinitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.28	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Vasomotor Rhinitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.29	Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Acute & Chronic Rhinitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.30	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Epistaxis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.31	Describe the clinical features, investigations and principles of management of trauma to the face & neck	K/S	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.32	Describe the clinical features, investigations and principles of management of nasopharyngeal Angiofibroma	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.33	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Acute & Chronic Sinusitis	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.34	Describe the clinical features, investigations and principles of management of Tumors of Maxilla	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.35	Describe the clinical features, investigations and principles of management of Tumors of Nasopharynx	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.36	Describe the clinical features, investigations and principles of management of diseases of the Salivary glands	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.37	Describe the clinical features, investigations and principles of management of Ludwig's angina	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.38	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of type of dysphagia	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.39	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Acute & Chronic Tonsillitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.40	Observe and describe the indications for and steps involved in a tonsillectomy / adenoidectomy	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.41	Describe the clinical features, investigations and principles of management of Acute & chronic abscesses in relation to Pharynx	K/S	KH	Y	Lecture, Small group discussion Demonstration	Written/ Viva voce			
EN4.42	Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of hoarseness of voice	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.43	Describe the clinical features, investigations and principles of management of Acute & Chronic Laryngitis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.44	Describe the clinical features, investigations and principles of management of Benign lesions of the vocal cord	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.45	Describe the clinical features, investigations and principles of management of Vocal cord palsy	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.46	Describe the clinical features, investigations and principles of management of Malignancy of the Larynx & Hypopharynx	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.47	Describe the clinical features, investigations and principles of management of Stridor	K	KH	Y	Lecture, Small group discussion Demonstration	Written/ Viva voce/ Skill assessment			
EN4.48	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Airway Emergencies	S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.49	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of foreign bodies in the air & food passages	S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.50	Observe and describe the indications for and steps involved in tracheostomy	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.51	Observe and describe the care of the patient with a tracheostomy	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.52	Describe the Clinical features, Investigations and principles of management of diseases of Oesophagus	K	ENT	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.53	Describe the clinical features, investigations and principles of management of HIV manifestations of the ENT	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		General Medicine	
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

Integration

Human Anatomy									
AN36.1	Describe the (1) morphology, relations, blood supply and applied anatomy of palatine tonsil and (2) composition of soft palate	K	KH	Y	Lecture	Written		ENT	
AN36.2	Describe the components and functions of waldeyer's lymphatic ring	K	KH	Y	Lecture	Written		ENT	
AN36.3	Describe the boundaries and clinical significance of pyriform fossa	K	KH	N	Lecture	Written		ENT	
AN36.4	Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess	K	KH	N	Lecture	Written		ENT	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN36.5	Describe the clinical significance of Killian's dehiscence	K	KH	N	Lecture	Written		ENT	
AN37.1	Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN37.2	Describe location and functional anatomy of paranasal sinuses	K	KH	Y	Lecture	Written		ENT	
AN37.3	Describe anatomical basis of sinusitis & maxillary sinus tumours	K	KH	N	Lecture	Written		ENT	
AN38.1	Describe the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN38.2	Describe the anatomical aspects of laryngitis	K	KH	N	Lecture	Written		ENT	
AN38.3	Describe anatomical basis of recurrent laryngeal nerve injury	K	KH	N	Lecture	Written		ENT	
AN39.2	Explain the anatomical basis of hypoglossal nerve palsy	K	KH	N	Lecture	Written		ENT	
AN40.1	Describe & identify the parts, blood supply and nerve supply of external ear	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.2	Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.3	Describe the features of internal ear	K	KH	N	Lecture	Written		ENT	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN40.4	Explain anatomical basis of otitis externa and otitis media	K	KH	N	Lecture	Written		ENT	
AN40.5	Explain anatomical basis of myringotomy	K	KH	N	Lecture	Written		ENT	
Physiology									
PY10.13	Describe and discuss perception of smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		ENT	
PY10.15	Describe and discuss functional anatomy of ear and auditory pathways & physiology of hearing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.16	Describe and discuss pathophysiology of deafness. Describe hearing tests	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		ENT	
PY10.20	Demonstrate (i) hearing (ii) testing for smell and (iii) taste sensation in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1 each x 3	ENT, Ophthalmology	
Community Medicine									
CM3.1	Describe the health hazards of air, water, noise, radiation and pollution.	K	KH	Y	Lecture, small group discussion	Written/ Viva voce		General Medicine, ENT	
Dentistry									
DE4.1	Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity	K	K	N	Lecture	Viva voce		Pathology	ENT
DE4.2	Discuss the role of etiological factors in the formation of precancerous /cancerous lesions	K	KH	Y	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.3	Identify potential pre-cancerous /cancerous lesions	S	SH	N	Observation, Bed side clinics	Skill assessment		Pathology	ENT

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DE4.4	Counsel patients to risks of oral cancer with respect to tobacco, smoking, alcohol and other causative factors	A/C	SH	Y	DOAP session	Document in Log book	2	Pathology	ENT
General Medicine									
IM24.17	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of hearing loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			ENT
Pediatrics									
PE14.2	Discuss the risk factors, clinical features, Diagnosis and management of Kerosene ingestion	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.1	Discuss the etio-pathogenesis, clinical features and management of Naso pharyngitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.2	Discuss the etio-pathogenesis of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.3	Discuss the clinical features and management of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.4	Discuss the etio-pathogenesis, clinical features and management of Acute Otitis Media (AOM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.5	Discuss the etio-pathogenesis, clinical features and management of Epiglottitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.6	Discuss the etio-pathogenesis, clinical features and management of Acute laryngo- trachea-bronchitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.7	Discuss the etiology, clinical features and management of Stridor in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.8	Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.9	Elicit, document and present age appropriate history of a child with upper respiratory problem including Stridor	S	SH	Y	Bedside clinics, skill lab	Skill Assessment		ENT	
PE28.10	Perform otoscopic examination of the ear	S	SH	Y	DOAP session	Skill Assessment		ENT	
PE28.11	Perform throat examination using tongue depressor	S	SH	Y	DOAP session	Skill Assessment		ENT	
PE28.12	Perform examination of the nose	S	P	Y	DOAP session	Skill Assessment		ENT	
PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use written report in case of management. Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in pediatric chest X-rays	S	P	Y	Bedside clinics, Small group discussion	Skills Assessment	3	ENT, Radiodiagnosis	
PE31.1	Describe the etio-pathogenesis, management and prevention of Allergic Rhinitis in Children	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		ENT	
PE31.3	Describe the etio-pathogenesis, clinical features and management of Atopic dermatitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
General Surgery									
SU20.1	Describe etiopathogenesis of oral cancer, symptoms and signs of pharyngeal cancer. Enumerate the appropriate investigations and discuss the principles of treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	

OBSTETRICS & GYNECOLOGY (CODE: OG)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OBSTETRICS & GYNAECOLOGY									
Topic: Demographic and Vital Statistics Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG1.1	Define and discuss birth rate, maternal mortality and morbidity	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	Pediatrics
OG1.3	Define and discuss still birth and abortion	K	KH	Y	Lecture, Small group discussion	Short notes		Forensic Medicine & Toxicology	
Topic: Anatomy of the female reproductive tract (Basic anatomy and embryology) Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG2.1	Describe and discuss the development and anatomy of the female reproductive tract, relationship to other pelvic organs, applied anatomy as related to Obstetrics and Gynaecology.	K	KH	Y	Lecture, Small group discussion	Theory/ Skill station		Human Anatomy	
Topic: Physiology of conception Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG3.1	Describe the physiology of ovulation, menstruation, fertilization, implantation and gametogenesis.	K	K	Y	Lecture, seminars	Theory		Physiology	
Topic: Development of the fetus and the placenta Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG4.1	Describe and discuss the basic embryology of fetus, factors influencing fetal growth and development, anatomy and physiology of placenta, and teratogenesis	K	K	Y	Lecture, Small group discussion	Theory		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Preconception counselling Number of competencies:(02) Number of procedures that require certification : (NIL)									
OG5.1	Describe, discuss and identify pre-existing medical disorders and discuss their management; discuss evidence-based intrapartum care	K/S	SH	Y	Lecture, Bedside clinics	Theory/ clinical assessment			
OG5.2	Determine maternal high risk factors and verify immunization status	K/S	SH	Y	Lecture, Bedside clinics	Theory/ clinical assessment			
Topic: Diagnosis of pregnancy Number of competencies:(01) Number of procedures that require certification : (NIL)									
OG6.1	Describe, discuss and demonstrate the clinical features of pregnancy, derive and discuss its differential diagnosis, elaborate the principles underlying and interpret pregnancy tests.	S	SH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ Clinical assessment/ Viva voce			
Topic: Maternal Changes in pregnancy Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG7.1	Describe and discuss the changes in the genital tract, cardiovascular system, respiratory, haematology, renal and gastrointestinal system in pregnancy	K	KH	Y	Lecture, seminars	Theory		Physiology	
Topic: Antenatal Care Number of competencies: (08) Number of procedures that require certification : (NIL)									
OG8.1	Enumerate, describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors.	K	KH	Y	Small group discussion, Bedside clinics, Lecture	Written/ Viva voce/ Skill assessment		Community Medicine	
OG8.2	Elicit document and present an obstetric history including menstrual history, last menstrual period, previous obstetric history, comorbid conditions, past medical history and surgical history	K/S	SH	Y	Small group discussion, Bedside clinics, Lecture	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG8.3	Describe, demonstrate, document and perform an obstetrical examination including a general and abdominal examination and clinical monitoring of maternal and fetal well-being;	K/S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
OG8.4	Describe and demonstrate clinical monitoring of maternal and fetal well-being	K/S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
OG8.5	Describe and demonstrate pelvic assessment in a model	K/S	SH	Y	DOAP session	Skill assessment			
OG8.6	Assess and counsel a patient in a simulated environment regarding appropriate nutrition in pregnancy	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
OG8.7	Enumerate the indications for and types of vaccination in pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG8.8	Enumerate the indications and describe the investigations including the use of ultrasound in the initial assessment and monitoring in pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Complications in early pregnancy Number of competencies: (05) Number of procedures that require certification: (NIL)									
OG9.1	Classify, define and discusses the aetiology and management of abortions including threatened, incomplete, inevitable, missed and septic	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation	S	SH	Y	DOAP session, Bedside clinic	Viva voce		Forensic Medicine	
OG9.3	Discuss the aetiology, clinical features, differential diagnosis of acute abdomen in early pregnancy (with a focus on ectopic pregnancy) and enumerate the principles of medical and surgical management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG9.4	Discuss the clinical features, laboratory investigations, ultrasonography, differential diagnosis, principles of management and follow up of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Radiodiagnosis
OG9.5	Describe the etiopathology, impact on maternal and fetal health and principles of management of hyperemesis gravidarum	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Antepartum haemorrhage Number of competencies: (02) Number of competencies that require certification: (NIL)									
OG10.1	Define, classify and describe the aetiology, pathogenesis, clinical features, ultrasonography, differential diagnosis and management of antepartum haemorrhage in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinic				
OG10.2	Enumerate the indications and describe the appropriate use of blood and blood products, their complications and management.	K	KH	Y	Lecture, Small group discussion			Pathology	
Topic: Multiple pregnancies Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG11.1	Describe the etiopathology, clinical features; diagnosis and investigations, complications, principles of management of multiple pregnancies	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ OSCE/ Clinical assessment/ Viva voce			
Topic: Medical Disorders in pregnancy Number of competencies: (08) Number of procedures that require certification : (NIL)									
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations; principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia.	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG12.2	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.3	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.5	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of urinary tract infections in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.6	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of liver disease in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.7	Describe and discuss screening, risk factors, management of mother and newborn with HIV	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.8	Describe the mechanism, prophylaxis, fetal complications, diagnosis and management of isoimmunization in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Labour Number of competencies: (05) Number of procedures that require certification : (01)									
OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labor in occipito-anterior presentation; monitoring of labor including partogram; conduct of labor, pain relief; principles of induction and acceleration of labor; management of third stage of labor.	K/S	KH	Y	Lecture, Small group discussion (with models/ videos/ AV aids, etc.)	Theory/Clinical assessment/ Viva voce			
OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ OSCE/ Clinical assessment/ Viva voce			
OG13.3	Observe/ assist in the performance of an artificial rupture of membranes	S	SH	N	DOAP session, Bedside clinic	Skill assessment			
OG13.4	Demonstrate the stages of normal labor in a simulated environment / mannequin and counsel on methods of safe abortion.	S	SH	Y	DOAP session	Skill assessment			
OG13.5	Observe and assist the conduct of a normal vaginal delivery	S	P	Y	DOAP session	Log book	10		
Topic: Abnormal Lie and Presentation; Maternal Pelvis Number of competencies: (04) Number of procedures that need certification : (NIL)									
OG14.1	Enumerate and discuss the diameters of maternal pelvis and types	K	KH	Y	Lecture, Small group discussion DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment		Human Anatomy	
OG14.2	Discuss the mechanism of normal labor, Define and describe obstructed labor, its clinical features; prevention; and management	K	KH	Y	Lecture, Small group discussion DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG14.3	Describe and discuss rupture uterus, causes, diagnosis and management.	K	KH	Y	Lecture, Small group discussion DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
OG14.4	Describe and discuss the classification; diagnosis; management of abnormal labor	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment			
Topic: Operative obstetrics Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG15.1	Enumerate and describe the indications and steps of common obstetric procedures, technique and complications: Episiotomy, vacuum extraction; low forceps; Caesarean section, assisted breech delivery; external cephalic version; cervical cerclage	S	KH	Y	Lecture, Small group discussion, seminars	Written/ skill assessment			
OG15.2	Observe and assist in the performance of an episiotomy and demonstrate the correct suturing technique of an episiotomy in a simulated environment. Observe/Assist in operative obstetrics cases – including - CS, Forceps, vacuum extraction, and breech delivery	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
Topic: Complications of the third stage Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG16.1	Enumerate and discuss causes, prevention, diagnosis, management, appropriate use of blood and blood products in postpartum haemorrhage	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment			
OG16.2	Describe and discuss uterine inversion – causes, prevention, diagnosis and management.	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG16.3	Describe and discuss causes, clinical features, diagnosis, investigations; monitoring of fetal well-being, including ultrasound and fetal Doppler; principles of management; prevention and counselling in intrauterine growth retardation	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment/ Viva voce			
Topic: Lactation Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG17.1	Describe and discuss the physiology of lactation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG17.2	Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding	S/A/C	SH	Y	DOAP session	Skill assessment			
OG17.3	Describe and discuss the clinical features, diagnosis and management of mastitis and breast abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Care of the new born Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG18.1	Describe and discuss the assessment of maturity of the newborn, diagnosis of birth asphyxia, principles of resuscitation, common problems.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.2	Demonstrate the steps of neonatal resuscitation in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Pediatrics
OG18.3	Describe and discuss the diagnosis of birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.4	Describe the principles of resuscitation of the newborn and enumerate the common problems encountered	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Normal and abnormal puerperium. Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG19.1	Describe and discuss the physiology of puerperium, its complications, diagnosis and management; counselling for contraception, puerperal sterilization	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce			
OG19.2	Counsel in a simulated environment, contraception and puerperal sterilisation	S/A/C	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG19.3	Observe/ assist in the performance of tubal ligation	S	KH	Y	DOAP session, intraoperative	Skill assessment			
OG19.4	Enumerate the indications for, describe the steps in and insert and remove an intrauterine device in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Medical termination of pregnancy Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG20.1	Enumerate the indications and describe and discuss the legal aspects, indications, methods for first and second trimester MTP; complications and management of complications of Medical Termination of Pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
OG20.2	In a simulated environment administer informed consent to a person wishing to undergo Medical Termination of Pregnancy	S/A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine	
OG20.3	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC& PNDT) Act 1994 & its amendments	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Forensic Medicine	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Contraception Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG21.1	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications; selection of patients, side effects and failure rate including Ocs, male contraception, emergency contraception and IUCD	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment		Community medicine	
OG21.2	Describe & discuss PPIUCD programme	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Vaginal discharge Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG22.1	Describe the clinical characteristics of physiological vaginal discharge.	K	KH	Y	Lecture	Theory			
OG22.2	Describe and discuss the etiology (with special emphasis on Candida, T. vaginalis, bacterial vaginosis), characteristics, clinical diagnosis, investigations, genital hygiene, management of common causes and the syndromic management	K	KH	Y	Lecture, Bedside clinics	Written/ Viva voce/ Skill assessment			
Topic: Normal and abnormal puberty Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG23.1	Describe and discuss the physiology of puberty, features of abnormal puberty, common problems and their management	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce			
OG23.2	Enumerate the causes of delayed puberty. Describe the investigation and management of common causes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG23.3	Enumerate the causes of precocious puberty	K	K	N	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Abnormal uterine bleeding Number of competencies: (01) Number of procedures that require certification: (NIL)									
OG24.1	Define, classify and discuss abnormal uterine bleeding, its aetiology, clinical features, investigations, diagnosis and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Amenorrhea Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG25.1	Describe and discuss the causes of primary and secondary amenorrhea, its investigation and the principles of management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Genital injuries and fistulae Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG26.1	Describe and discuss the etiopathogenesis, clinical features; investigation and implications on health and fertility and management of endometriosis and adenomyosis	K/S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG26.2	Describe the causes, prevention, clinical features, principles of management of genital injuries and fistulae	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Surgery
Topic: Genital infections Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG27.1	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of sexually transmitted infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG27.2	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of genital tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG27.3	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG27.4	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of Pelvic Inflammatory Disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Infertility Number of competencies:(04) Number of procedures that require certification : (NIL)									
OG28.1	Describe and discuss the common causes, pathogenesis, clinical features, differential diagnosis; investigations; principles of management of infertility – methods of tubal patency, ovulation induction, assisted reproductive techniques	K	KH	Y	Lecture, seminars, Bedside clinics	Written/ Viva voce			
OG28.2	Enumerate the assessment and restoration of tubal latency	K	K	N	Lecture, seminars, Bedside clinics	Written/ Viva voce			
OG28.3	Describe the principles of ovulation induction	K	KH	Y	Lecture, seminars, Bedside clinics	Written/ Viva voce			
OG28.4	Enumerate the various Assisted Reproduction Techniques	K	K	N	Lecture, seminars, Bedside clinics	Written/ Viva voce			
Topic: Uterine fibroids Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG29.1	Describe and discuss the etiology; pathology; clinical features; differential diagnosis; investigations; principles of management, complications of fibroid uterus	K/A/C	KH	Y	Lecture, Bedside clinics	Theory/ OSCE/ Clinical Assessment/ Viva voce			
Topic: PCOS and hirsutism Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG30.1	Describe and discuss the etiopathogenesis; clinical features; differential diagnosis; investigations; management, complications of PCOS	K/A/C	KH	Y	Lecture	Theory/ OSCE/ Clinical Assessment/ Viva voce			
OG30.2	Enumerate the causes and describe the investigations and management of hyperandrogenism	K	KH	N		Theory/ OSCE/ Clinical Assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Uterine prolapse Number of competencies: (01) Number of procedures that require certification :(NIL)									
OG31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus	K/S	KH	Y	Lecture, small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
Topic: Menopause Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG32.1	Describe and discuss the physiology of menopause, symptoms, prevention, management and the role of hormone replacement therapy.	K	KH	Y	Lecture, small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
OG32.2	Enumerate the causes of postmenopausal bleeding and describe its management	K	KH	Y	Lecture, small group discussion Bedside clinics	Written/ Viva voce			
Topic: Benign, Pre-malignant (CIN) and Malignant Lesions of the Cervix Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG33.1	Classify, describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations and staging of cervical cancer	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
OG33.2	Describe the principles of management including surgery and radiotherapy of Benign, Pre-malignant (CIN) and Malignant Lesions of the Cervix	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Surgery
OG33.3	Describe and demonstrate the screening for cervical cancer in a simulated environment	K/S	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG33.4	Enumerate the methods to prevent cancer of cervix including visual inspection with acetic acid (VIA), visual inspection of cervix with Lugol's iodine (VILI), pap smear and colposcopy	K	K	Y	Lecture, Small group discussion, Bedside clinics	Viva voce/ Written			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Benign and malignant diseases of the uterus and the ovaries Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer	K	KH	Y	Lecture, Bedside clinics	Viva voce/ Written/ skill assessment			
OG34.2	Describe and discuss the etiology, pathology, classification, staging of ovarian cancer, clinical features, differential diagnosis, investigations, principal of management including staging laparotomy	K/S	KH	Y	Lecture	Theory/ OSCE/ clinical assessment/ Viva voce			
OG34.3	Describe and discuss the etiology, pathology, classification, staging, clinical features, differential diagnosis, investigations and management of gestational trophoblastic disease	K/S	KH	Y	Lecture	Theory/ OSCE/ clinical assessment/			
OG34.4	Operative Gynaecology : Understand and describe the technique and complications: Dilatation & Curettage (D&C); EA-ECC; cervical biopsy; abdominal hysterectomy; myomectomy; surgery for ovarian tumours; staging laparotomy; vaginal hysterectomy including pelvic floor repair; Fothergill's operation, Laparoscopy; hysteroscopy; management of postoperative complications	K/S	SH	Y	Videos, on manikins, observe procedures and surgeries in OR	Viva voce			
Topic: Obstetrics & Gynecological skills - I Number of competencies: (17) Number of procedures that require certification : (NIL)									
OG35.1	Obtain a logical sequence of history, and perform a humane and thorough clinical examination, excluding internal examinations (per-rectal and per-vaginal)	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.2	Arrive at a logical provisional diagnosis after examination.	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.3	Recognize situations, which call for urgent or early treatment at secondary and tertiary centres and make a prompt referral of such patients after giving first aid or emergency treatment.	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG35.4	Demonstrate interpersonal and communication skills befitting a physician in order to discuss illness and its outcome with patient and family	A/C	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.5	Determine gestational age, EDD and obstetric formula	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.6	Demonstrate ethical behavior in all aspects of medical practice.	A/C	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.7	Obtain informed consent for any examination / procedure	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.8	Write a complete case record with all necessary details	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.9	Write a proper discharge summary with all relevant information	S	SH	Y	Bedside clinics	Clinical assessment			
OG35.10	Write a proper referral note to secondary or tertiary centres or to other physicians with all necessary details.	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.11	Demonstrate the correct use of appropriate universal precautions for self-protection against HIV and hepatitis and counsel patients	S	SH	Y	DOAP session	Skill assessment			
OG35.12	Obtain a PAP smear in a stimulated environment	S	SH	Y	DOAP session	Skill assessment			
OG35.13	Demonstrate the correct technique to perform artificial rupture of membranes in a simulated / supervised environment	S	SH	Y	DOAP session	Skill assessment			
OG35.14	Demonstrate the correct technique to perform and suture episiotomies in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			
OG35.15	Demonstrate the correct technique to insert and remove an IUD in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG35.16	Diagnose and provide emergency management of antepartum and postpartum hemorrhage in a simulated / guided environment	K/S	SH	Y	DOAP session	Skill assessment			
OG35.17	Demonstrate the correct technique of urinary catheterisation in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Obstetrics & Gynecological skills - II Number of competencies: (03) Number of procedures that require certification: (NIL)									
OG36.1	Plan and institute a line of treatment, which is need based, cost effective and appropriate for common conditions taking into consideration (a) Patient (b) Disease (c) Socio-economic status (d) Institution/ Governmental guidelines.	K/S	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG36.2	Organise antenatal, postnatal, well-baby and family welfare clinics	K/S	KH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG36.3	Demonstrate the correct technique of punch biopsy of uterus in a simulated/ supervised environment	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
Topic: Obstetrics & Gynecological skills - III Number of competencies: (07) Number of procedures that require certification : (NIL)									
OG37.1	Observe and assist in the performance of a Caesarean section	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Log book			
OG37.2	Observe and assist in the performance of Laparotomy	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG37.3	Observe and assist in the performance of Hysterectomy – abdominal/vaginal	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG37.4	Observe and assist in the performance of Dilatation & Curettage (D&C)	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG37.5	Observe and assist in the performance of Endometrial aspiration - endocervical curettage (EA-ECC)	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Viva voce			
OG37.6	Observe and assist in the performance of outlet forceps application of vacuum and breech delivery	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Log book			
OG37.7	Observe and assist in the performance of MTP in the first trimester and evacuation in incomplete abortion	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
Topic: Should observe Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG38.1	Laparoscopy	K/S/A/C	KH	Y	Bedside clinic, Small group discussion	Clinical assessment/ Viva voce			
OG38.2	Hysteroscopy	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG38.3	Lap sterilization	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG38.4	Assess the need for and issue proper medical certificates to patients for various purposes	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Integration									
Human Anatomy									
AN48.8	Mention the structures palpable during Vaginal & Rectal examination	K	KH	N	Lecture	Written		Obstetrics & Gynaecology, General Surgery	
AN49.1	Describe & demonstrate the Superficial & Deep perineal pouch (boundaries and contents)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.2	Describe & identify Perineal body	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.5	Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN52.8	Describe the development of male & female reproductive system	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
AN53.1	Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		General Surgery, Obstetrics & Gynaecology	
AN53.2	Demonstrate anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN53.3	Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN75.5	Describe the principles of genetic counselling	K	KH	Y	Lecture	Written		Pediatrics, Obstetrics & Gynaecology	
AN77.1	Describe the uterine changes occurring during the menstrual cycle	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.2	Describe the synchrony between the ovarian and menstrual cycles	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.3	Describe spermatogenesis and oogenesis along with diagrams	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.4	Describe stages and consequences of fertilisation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.5	Enumerate and describe the anatomical principles underlying contraception	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.6	Describe teratogenic influences; fertility and sterility, surrogate motherhood, social significance of "sex-ratio".	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN78.3	Describe the process of implantation & common abnormal sites of implantation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN78.5	Describe in brief abortion: decidual reaction, pregnancy test	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN79.4	Describe the development of somites and intra-embryonic coelom	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN79.5	Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN79.6	Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN80.3	Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.4	Describe embryological basis of twinning in monozygotic & dizygotic twins	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.5	Describe role of placental hormones in uterine growth & parturition	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.6	Explain embryological basis of estimation of fetal age.	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN80.7	Describe various types of umbilical cord attachments	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN81.1	Describe various methods of prenatal diagnosis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.2	Describe indications, process and disadvantages of amniocentesis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.3	Describe indications, process and disadvantages of chorion villus biopsy	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
Physiology									
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Community Medicine	
PY9.8	Describe and discuss the physiology of pregnancy, parturition & lactation and outline the psychology and psychiatry-disorders associated with it.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY9.10	Discuss the physiological basis of various pregnancy tests	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PY9.11	Discuss the hormonal changes and their effects during perimenopause and menopause	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PY9.12	Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility.	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Biochemistry									
BI10.1	Describe cancer initiation, promotion, oncogenes & oncogene activation.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
Pathology									
PA22.2	Enumerate the indications describe the principles enumerate and demonstrate the steps of compatibility testing	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.1	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA30.2	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.6	Describe the etiology and morphologic features of cervicitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.7	Describe the etiology, hormonal dependence, features and morphology of endometriosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.8	Describe the etiology and morphologic features of adenomyosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.9	Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Pharmacology									
PH1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications of the drugs used for contraception	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.40	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
Community Medicine									
CM9.2	Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Y	Lecture, Small group discussion, DOAP sessions	Skill assessment		Obstetrics & Gynaecology, Pediatrics	
CM9.5	Describe the methods of population control	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
CM10.1	Describe the current status of Reproductive, maternal, newborn and Child Health	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.2	Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology, Pediatrics	
Forensic Medicine & Toxicology									
FM3.13	Describe different types of sexual offences. Describe various sections of IPC regarding rape including definition of rape (Section 375 IPC), Punishment for Rape (Section 376 IPC) and recent amendments notified till date.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.14	SEXUAL OFFENCES Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases.	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.15	SEXUAL OFFENCES Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.16	SEXUAL OFFENCES Describe and discuss adultery and unnatural sexual offences - sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.17	Describe and discuss the sexual perversions fetishism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM3.18	Describe anatomy of male and female genitalia, hymen and its types. Discuss the medico-legal importance of hymen. Define virginity, defloration, legitimacy and its medicolegal importance.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.19	Discuss the medicolegal aspects of pregnancy and delivery, signs of pregnancy, precipitate labour superfoetation, superfecundation and signs of recent and remote delivery in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.20	Discuss disputed paternity and maternity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.21	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PCPNDT)- Prohibition of Sex Selection Act 2003 and Domestic Violence Act 2005	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, AETCOM	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Medicine	
FM3.23	Discuss Sterilization of male and female, artificial insemination, Test Tube Baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.24	Discuss the relative importance of surgical methods of contraception (vasectomy and tubectomy) as methods of contraception in the national family Planning Programme	K	K/KH	N	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.25	Discuss the major results of the National Family Health Survey	K	K/KH	N	Lecture	Written		Obstetrics & Gynaecology	
FM3.26	Discuss the National Guidelines for accreditation, supervision & regulation of ART Clinics in India	K	K/KH	Y	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.27	Define, classify and discuss abortion, methods of procuring MTP and criminal abortion and complication of abortion: MTP Act 1971	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology, AETCOM	
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology, AETCOM	
Dermatology & Venereology									
DR10.11	Describe the etiology, diagnostic and clinical features and management of vaginal discharge	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
General Medicine									
IM26.43	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as they pertain to in vitro fertilisation donor insemination and surrogate motherhood	K	KH	N	Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Radiodiagnosis									
RD1.13	Describe the components of the PC & PNDT Act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics & Gynaecology, Forensic Medicine	
Pediatrics									
PE7.1	Awareness on the cultural beliefs and practices of breast feeding	K	K	N	Lecture, Small group discussion	Viva voce			Obstetrics & Gynaecology
PE7.7	Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess	S	SH	Y	Bed side clinics Skill Lab	Skill Assessment			Obstetrics & Gynaecology
PE7.8	Educate mothers on ante natal breast care and prepare mothers for lactation	A/C	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology, AETCOM
PE7.9	Educate and counsel mothers for best practices in breast feeding	A/C	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology, AETCOM
PE18.1	List and explain the components, plans , outcomes of Reproductive Child Health (RCH) program and appraise the monitoring and evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.2	Explain preventive interventions for Child survival and safe motherhood	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bed side clinics	Skill station		Community Medicine	Obstetrics & Gynaecology
PE18.4	Provide intra-natal care and conduct a normal Delivery in a simulated environment	S	SH	Y	DOAP session, Skills lab	Document in Log Book		Community Medicine	Obstetrics & Gynaecology
PE18.5	Provide intra-natal care and observe the conduct of a normal delivery	S	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology
PE18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bed side clinics, Skill Lab	Skill Assessment		Community Medicine	Obstetrics & Gynaecology
PE18.8	Observe the implementation of the program by visiting the Rural Health Centre	S	KH	Y	Bed side clinics, Skill Lab	Document in log book		Community Medicine	Obstetrics & Gynaecology
PE20.6	Explain the follow up care for neonates including Breast feeding, temperature maintenance, immunization, importance of growth monitoring and red flags	S	SH	Y	DOAP session	Log book entry			Obstetrics & Gynaecology
PE32.6	Discuss the genetic basis, risk factors, clinical features, complications, prenatal diagnosis, management and genetic counselling in Turner's Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynaecology
PE32.8	Interpret normal Karyotype and recognize the Turner Karyotype	S	SH	N	Bed Side clinics, Skill lab	Log book			General Medicine, Obstetrics & Gynaecology
PE32.9	Discuss the referral criteria and multidisciplinary approach to management of Turner Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynaecology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Radiotherapy									
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture, Bed side clinic	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bed side clinic, group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.8	Describe oncological emergencies and palliative care	K/A/S	K/KH	Y	Lecture and group discussion	Written/ Viva voce			General Surgery, Obstetrics & Gynaecology
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

ORTHOPÆDICS (CODE: OR)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
ORTHOPEDICS									
Topic: Skeletal Trauma, Poly trauma		Number of competencies : (06)			Number of procedures that require certification: (NIL)				
OR1.1	Describe and discuss the Principles of pre-hospital care and Casualty management of a trauma victim including principles of triage	K/S/A/C	K/KH	Y	Lecture with video, Small group discussion	Written/ Viva voce/ OSCE/ Simulation			General Surgery, Anaesthesiology
OR1.2	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of shock	K/S	K/KH	Y	Lecture	Written/ Viva voce/ OSCE/ Simulation			General Surgery
OR1.3	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of soft tissue injuries	K	KH/SH	Y	Lecture, Small group discussion	Written/ OSCE			General Surgery
OR1.4	Describe and discuss the Principles of management of soft tissue injuries	K	K/KH	Y	Lecture, Small group discussion	Written/ Assesment/ Viva voce			General Surgery
OR1.5	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of dislocation of major joints, shoulder, knee, hip	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE/ Simulation			
OR1.6	Participate as a member in the team for closed reduction of shoulder dislocation / hip dislocation / knee dislocation	K/S/A/C	SH	Y	Simulation, DOAP session	OSCE/ Simulation			
Topic: Fractures		Number of competencies : (16)			Number of procedures that require certification: (NIL)				
OR2.1	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fracture of clavicle	K/S	KH/SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.2	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fractures of proximal humerus	K	K/KH/ SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.3	Select, prescribe and communicate appropriate medications for relief of joint pain	K	KH/SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.4	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft of humerus and intercondylar fracture humerus with emphasis on neurovascular deficit	K/S	K/KH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.5	Describe and discuss the aetiopathogenesis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galeazzi and Monteggia injury	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.6	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of distal radius	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.7	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability	K	K/KH/ SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.8	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of spine injuries with emphasis on mobilisation of the patient	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.9	Describe and discuss the mechanism of injury, Clinical features, investigations and principle of management of acetabular fracture	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.10	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of proximal femur	K/S/A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.11	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of (a) Fracture patella (b) Fracture distal femur (c) Fracture proximal tibia with special focus on neurovascular injury and compartment syndrome	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.12	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fat embolism as a complication	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.13	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of: (a) Fracture both bones leg (b) Calcaneus (c) Small bones of foot	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.14	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of ankle fractures	K/S/C	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.15	Plan and interpret the investigations to diagnose complications of fractures like malunion, non-union, infection, compartmental syndrome	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.16	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of open fractures with focus on secondary infection prevention and management	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Musculoskeletal Infection Number of competencies : (03) Number of Procedures that require certification: (NIL)									
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/ SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	General surgery
OR3.2	Participate as a member in team for aspiration of joints under supervision	K/S/A/C	SH	Y	Small group Discussion. DOAP session	Viva voce/ OSCE/ Skills assessment		—	
OR3.3	Participate as a member in team for procedures like drainage of abscess, sequestrectomy/ saucerisation and arthrotomy	K/S/A/C	SH	Y	DOAP session, Video demonstration	Viva voce/ OSCE/ Skills assessment			General Surgery
Topic: Skeletal Tuberculosis Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR4.1	Describe and discuss the clinical features, Investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE		Pathology	General surgery
Topic: Rheumatoid Arthritis and associated inflammatory disorders Number of competencies : (01) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR5.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of various inflammatory disorder of joints	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE			General Medicine
Topic: Degenerative disorders Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR6.1	Describe and discuss the clinical features, investigations and principles of management of degenerative condition of spine (Cervical Spondylosis, Lumbar Spondylosis, PID)	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Metabolic bone disorders Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR7.1	Describe and discuss the aetiopathogenesis, clinical features, investigation and principles of management of metabolic bone disorders in particular osteoporosis, osteomalacia, rickets, Paget's disease	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Poliomyelitis Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR8.1	Describe and discuss the aetiopathogenesis, clinical features, assessment and principles of management a patient with Post Polio Residual Paralysis	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Cerebral Palsy Number of competencies : (01) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR9.1	Describe and discuss the aetiopathogenesis, clinical features, assessment and principles of management of Cerebral palsy patient	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE			
Topic: Bone Tumors Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce/ OSCE		Pathology	General surgery, Radiotherapy
Topic: Peripheral nerve injuries Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR11.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture, Small group discussion, case discussion	Written/ Viva voce/ OSCE		Human Anatomy	General Medicine, General surgery
Topic: Congenital lesions Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR12.1	Describe and discuss the clinical features, investigations and principles of management of Congenital and acquired malformations and deformities of: a. limbs and spine - Scoliosis and spinal bifida b. Congenital dislocation of Hip, Torticollis, c. congenital talipes equino varus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE		Human Anatomy	
Topic: Procedural Skills Number of competencies : (02) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR13.1	Participate in a team for procedures in patients and demonstrating the ability to perform on mannequins / simulated patients in the following: i. Above elbow plaster ii. Below knee plaster iii. Above knee plaster iv. Thomas splint v. splinting for long bone fractures vi. Strapping for shoulder and clavicle trauma	S/A	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			
OR13.2	Participate as a member in team for Resuscitation of Polytrauma victim by doing all of the following : (a) I.V. access central - peripheral (b) Bladder catheterization (c) Endotracheal intubation (d) Splintage	S/A	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			Anaesthesiology
Topic: Counselling Skills Number of competencies : (03) Number of procedures that require certification: (NIL)									
OR14.1	Demonstrate the ability to counsel patients regarding prognosis in patients with various orthopedic illnesses like a. fractures with disabilities b. fractures that require prolonged bed stay c. bone tumours d. congenital disabilities	K/S/A/C	KH / SH	Y	Case discussion, Video assisted lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM
OR14.2	Demonstrate the ability to counsel patients to obtain consent for various orthopedic procedures like limp amputation, permanent fixations etc..	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR14.3	Demonstrate the ability to convince the patient for referral to a higher centre in various orthopedic illnesses, based on the detection of warning signals and need for sophisticated management	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Human Anatomy									
AN2.4	Describe various types of cartilage with its structure & distribution in body	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN2.5	Describe various joints with subtypes and examples	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN8.4	Demonstrate important muscle attachment on the given bone	K/S	SH	Y	Practical, DOAP session, Small group teaching	Viva voce/ Practicals		Orthopedics	
AN8.6	Describe scaphoid fracture and explain the anatomical basis of avascular necrosis	K	KH	N	DOAP session	Viva voce		Orthopedics	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN10.12	Describe and demonstrate Shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skills assessment		Orthopedics	
AN11.4	Describe the anatomical basis of Saturday night paralysis	K	KH	Y	Practical, Lecture	Written/ Viva voce		Orthopedics	
AN17.2	Describe anatomical basis of complications of fracture neck of femur.	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN17.3	Describe dislocation of hip joint and surgical hip replacement	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN18.6	Describe knee joint injuries with its applied anatomy	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN18.7	Explain anatomical basis of Osteoarthritis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.4	Explain the anatomical basis of rupture of calcaneal tendon	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.6	Explain the anatomical basis of Flat foot & Club foot	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.7	Explain the anatomical basis of Metatarsalgia & Plantar fasciitis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN50.4	Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida	K	KH	N	Lecture	Written		Orthopedics	
Pathology									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopedics	Microbiology
PA33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopedics	
PA33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopedics	
PA33.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Orthopedics	
Microbiology									
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections.	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
Forensic Medicine & Toxicology									
FM3.7	Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic medicine, Orthopaedics	
FM3.8	Mechanical injuries and wounds: Describe and discuss different types of weapons including dangerous weapons and their examination.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.9	Firearm injuries: Describe different types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic DOAP session	Written/ Viva voce / OSCE		General Surgery, Orthopaedics	
FM3.11	Regional Injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce / OSCE/ OSPE		General Surgery, Orthopaedics	
FM3.12	Regional Injuries Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine.	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce / OSCE/ OSPE		General Surgery, Orthopaedics	
General Medicine									
IM7.5	Develop a systematic clinical approach to joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.6	Describe and discriminate acute, subacute and chronic causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.7	Discriminate, describe and discuss arthralgia from arthritis and mechanical from inflammatory causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM7.8	Discriminate, describe and discuss distinguishing articular from periarticular complaints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.9	Determine the potential causes of join pain based on the presenting features of joint involvement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.10	Describe the common signs and symptoms of articular and periarticular diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.13	Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			Orthopedics
IM7.17	Enumerate the indications for arthrocentesis	K	K	Y	small group discussion, Lecture	Written/ Viva voce			Orthopedics
IM7.18	Enumerate the indications and interpret plain radiographs of joints	K	SH	Y	Bed side clinic, small group discussion	Skill assessment/ Written		Radiodiagnosis	Orthopedics
IM7.21	Select, prescribe and communicate appropriate medications for relief of joint pain	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	Orthopedics
IM24.12	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of degenerative joint disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM24.13	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
IM24.14	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of common fractures in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
Physical Medicine & Rehabilitation									
PM1.2	Define and describe disability, its cause, and magnitude, identification and prevention of disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM1.3	Define and describe the methods to identify and prevent disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM1.4	Enumerate the rights and entitlements of differently abled persons	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM4.1	Describe the common patterns, clinical features, investigations, diagnosis and treatment of common causes of arthritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM4.3	Observe in a mannequin or equivalent the administration of an intra-articular injection	S	KH	N	DOAP session	Skill assessment			Orthopedics
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			General Medicine Orthopedics
PM5.1	Enumerate the indications and describe the principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics General Surgery
PM5.2	Describe the principles of early mobilization, evaluation of the residual limb, contralateral limb and the influence of co-morbidities	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM5.3	Demonstrate the correct use of crutches in ambulation and postures to correct contractures and deformities	S	SH	Y	DOAP session, Bedside clinic discussion	Skill assessment			Orthopedics
PM5.4	Identify the correct prosthesis for common amputations	S	SH	Y	DOAP session	Skill assessment / written			Orthopedics
PM6.3	Describe the principles of skin traction, serial casts and surgical treatment including contracture release, tendon transfer, osteotomies and arthrodesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM6.4	Describe the principles of orthosis for ambulation in PPRP	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM7.1	Describe and discuss the clinical features, diagnostic work up, work up diagnosis and management of spinal cord injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM7.2	Describe and demonstrate process of transfer, applications of collar restraints while maintaining airway and prevention of secondary injury in a mannequin/model	S	SH	Y	DOAP session, Small group discussion	Skill assessment			Orthopedics
PM7.3	Perform and demonstrate a correct neurological examination in a patient with spinal injury and determine the neurologic level of injury	S	SH	Y	Bed side clinic	Skill assessment			Orthopedics
PM7.4	Assess bowel and bladder function and identify common patterns of bladder dysfunction	S	KH	Y	Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM7.5	Enumerate the indications and identify the common mobility aids and appliances, wheel chairs	S	S	Y	DOAP session	Skill assessment/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein Thrombosis, Aspiration Pneumonia, Autonomic dysreflexia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			General Medicine, Orthopedics, General Surgery

ANAESTHESIOLOGY (CODE: AS)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
ANAESTHESIOLOGY									
Topic: Anaesthesiology as a specialty Number of competencies: (04) Number of procedures that require certification: (NIL)									
AS1.1	Describe the evolution of Anaesthesiology as a modern specialty	K	K	N	Lecture	Written/ Viva voce			
AS1.2	Describe the roles of Anaesthesiologist in the medical profession (including as a peri-operative physician, in the intensive care and high dependency units, in the management of acute and chronic pain, including labour analgesia, in the resuscitation of acutely ill)	K	K	N	Lecture	Written/ Viva voce			
AS1.3	Enumerate and describe the principle of ethics as it relates to Anaesthesiology	K	K	N	Lecture	Written/ Viva voce		AETCOM	
AS1.4	Describe the prospects of Anaesthesiology as a career	K	K	N	Lecture	Written/ Viva voce			
Topic: Cardiopulmonary resuscitation Number of competencies: (02) Number of procedures that require certification : (NIL)									
AS2.1	Enumerate the indications, describe the steps and demonstrate in a simulated environment, Basic Life Support in adults, children and neonates	K/S	SH	N	DOAP session	Skill assessment		General Medicine, Pediatrics	
AS2.2	Enumerate the indications, describe the steps and demonstrate in a simulated environment, Advanced Life Support in adults and children	S	SH	N	DOAP session	Skill assessment		General Medicine	
Topic: Preoperative evaluation and medication Number of competencies: (06) Number of procedures that require certification : (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS3.1	Describe the principles of preoperative evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery, General Medicine
AS3.2	Elicit, present and document an appropriate history including medication history in a patient undergoing Surgery as it pertains to a preoperative anaesthetic evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.3	Demonstrate and document an appropriate clinical examination in a patient undergoing General Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.4	Choose and interpret appropriate testing for patients undergoing Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.5	Determine the readiness for General Surgery in a patient based on the preoperative evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.6	Choose and write a prescription for appropriate premedications for patients undergoing surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station		Pharmacology	
Topic: General Anaesthesia Number of competencies: (07) Number of procedures that require certification : (NIL)									
AS4.1	Describe and discuss the pharmacology of drugs used in induction and maintenance of general anaesthesia (including intravenous and inhalation induction agents, opiate and non-opiate analgesics, depolarising and non depolarising muscle relaxants, anticholinesterases)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
AS4.2	Describe the anatomy of the airway and its implications for general anaesthesia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS4.3	Observe and describe the principles and the practical aspects of induction and maintenance of anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS4.4	Observe and describe the principles and the steps/ techniques in maintenance of vital organ functions in patients undergoing surgical procedures	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS4.5	Observe and describe the principles and the steps/ techniques in monitoring patients during anaesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS4.6	Observe and describe the principles and the steps/ techniques involved in day care anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS4.7	Observe and describe the principles and the steps/ techniques involved in anaesthesia outside the operating room	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
Topic: Regional anaesthesia Number of competencies: (06) Number of procedures that require certification: (NIL)									
AS5.1	Enumerate the indications for and describe the principles of regional anaesthesia (including spinal, epidural and combined)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
AS5.2	Describe the correlative anatomy of the brachial plexus, subarachnoid and epidural spaces	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS5.3	Observe and describe the principles and steps/ techniques involved in peripheral nerve blocks	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy	
AS5.4	Observe and describe the pharmacology and correct use of commonly used drugs and adjuvant agents in regional anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS5.5	Observe and describe the principles and steps/ techniques involved in caudal epidural in adults and children	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS5.6	Observe and describe the principles and steps/ techniques involved in common blocks used in surgery (including brachial plexus blocks)	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
Topic: Post-anaesthesia recovery Number of competencies: (03) Number of procedures that require certification: (NIL)									
AS6.1	Describe the principles of monitoring and resuscitation in the recovery room	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS6.2	Observe and enumerate the contents of the crash cart and describe the equipment used in the recovery room	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS6.3	Describe the common complications encountered by patients in the recovery room, their recognition and principles of management	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
Topic: Intensive Care Management Number of competencies: (05) Number of procedures that require certification: (NIL)									
AS7.1	Visit, enumerate and describe the functions of an Intensive Care Unit	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS7.2	Enumerate and describe the criteria for admission and discharge of a patient to an ICU	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Medicine
AS7.3	Observe and describe the management of an unconscious patient	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS7.4	Observe and describe the basic setup process of a ventilator	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.5	Observe and describe the principles of monitoring in an ICU	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Medicine
Topic: Pain and its management Number of competencies: (05) Number of procedures that require certification: (NIL)									
AS8.1	Describe the anatomical correlates and physiologic principles of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy, Physiology	
AS8.2	Elicit and determine the level, quality and quantity of pain and its tolerance in patient or surrogate	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	
AS8.3	Describe the pharmacology and use of drugs in the management of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	
AS8.4	Describe the principles of pain management in palliative care	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
AS8.5	Describe the principles of pain management in the terminally ill	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
Topic: Fluids Number of competencies: (04) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS9.1	Establish intravenous access in a simulated environment	S	KH	Y	Small group discussion, DOAP session	Skill assessment			
AS9.2	Establish central venous access in a simulated environment	S	KH	Y	Small group discussion, DOAP session	Skill assessment			
AS9.3	Describe the principles of fluid therapy in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS9.4	Enumerate blood products and describe the use of blood products in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	General Surgery
Topic: Patient safety Number of competencies: (04) Number of procedures that require certification: (NIL)									
AS10.1	Enumerate the hazards of incorrect patient positioning	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS10.2	Enumerate the hazards encountered in the perioperative period and steps/techniques taken to prevent them	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS10.3	Describe the role of communication in patient safety	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	General Surgery
AS10.4	Define and describe common medical and medication errors in anaesthesia	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Physiology									
PY3.4	Describe the structure of neuro-muscular junction and transmission of impulses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anaesthesiology	
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anaesthesiology Pharmacology	
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine Anaesthesiology	
Pharmacology									
PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.17	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of local anaesthetics	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.18	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre-anaesthetic medications	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
Forensic Medicine & Toxicology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
FM2.19	Investigation of anaesthetic, operative deaths: Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
General Medicine									
IM13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KB	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	Anesthesiology
IM24.11	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology General Surgery
General Surgery									
SU11.1	Describe principles of Preoperative assessment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology
SU11.2	Enumerate the principles of general, regional, and local Anaesthesia.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology
SU11.3	Demonstrate maintenance of an airway in a mannequin or equivalent	S	SH	Y	DOAP session	Skill Assessment			Anesthesiology
SU11.5	Describe principles of providing post-operative pain relief and management of chronic pain.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology
SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Anesthesiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
SU17.10	Demonstrate Airway maintenance and recognize and management of tension pneumothorax, hemothorax and flail chest in simulated environment	S	SH	Y	DOAP session	Skill Assessment/ Log book			Anesthesiology
Orthopaedics									
OR1.1	Describe and discuss the Principles of Pre hospital care and Casualty management of a trauma victim including principles of triage,	K/S/A/C	K, KH	Y	Lecture with video, Small group Discussion	Written/ Viva voce/ OSCE/ Simulation			General Surgery Anaesthesiology
OR13.2	Participate as a member in team for Resuscitation of Polytrauma victim by doing all of the following : (a) IV. access central - peripheral (b) Bladder catheterization (c) Endotracheal intubation (d) Splintage	S/A	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			Anaesthesiology

RADIOLOGICAL (CODE: RD)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
RADIODIAGNOSIS									
Topic: Radiological investigations and Radiation safety		Number of competencies: (13)			Number of procedures that require certification: (NIL)				
RD1.1	Define radiation and the interaction of radiation and importance of radiation protection	K	KH	Y	Lecture, Demonstration				
RD1.2	Describe the evolution of Radiodiagnosis. Identify various radiological equipments In the current era	S	SH	Y	Lecture, Demonstration				
RD1.3	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder of ENT	K/S	SH	Y	Lecture, Demonstration				
RD1.4	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder in Ob & Gy	K/S	SH	Y	Lecture, Demonstration				
RD1.5	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder in internal medicine	K/S	SH	Y	Lecture, Demonstration				
RD1.6	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorders in surgery	K/S	SH	Y	Lecture, Demonstration				
RD1.7	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder in Pediatrics	K/S	SH	Y	Lecture, Demonstration				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
RD1.8	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to common malignancies	K/S	SH	Y	Lecture, Demonstration				
RD1.9	Describe the role of Interventional Radiology in common clinical conditions	K	KH	Y	Lecture, Demonstration				
RD1.10	Describe the role of Emergency Radiology, miscellaneous & applied aspects, interaction with clinical departments	K	KH	Y	Lecture, Demonstration				
RD1.11	Describe preparation of patient for common imaging procedures	K	KH	Y	Lecture, Demonstration				
RD1.12	Describe the effects of radiation in pregnancy and the methods of prevention/ minimization of radiation exposure	K	KH	Y	Lecture, Demonstration				
RD1.13	Describe the components of the PC & PNDT Act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics & Gynaecology, Forensic Medicine & Toxicology	
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Human Anatomy									
AN13.4	Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand	K/S	SH	Y	Practical, Small group discussion, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN20.6	Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K/S	SH	Y	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.8	Identify and describe in brief a barium swallow	K/S	SH	N	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN43.7	Identify the anatomical structures in 1) Plain x ray skull, 2) AP view and lateral view 3) Plain x ray cervical spine - AP and lateral view 4) Plain x ray of paranasal sinuses	K/S	SH	Y	Practical	Viva voce/ Skill assessment		Radiodiagnosis	
AN43.8	Describe the anatomical route used for carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ Skill assessment		Radiodiagnosis	
AN43.9	Identify anatomical structures in carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ Skill assessment		Radiodiagnosis	
AN51.1	Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
AN51.2	Describe & identify the midsagittal section of male and female pelvis	K	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
AN54.1.	Describe & identify features of plain X ray abdomen	K/S	SH	Y	Lecture, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	
AN54.2	Describe & identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography &Hysterosalpingography)	K/S	SH	Y	Lecture, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN54.3	Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen	K	KH	N	Lecture	Viva voce		Radiodiagnosis	
Forensic Medicine & Toxicology									
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially: – maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. -- documents of issuance of wound certificate -- documents of issuance of drunkenness certificate. -- documents of issuance of sickness and fitness certificate. -- documents for issuance of death certificate. -- documents of Medical Certification of Cause of Death - Form Number4 and 4A -- documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	
General Medicine									
IM1.19	Enumerate the indications for and describe the findings of heart failure with the following conditions including: 2D echocardiography, brain natriuretic peptide, exercise testing, nuclear medicine testing and coronary angiogram	S	KH	N	Lecture, Small group discussion, Bedside clinic	Skill assessment		Radiodiagnosis	
IM3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	K	K	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Radiodiagnosis	General Surgery
IM6.12	Enumerate the indications and describe the findings for CT of the chest and brain and MRI	K	K	N	Small group discussion, Lecture, Bedside clinic	Written/ Viva voce		Radiodiagnosis	
IM7.18	Enumerate the indications and interpret plain radiographs of joints	K	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Radiodiagnosis	Orthopedics
IM10.19	Enumerate the indications and describe the findings in renal ultrasound	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis	
IM13.12	Describe the indications and interpret the results of Chest X Ray, mammogram, skin and tissue biopsies and tumor markers used in common cancers	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Radiodiagnosis	
IM18.9	Choose and interpret the appropriate diagnostic and imaging test that will delineate the anatomy and underlying cause of the lesion	S	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
IM19.7	Choose and interpret diagnostic and imaging tests in the diagnosis of movement disorders	S	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Small group session/ Written/ Viva voce		Radiodiagnosis	
Obstetrics & Gynaecology									
OG9.4	Discuss the clinical features, laboratory investigations ultrasonography, differential diagnosis, principles of management and follow up of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Radiodiagnosis
Pediatrics									
PE21.12	Interpret report of Plain radiograph of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE21.13	Enumerate the indications for and Interpret the written report of Ultra sonogram of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	
PE23.13	Interpret a chest radiograph and recognize Cardiomegaly	S	SH	Y	Bedside clinics, Skills lab	Log book entry		Radiodiagnosis	
PE23.16	Use the ECHO reports in management of cases	S	SH	Y	Bedside clinics	Log book entry		Radiodiagnosis	
PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use written report in case of management Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in Pediatric chest X-rays	S	P	Y	Bedside clinics, Small group discussion	Skills Assessment	3	ENT, Radiodiagnosis	
PE30.23	Interpret the reports of EEG, CT, MRI	S	SH	Y	Bedside clinics, Skill lab	Log book		Radiodiagnosis	
PE34.8	Interpret a Chest radiograph	S	SH	Y	Bedside clinics, Skill lab	Skill assessment		Radiodiagnosis	Respiratory Medicine
General Surgery									
SU25.3	Describe the etiopathogenesis, clinical features, Investigations and principles of treatment of benign and malignant tumours of breast.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce Skill assessment		Radiodiagnosis	

RADIOTHERAPY (CODE: RT)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested teaching learning method	Suggested assessment method	Number required to certify P	Vertical integration	Horizontal integration
RADIOTHERAPY									
Topic: Principles of Radiation Oncology (Radiotherapy) Number of competencies: (03) Number of procedures that require certification : (NIL)									
RT1.1	Describe and discuss definition of radiation, mechanism of action of radiation, types of radiation	K	KH	Y	Lecture	Written/ Viva voce			General Surgery, Anaesthesiology
RT1.2	Describe and discuss interaction of radiation with matter & measurement of radiation	K	KH	Y	Lecture	Written/ Viva voce			
RT1.3	Enumerate, describe and discuss classification and staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, General Medicine
Topic: Radiation Protection Number of competencies: (01) Number of procedures that require certification : (NIL)									
RT2.1	Describe and discuss radiation protection and personnel monitoring during radiation treatment	K	KH	Y	Lecture	Written/ Viva voce			
Topic: Radiobiology & Chemoradiation Number of competencies: (02) Number of procedures that require certification : (NIL)									
RT3.1	Describe and discuss cell cycle and cell survival curve, principles of radiobiology	K	KH	Y	Lecture	Written/ Viva voce			
RT3.2	Describe and discuss synergism of radiation and chemotherapy	K	KH	Y	Lecture	Written/ Viva voce			
Topic: Radiation Treatment Delivery & outcome Number of competencies: (09) Number of procedures that require certification : (NIL)									
RT4.1	Describe and discuss teletherapy machine (Co60/LINAC)	K	KH	Y	DOAP session	Written/ Viva voce			
RT4.2	Enumerate, describe and discuss types of treatment plan, basic workflow of 2D/3DCRT/IMRT/IGRT	K	KH	Y	DOAP session	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested teaching learning method	Suggested assessment method	Number required to certify P	Vertical integration	Horizontal integration
RT4.3	Describe and discuss Brachytherapy machine (remote after loading)	K	KH	Y	DOAP session	Written/ Viva voce			
RT4.4	Describe and discuss different radioactive isotopes and their use in cancer patients	K	KH	Y	Lecture	Written/ Viva voce			
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture and Bed side clinics	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bed side clinic, group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.8	Describe oncological emergencies and palliative care	K/A/S	K/KH	Y	Lecture, group discussion	Written/ Viva voce			General Surgery, Obstetrics & Gynaecology
RT4.9	Display empathy in the care of patients with cancer	A	SH	N				AETCOM	
Topic: Cancer Prevention & Registries Number of competencies: (01) Number of procedures that require certification : (NIL)									
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH- Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested teaching learning method	Suggested assessment method	Number required to certify P	Vertical integration	Horizontal integration
Orthopaedics									
OR10.1	Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce/ OSCE		Pathology	General Surgery, Radiotherapy

DENTISTRY (CODE: DE)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DENTISTRY									
Topic: Dental Caries		Number of competencies: (05)			Number of procedures that require certification (NIL)				
DE1.1	Enumerate the parts of the tooth	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
DE1.2	Discuss the role of causative microorganisms in the aetio-pathogenesis of dental caries	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology	
DE1.3	Identify Dental caries	S	SH	N	Observation, Bed side clinics	Skill assessment			
DE1.4	Discuss the role of dental caries as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology, General Medicine	
DE1.5	Counsel patients with respect to oral hygiene, diet and the direct bearing on systemic health	A/C	SH	Y	DOAP session	Document in Log book			
Topic: Edentulous state		Number of competencies: (05)			Number of procedures that require certification (NIL)				
DE2.1	Discuss the various causes for partial /complete loss of teeth and associated structures	K	K	N	Lecture, Small group discussion	Viva voce			
DE2.2	Discuss the local and systemic sequelae of the above	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE2.3	Identify complete complement of teeth and identify missing teeth	S	SH	N	Observation, Bed side clinics	Skill assessment			
DE2.4	Enumerate common ways of restoring the edentulous state	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE2.5	Counsel patients on the importance of restoring missing teeth/tissues with respect to the benefits on oral and systemic health.	A/C	SH	Y	DOAP session	Document in Log book			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Malocclusion		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
DE3.1	Aware of malocclusion and the tissues that cause it	K	K	N	Lecture, Small group discussion	Viva voce			
DE3.2	Enumerate the impact of malocclusion on aesthetics, health	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE3.3	Identify malocclusion	S	SH	N	Observation, Bedside clinics	Skill assessment			
DE3.4	Counsel patients with respect to correction of malocclusion and the role it might have on oral health specifically on the TMJ	A/C	SH	Y	DOAP session	Document in Log book			
Topic: Oral cancer		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
DE4.1	Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity	K	K	N	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.2	Discuss the role of etiological factors in the formation of precancerous /cancerous lesions	K	KH	Y	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.3	Identify potential pre-cancerous /cancerous lesions	S	SH	N	Observation, Bed side clinics	Skill assessment		Pathology	ENT
DE4.4	Counsel patients to risks of oral cancer with respect to tobacco, smoking, alcohol and other causative factors.	A/C	SH	Y	DOAP session	Document in Log book		Pathology	ENT
Topic: Periodontal disease		Number of competencies: (05)			Number of procedures that require certification: (NIL)				
DE5.1	Enumerate the parts of the tooth and supporting structures	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
DE5.2	Enumerate the common diseases that affect the periodontium and identify local and systemic causative factors	K	KH	Y	Lecture, Small group discussion	Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DE5.3	Identify Periodontal disease	S	SH	N	Observation, Bedside clinics	Skill assessment			
DE5.4	Discuss the role of Periodontal disease as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE5.5	Counsel patients with respect to oral hygiene, diet and the direct bearing on systemic health and vice versa	A/C	SH	Y	DOAP session	Document in Log book			

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration									
Pathology									
PA24.1	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dentistry	

List of contributing subject Experts

1. Human Anatomy

- Dr. Praveen R Singh, Professor & Head, Department of Anatomy, Pramukhswami Medical College, Karamsad, Gujarat
- Dr. Nachiket Shankar, Associate Professor, Department of Anatomy, St. John's Medical College & Hospital, Bangalore

2. Physiology

- Dr. Mario Vaz, Professor, Department of Physiology, St. John's Medical College & Hospital, Bangalore
- Dr. Jayashree Sengupta, Former Professor & Head, Department of Physiology, All India Institute of Medical Sciences, New Delhi.
- Dr Hasmukh D Shah, Professor & Head, Department of Physiology, Pramukhswami Medical College, Karamsad, Gujarat

3. Biochemistry

- Dr. Nibhriti Das, Professor, Department of Biochemistry, All India Institute of Medical Sciences, New Delhi
- Dr. S. P. Singh, Professor, Department of Biochemistry, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh
- Dr. Hitesh N Shah, Professor & Head, Department of Biochemistry, Pramukhswami Medical College, Karamsad, Gujarat

4. Pharmacology

- Dr. S. K. Maulik, Professor, Department of Pharmacology, All India Institute of Medical Sciences, New Delhi
- Dr. Vandana Roy, Professor, Department of Pharmacology, Maulana Azad Medical College, New Delhi

5. Pathology

- Dr. S. Datta Gupta, Professor, Department of Pathology, All India Institute of Medical Sciences, New Delhi
- Dr. Uma Chaturvedi, Professor, C-1303, Freedom Park Life, Sector- 57, Gurugram

6. Microbiology

- Dr. S. Geetalakshmi, Dean, Professor, Department of Microbiology, Stanley Medical College, Chennai, Tamil Nadu.
- Dr. Padma Srikanth, Professor, Department of Microbiology, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suman Singh, Professor, Department of Microbiology, Pramukhswami Medical College, Karamsad, Gujarat

7. Forensic Medicine & Toxicology

- Dr. Sanjeev Lalwani, Professor & Registrar (Academics), Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. T. D. Dogra, Former Director & Former Head, Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi; currently, Vice Chancellor, SGT University, Gurugram
- Col. Ravi Rautji, Professor & Head, Department of Forensic Medicine, Commanding Officer, Directorate General of Medical Services (Army), New Delhi
- Dr. S.D. Nanandkar, Professor & Head, Department of Forensic Medicine, Grant Government Medical College & Sir J.J. Group of Hospitals, Mumbai
- Dr. Indrajit L. Khandekar, In-charge CFMU and Associate Professor, Department of Forensic Medicine & Toxicology, MGIMS and Kasturba Hospital, Sewagram, Wardha.
- Dr. S. B. Punpale, Professor & Head, Department of Forensic Medicine, B. J. Medical College, Pune, Maharashtra

8. Community Medicine

- Dr. B. S. Garg, Professor & Head, Department of Community Medicine, Mahatama Gandhi Institute of Medical Sciences, Wardha, Sewagram, Maharashtra
- Dr. Umesh Kapil, Professor, Department of Community Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. Sanjay Zodpey, Director, Public Health Foundation of India, Isid Campus, 4 Institutional Area, Vasant Kunj, New Delhi
- Dr. Saudan Singh, Professor, Department of Community Medicine, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. Dinesh Kumar, Professor, Department of Community Medicine, Pramukhswami Medical College, Karamsad, Gujarat
- Dr. Pankaj B. Shah, Professor, Department of Community Medicine, Sri Ramachandra Medical College & Research Institute, Chennai.

9. General Medicine & Respiratory Medicine

- Dr. Krishna G. Seshadri, Visiting Professor, Endocrinology & Metabolism, Balaji Vidyapeeth, Puducherry
- Dr. M. K. Bhatnagar, Director Professor, Department of General Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Aparna Agarwal, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Anil Gurtoo, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi

10. Pediatrics

- Dr. Harish Chellani, Professor of Pediatrics, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. A. K. Dutta, Former Head, Kalawati Saran Children's Hospital, New Delhi

- Dr. S. Aneja, Director Professor & Head, Department of Pediatrics, Kalawati Saran Children's Hospital, New Delhi
- Dr. Latha Ravichandran, Professor, Deartment of Paediatrics, Sri Ramachandra Medical College & Research Institute, Chennai.

11. Psychiatry

- Dr. Rakesh Kumar Chadda, Department of Psychiatry, All India Institute of Medical Sciences, New Delhi
- Dr. N. M. Patil, Professor, Department of Psychiatry, Jawaharlal Nehru Medical College, Belagavi
- Dr. Rajesh Rastogi, Consultant & Head Department of Psychiatry, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi.
- Dr. Jagdish R Varma, Associate Professor, Department of Psychiatry, Pramukhswami Medical College, Karamsad, Gujarat

12. Dermatology, Venereology & Leprosy

- Dr. R. K. Gautam, Professor, Department of Dermatology, Venereology & Leprosy, Dr. Ram Manohar Lohia Hospital, New Delhi.
- Dr. Sujay Khandpur, Professor, Department of Dermatology, Venereology & Leprosy, All India Institute of Medical Sciences, New Delhi
- Dr. S. Murugan, Associate Professor of Dermatology, Sri Ramachandra Medical College & Research Institute, Chennai

13. Physical Medicine and Rehabilitation

- Dr. Sanjay Wadhwa, Professor, Department of Physical Medicine & Rehabilitation, All India Institute of Medical Sciences, New Delhi
- Dr. George Tharion, Head, Department of Physical Medicine & Rehabilitation, Christian Medical College, Vellore, Tamil Nadu

- Dr. Jagdish Menon, Professor & Head, Department of Orthopaedics and Dept. of Physical & Rehabilitative Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry

14. General Surgery

- Dr. N Ananthakrishnan, 2A Vairam Enclave, Siddhananda Nagar, Pondicherry -605005.
- Dr. P. V. Chalam, Former Professor, Department of Surgery, Gandhi Medical College, Secunderabad, Telengana.
- Dr. Dinesh Bhatnagar, Professor, Department of General Surgery, North Delhi Municipal Corporation Medical College, Hindu Rao Hospital, Malka Ganj, Delhi

15. Ophthalmology

- Dr. Smita Singh, Professor, Department of Ophthalmology, Mahatma Gandhi Institute of Medical Sciences, Wardha

16. Oto-rhino-laryngology

- Dr. Achal Gulati, Director Professor, Department of ENT, Maulana Azad Medical College, New Delhi
- Dr. Ravi Kumar, Professor & Head, Department of ENT, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suma Mathew, Professor, Department of ENT, Christian Medical College, Vellore, Tamil Nadu

17. Obstetrics and Gynaecology

- Dr. Neerja Bhatla, Professor, Department of Obstetrics & Gynecology, All India Institute of Medical Sciences, New Delhi
- Dr. Annie Regi, Professor & Head, Department of Obstetrics & Gynecology, Christian Medical College, Vellore, Tamil Nadu
- Dr. Usha Vishwanath, Professor, Department of Obstetrics & Gynecology, Sri Ramachandra Medical College & Research Institute, Chennai

18. Orthopaedics

- Dr. P.V. Vijayaraghavan, Vice Chancellor & Professor of Orthopedics, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Raj Bahadur, Professor & Head, Department of Orthopaedics, Postgraduate Institute of Medical Sciences, Chandigarh
- Dr. SC. Goel, Professor, Department of Orthopaedics, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh

19. Anaesthesiology

- Dr. Baljit Singh, Director Professor of Anaesthesia, G. B. Pant Hospital, Delhi
- Dr. Ramesh Keshav, Department of Anaesthesia, Dr. Ram Manohar Lohia Hospital, New Delhi
- Dr. Mridula Pawar, Consultant & Head, Department of Anaesthesia, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi

20. Radio- Diagnosis

- Dr. Kishor Taori (late), Professor & Head, Department of Radiodiagnosis, Government Medical College, Nagpur

21. Radiotherapy

- Dr. P. K. Jhulka, Dean & Professor of Radiotherapy, All India Institute of Medical Sciences, New Delhi.
- Dr. Shyam Shrivastava, Head, Department of Radiation, Tata Memorial Hospital, Mumbai

22. Dentistry

- Dr. Sridevi Padmanabhan, Professor, Department of Orthodontics, Faculty of Dental Sciences, Sri Ramchandra Medical College & Research Institute, Chennai



**BHARATI VIDYAPEETH
(DEEMED TO BE UNIVERSITY), PUNE**

**Faculty of Medical Sciences
MBBS
Old Syllabus**

Bharati Vidyapeeth University Medical College

Acute Care Curriculum & Competencies for MBBS curriculum 2016

Introduction

In the current undergraduate medical curriculum, disease processes are dealt with extensively but there is little emphasis on acute care training or emergency medicine, especially with minimal or no hands-on training. Knowing certain basic tenets of acute care medicine is an essential lifesaving competency. Recognizing this, Resuscitation council UK has initiated undergraduate acute care training as ACUTE (Acute Care Undergraduate Teaching) initiative which lays down recommendations for a national curriculum for undergraduate medical training. The core competencies for which are well defined as resuscitation, shock management, respiratory support and importantly identifying critically ill patients. “VERY BASIC”, a course conducted by Chinese University of Hong Kong (CUHK) addresses these core competencies and is currently being implemented in undergraduate training in HK & Australia. This course is designed and implemented by a core committee which includes leading Intensive care specialists from all over the world. Currently, none of the medical universities in India have a formal training programme for acute care. Medical council of India has now recommended acute care training and is in the process of revising the MBBS curriculum.

BVUMC has also therefore undertaken a revision of the MBBS curriculum and syllabus. As part of this revision the Dept of Critical Care Medicine and Dept of Emergency Medicine have prepared the “Acute Care” (Emergency & Critical Care) curriculum for undergraduates at BVUMC.

Goal

To teach undergraduate medical students the knowledge, skills and attitudes necessary for managing acutely ill patients

Objectives

1. Knowledge

- a. Knowledge of common medical emergencies including but not limited to cardiorespiratory arrest, acute respiratory failure, respiratory emergencies, cardiac emergencies, neurological emergencies, trauma, poisoning,
- b. Knowledge of the clinical, laboratory and radiological assessment of acutely ill patients including but not limited to history taking, physical examination, common

biochemical investigations including blood gases and electrolytes, ECG, Chest X-ray, Ultrasound, CT and MRI

- c. Knowledge of the treatment of acutely ill patients including but not limited to resuscitation, airway management, fluid therapy and drugs used in emergencies and for pain management
- d. Knowledge of the infection control aspects including collection of samples for acutely ill patients
- e. Knowledge of the ethical aspects, communication and safety aspects while treating acutely ill patients

2. Skills

- a. Demonstrate clinical assessment of an acutely ill patient and prioritization of treatment
- b. Plan investigations and treatment for acutely ill patients
- c. Demonstrate opening the airway with various maneuvers
- d. Demonstrate mouth to mouth and AMBU face mask ventilation
- e. Demonstrate cardiac compressions, synchronization of compressions ventilations and minimizes interruptions in compressions
- f. Demonstrate steps of defibrillation
- g. Describes steps of in-hospital and out of hospital resuscitation
- h. Demonstrates various modalities of oxygen therapy
- i. Demonstrates hand hygiene and infection control precautions while collecting a blood culture

3. Attitudes (Integration)

- a. Develops an integrated approach to managing emergencies from various disciplines
- b. Understands the ethical aspects of treating acutely ill patients including issues of consent and withholding/withdrawing therapy
- c. Develops the basic communication skills required for counseling acutely ill patients and their families and breaking bad news

- d. Understands the importance of teamwork in managing acutely ill patients and develops the necessary communication skills involved in teamwork
- e. Understands the multiple factors involved in patient safety and preventing error

Competencies (M-course manual; L-lecture; E-electronic material; S-skill stations or interactive tutorials).

Topic	Competencies
Topic 1 – Assessment of a critically ill patient	1.Demonstrates a systematic approach to the clinical assessment & timely management of the critically ill patient including airway, breathing, circulation and consciousness state-M,L,S 2.Describes normal physiological ranges for basic vital signs-M, L, S 3.Describes the systemic features and laboratory findings in critically ill patients – M, L, S 4.Describes the importance of repeated & timely assessment of the acutely ill patient-M,L,S,E
Topic 2 – Acute respiratory failure	5.Describes the definition, types and pathophysiology of acute respiratory failure – M, L, E 6.Demonstrates a systematic clinical assessment of breathing, oxygenation, severity and type of respiratory failure-M,L,S 7.Describes common causes of breathlessness - M 8.Describes the principles & limitations of pulse oximetry-M,L 9.Describes indication & rationale for safe oxygen therapy in the critically ill patient-M,L 10. Demonstrates how to correctly set up and administer high flow & controlled oxygen therapy-M,L 11. Describes the principles of controlled oxygen therapy in the patient with COPD and hypercapnic respiratory failure – M,L 12. Describes the clinical signs & treatment of a tension pneumothorax-M 13. Demonstrates a systematic approach to chest radiograph interpretation and recognizing common & life threatening abnormalities-S,E
Topic 3 – Airway management	14. Describes signs of airway obstruction –

	M,L,S 15. Demonstrates the recovery position – M, L, S 16. Demonstrates safe use of simple airway manoeuvres/adjuncts-M,L,S 17. Demonstrates basic treatment for simulated choking -M 18. Demonstrates effective bag-mask ventilation –M,L,S
Topic 4 – Respiratory emergencies	19. Describes how to recognize & initiate treatment for an acute exacerbation of COPD-M 20. Describes how to recognize & initiate treatment for an acute asthma attack-M 21. Describes how to recognize & initiate treatment for a pneumonia-M
Topic 5 - Shock	22. Describes the definition, pathophysiology, clinical features and management of shock-M,L, S
Topic 6 – Anaphylaxis	23. Demonstrates the assessment and management of anaphylactic shock M, S
Topic 7 – Resuscitation & Cardiac emergencies	24. Demonstrates recognition of cardiac arrest and call for help M, L, S 25. Demonstrates various techniques of airway management and manual ventilation M, L, E, S 26. Demonstrates effective external chest compressions-M, L, S 27. Describes the potentially reversible causes of a cardiac arrest -M 28. Demonstrates the immediate management of a simulated witnessed in-hospital cardiac arrest-M, L, S 29. Describes how to recognize & treat common peri-arrest arrhythmias-M,L 30. Recognises cardiac arrest rhythms-M, L, S 31. Demonstrates safe & effective use of an automated external defibrillator-M, L, E, S 32. Demonstrates safe & effective use of a manual defibrillator- M, L, E, S 33. Describes the indication & dosages of drugs used in the management of cardiac arrest-M 34. Describes how to recognize & initiate treatment for an acute heart failure-M

	35. Describes how to recognize & initiate treatment for acute coronary syndromes-M 36. Demonstrates a systematic approach to 3 and 12 lead ECG interpretation, recognizing common & important abnormalities-S,E
Topic 8 – Oliguria and Acute kidney injury	37. Describes the causes, presentation & treatment of oliguria-M
Topic 9 – Severe Sepsis & Septic Shock	38. Describes the recognition & immediate resuscitation of a patient with sepsis-M,L,S 39. Describes a rational approach to antibiotic prescribing in the patient with Sepsis-M,L
Topic 10 - Trauma	40. Describes or demonstrates a systematic approach to the assessment & immediate treatment of the victim of trauma (Primary and Secondary Survey)-M 41. Describes principles of assessing blood loss and control of external haemorrhage-M 42. Describes the principles of recognition & initial management of patients with suspected head and spinal injuries-M
Topic 11 - Neurological Emergencies	43. Describes the common causes of altered consciousness –M,L 44. Demonstrates a systematic approach to the assessment of acutely ill patients with altered 45. consciousness-M,L 46. Describes the pathophysiology of cerebral injury and raised ICP and it's management 47. Describes how to recognize and initiate treatment of status epilepticus-M,L 48. Describes how to recognize & initiate treatment for meningococcal septicaemia-M,E
Topic 12 – Interpretation of Arterial blood gases	49. Describes a systematic approach to arterial blood gas analysis-M,S,E
Topic 13 – Metabolic, endocrine and electrolyte disturbances	50. Describes how to recognize & initiate treatment of life threatening hypo/hypernatraemia and kalaemia-M,S 51. Describes how to recognize & initiate treatment for diabetic emergencies-M,S
Topic 14 - Fluids	52. Describes effective fluid resuscitation-M,L, S
Topic 15 – Blood products	53. Describes indications, risks and safe administration of blood products-M
Topic 16 – Acute pain management	54. Describes the importance of & methods

	for achieving adequate pain control-M
Topic 17 – Infection Control, Occupational safety and health	55. Describes peripheral venous cannulation including attention to patient comfort and infection control-M, I, E, S 56. Demonstrates how to correctly set up an intravenous infusion-E 57. Adheres to the basic principles of infection control measures including hand Washing-M,S,E 58. Demonstrates safe handling & disposal of sharps & clinical waste-M,S
Topic 18 - Ethics	59. Describes the 4 principles of modern medical ethics – M, L 60. Describes/ Demonstrates the principles of breaking bad news-E, L 61. Describes the ethical & legal implications of attempting/not attempting resuscitation-M,E 62. Describes the principles of consent in the acutely ill patient-E
Topic 19 – Patient safety and Communication	63. Describes the importance of patient safety, importance of records, medication errors, protocols and communication in patient safety – M, L, E 64. Describes/ Demonstrates the principles of good communication skills, hand over, -M,L 65. Demonstrate the SBAR system for phone communication – M, L, S

Syllabus

Course manual (Very BASIC Course manual of the BASIC Collaboration, CUHK)

Assessment of the seriously ill patient,
 Respiratory failure, Airway management, Chronic obstructive pulmonary disease and asthma,
 Pneumonia, Hemodynamic monitoring, Shock, Anaphylaxis, Cardiopulmonary resuscitation, Acute
 coronary syndrome, Heart failure, Life threatening arrhythmias,
 Renal failure,
 Sepsis and septic shock,
 Trauma,
 Neurological emergencies,
 Arterial blood gases, Electrolyte disturbances,
 Blood products,
 Acute pain management,
 Infection control,
 Occupational safety and health,
 Ethics

Lectures

Topics	SLO's
1. Assessment of critically ill	Demonstrates a systematic approach to the clinical assessment & timely management of the critically ill patient including airway, breathing, circulation and consciousness state-M,L,S Describes normal physiological ranges for basic vital signs-M, L, S Describes the systemic features and laboratory findings in critically ill patients – M, L, S Describes the importance of repeated & timely assessment of the acutely ill patient-M,L,S,E
2. Acute Respiratory failure	Describes the definition, types and pathophysiology of acute respiratory failure – M, L, E Demonstrates a systematic clinical assessment of breathing, oxygenation, severity and type of respiratory failure-M,L,S Describes common causes of breathlessness -M Describes the principles & limitations of pulse oximetry-M,L Describes indication & rationale for safe oxygen therapy in the critically ill patient-M,L Demonstrates how to correctly set up and administer high flow & controlled oxygen therapy-M,L Describes the principles of controlled oxygen

	therapy in the patient with COPD and hypercapnic respiratory failure – M,L Describes the clinical signs & treatment of a tension pneumothorax-M Demonstrates a systematic approach to chest radiograph interpretation and recognizing common & life threatening abnormalities-S,E
3. ECG's	Describes waves, intervals and segments and configuration of a normal ECG Recognizes common arrhythmias Recognizes ischemia and infarction patterns on ECG Recognizes hypertrophy & bundle branch block patterns on ECG Describes ECG changes of hyperkalemia
4. X-rays	Describes a normal chest X-ray Describes X-ray findings in various acute pulmonary emergencies including pneumonia, pulmonary edema, ARDS, pneumothorax, pleural effusion, chest trauma Describes X-ray findings in valvular heart disease, chamber enlargements, pericardial effusion Recognizes central venous catheters, intercostal drains, pacing wires, endotracheal tubes on chest X-ray
5. BLS, ACLS overview	Demonstrates recognition of cardiac arrest and call for help M, L, S Demonstrates various techniques of airway management and manual ventilation M, L, E, S Demonstrates effective external chest compressions-M, L, S Describes the potentially reversible causes of a cardiac arrest -M Demonstrates the immediate management of a simulated witnessed in-hospital cardiac arrest-M, L, S Describes how to recognize & treat common peri-arrest arrhythmias-M,L Describes the indication & dosages of drugs used in the management of cardiac arrest-M
6. Defibrillation	Recognizes cardiac arrest rhythms-M, L, S Demonstrates safe & effective use of an automated external defibrillator-M, L, E, S Demonstrates safe & effective use of a manual defibrillator- M, L, E, S

7. Airway management	Describes signs of airway obstruction – M,L,S Demonstrates the recovery position – M, L, S Demonstrates safe use of simple airway manoeuvres/adjuncts-M,L,S Demonstrates basic treatment for simulated choking -M Demonstrates effective bag-mask ventilation – M,L,S
8. Hemodynamic monitoring, Shock	Describes the definition, pathophysiology, clinical features and management of shock
9. Sepsis	Describes the recognition & immediate resuscitation of a patient with sepsis-M,L,S Describes a rational approach to antibiotic prescribing in the patient with Sepsis-M,L
10. Infection control	Describes peripheral venous cannulation including attention to patient comfort and infection control-M, L, E, S Demonstrates how to correctly set up an intravenous infusion-E Adheres to the basic principles of infection control measures including hand Washing-M,S,E Demonstrates safe handling & disposal of sharps & clinical waste-M,S
11. Metabolic and electrolyte imbalance	Describes how to recognize & initiate treatment of life threatening hypo/hyper natraemia and kalaemia-M,S Describes how to recognize & initiate treatment for diabetic emergencies-M,S
12. Fluid therapy & Use of blood and blood products	Describes effective fluid resuscitation-M,L, S Describes indications, risks and safe administration of blood products-M
13. ABG	Describes a systematic approach to arterial blood gas analysis-M,S,E
14. Neurological emergencies	Describes the common causes of altered consciousness –M,L Demonstrates a systematic approach to the assessment of acutely ill patients with altered consciousness-M,L Describes the pathophysiology of cerebral injury and raised ICP and it's management Describes how to recognize and initiate treatment of status epilepticus-M,L Describes how to recognize & initiate treatment for meningococcal septicaemia-M,E
15. Poisonings	Describes the toxidromes Describes the general approach to treatment of

	poisoning Describes common poisons and their antidotes
16. Ethics	Describes the 4 principles of modern medical ethics – M, L Describes/ Demonstrates the principles of breaking bad news-E, L Describes the ethical & legal implications of attempting/not attempting resuscitation-M,E Describes the principles of consent in the acutely ill patient-E
17. Communication	Describes/ Demonstrates the principles of good communication skills, hand over, -M,L Demonstrate the SBAR system for phone communication – M, L, S
18. Safety	Describes the importance of patient safety, importance of records, medication errors, protocols and communication in patient safety – M, L, E

Case based small group discussions

Topic	SLO's
1. Case – Septic Shock	Describes the initial recognition and resuscitation of septic shock, recognition and control of source and appropriate initiation of antibiotics
2. Case – Cardiogenic Shock	Describes how to recognize & initiate treatment for an acute heart failure and cardiogenic shock
3. Case – Hypovolemic Shock	Describes how to recognize & initiate treatment for hypovolemic shock
4. Case - Meningitis	Describes how to recognize and initiate treatment for meningitis
5. Case – Status Epilepticus	Describes how to recognize and initiate treatment of status epilepticus
6. Case – Head trauma	Describes the pathophysiology of cerebral injury and raised ICP and its management
7. Case – Stroke	Describes how to recognize ischemic stroke, cerebral hemorrhage and subarachnoid hemorrhage. Describes the initial investigations and early management of stroke
8. Case - Pneumonia	Describes how to recognize & initiate treatment for a pneumonia-M
9. Case – Anaphylaxis	Demonstrates the assessment and management of anaphylactic shock M, S

10. Case – Poisoning – OPP, Sedative overdose	Describes the recognition and treatment of OPP and sedative overdose
11. Case – Snake bite	Describes the recognition of neurotoxic and vasculotoxic snake bite, initial treatment with ASV and supportive organ support
12. Case – AKI	Describes the causes, presentation & treatment of oliguria
13. Case – Pulmonary embolism	Describes the recognition and treatment of pulmonary embolism
14. Case – Acute Severe Asthma & COPD exacerbation	Describes how to recognize & initiate treatment for an acute exacerbation of COPD-M Describes how to recognize & initiate treatment for an acute asthma attack-M
15. Case – Neuromuscular weakness in ICU	Describes the recognition, differential diagnosis and initial treatment of neuromuscular weakness in ICU
16. Case – Life threatening arrhythmias	Describes recognition and treatment of common arrhythmias
17. Case – Heart failure	Describes recognition, differential diagnosis and treatment of left ventricular failure.
18. Case – Acute myocardial infarction	Describes recognition, differential diagnosis and initial treatment of myocardial infarction including thrombolysis

Skill stations

Topic	SLO's
1. Airway	Demonstrates the recovery position Demonstrates safe use of simple airway manoeuvres/adjuncts Demonstrates basic treatment for simulated choking Demonstrates effective bag-mask ventilation
2. Chest Compressions	Demonstrates recognition of cardiac arrest and call for help Demonstrates effective cardiac compressions
3. Defibrillation	Demonstrates safe & effective use of an automated external defibrillator-M, L, E, S Demonstrates safe & effective use of a manual defibrillator- M, L, E, S
4. Assessment Case Scenarios	Demonstrates a systematic approach to the clinical assessment & timely management of the critically ill patient including airway, breathing, circulation and consciousness state

5. In-hospital cardiac arrest	Demonstrates the immediate management of a simulated witnessed in-hospital cardiac arrest-M, L, S Describes the potentially reversible causes of a cardiac arrest -M Describes how to recognize & treat common peri-arrest arrhythmias-M,L
6. Out-of-hospital arrest	Demonstrates the immediate management of a simulated witnessed out-of-hospital cardiac arrest M, L, S
7. Metabolic & Electrolyte imbalance Case Scenarios	Describes how to recognize & initiate treatment of life threatening hypo/hyper natraemia and kalaemia-M,S
8. Collection of Blood C/S	Adheres to the basic principles of infection control measures including hand Washing before collection of blood-M,S,E Demonstrates safe collection of blood with proper aseptic precautions on a manikin Demonstrates safe handling & disposal of sharps & clinical waste-M,S
9. Acute pain management Scenarios	Demonstrates a systematic approach for achieving adequate pain control in patients with severe pain
10. ABG Scenarios	Describes a systematic approach to arterial blood gas analysis
11. Ethics	Demonstrates the principles of breaking bad news
12. Communication Scenarios	Demonstrate the SBAR system for phone communication – M, L, S
13. Safety	Discusses the importance of patient safety, importance of records, medication errors, protocols and communication in patient safety after watching WHO patient safety video

Teaching Schedule

Undergraduate term – 8th Semester Emergency/Casualty posting

Term – 15 days (9am – 12 noon) 12 teaching days

Available Teaching hours – 36 hours

Interactive Lectures – 9 hours – 18 lectures of 30 mins each

Interactive cases – 18 hours – 18 case discussions

Skill stations – 6.5 hours – 13 skill stations of 30 mins each

Sample Time-table

Day 1

Time	Topic	Faculty
	Lectures	
9.00 – 9.30am	Assessment of a critically ill patient	
9.30 – 10.30am	Acute respiratory failure	
10.30 – 11.00am	ECG	
11.00 – 11.30am	X-ray	
11.30 – 12.00 noon	BLS, ACLS overview	

Day 2

Time	Topic	Faculty
	Lectures	
9.00 – 9.30am	Airway	
9.30 – 10.00 am	Defibrillation Video & demo	

Skill stations Batch A (10 – 12 students)		
10.00 – 11.00am	Airway/Chest Compression	
11.00 – 12 noon	Defibrillation	
Skill stations Batch B (10 -12 students)		
10.00 – 11.00am	Defibrillation	
11.00 – 12 noon	Airway/Chest Compression	

Day 3

Time	Topic	Faculty
	Lectures	
9.00 – 9.30am	Hemodynamic Monitoring & Shock	
9.30 – 10.00am	Severe Sepsis	
Skill Stations (5 – 6 students per batch)		
10.00 – 10.30am	Assessment	
10.30 – 11.00am	Communication Scenarios	
11.00 – 11.30am	In-hospital cardiac arrest	
11.30 – 12 noon	Out-of-hospital arrest	

Day 4

Time	Topic	Faculty
	Lectures	
9.00 – 9.30am	Infection Control Demo	
9.30 – 10.00am	Metabolic & Electrolyte imbalance	
Skill Stations Batch A (10 – 12 students)		
10.00 – 11.00am	Metabolic & Electrolyte imbalance	
11.00 – 12noon	Collection of Blood C/S	

Skill Stations Batch B (10 – 12 students)		
10.00 – 11.00am	Collection of blood C/S	
11.00 – 12 noon	Metabolic & Electrolyte Imbalance	

Day 5

Time	Topic	Faculty
	Lectures	
9.00 – 9.30 am	Fluid therapy & Use of blood and blood products	
9.30am – 10.00am	ABG	
10.00 – 10.30 am	Neurological Emergencies	
10.30 – 11.00 am	Poisonings	
	Skill stations	
11.00 – 11.30 am	Acute pain management	
11.30 – 12 noon	ABG	

Day 6

Time	Topic	Faculty
	Skill station (8 students per batch)	
9.00 – 10.00 am	Case – Septic Shock	
10.00am – 11.00am	Case – Cardiogenic Shock	
11.00 – 12 noon	Case – Hypovolemic Shock	

Day 7

Time	Topic	Faculty

	Skill station (8 students per batch)	
9.00 – 10.00 am	Case - Meningitis	
10.00am – 11.00am	Case – Status Epilepticus	
11.00 – 12 noon	Case – Head trauma	

Day 8

Time	Topic	Faculty
	Skill stations (8 students per batch)	
9.00 – 10.00am	Case – Stroke	
10.00 – 11am	Case - Pneumonia	
11.00 – 12 noon	Case – Anaphylaxis	

Day 9

Time	Topic	Faculty
	Skill stations (8 students per batch)	
9.00 – 10.00 am	Case – Poisoning – OPP, Sedative overdose	
10.00am – 11.00am	Case – Snake bite	
11.00 – 12 noon	Case – AKI	

Day 10

Time	Topic	Faculty
	Skill stations (8 students per batch)	
9.00 – 10.00 am	Case – Pulmonary embolism	
10.00am – 11.00am	Case – Acute Severe Asthma	
11.00 – 12 noon	Case – Guillain Barre syndrome (type 2 respiratory failure)	

Day 11

Time	Topic	Faculty
	Skill stations (8 students per batch)	
9.00 – 10.00 am	Case – Life threatening arrhythmias	
10.00am – 11.00am	Case – Heart failure	
11.00 – 12 noon	Case – Acute myocardial infarction	

Day 12

Time	Topic	Faculty
	Lectures	
9.00 – 9.30 am	Ethics	
9.30 - 10.00am	Communication	
10.00 – 10.30 am	Safety	
	Skill stations	
10.30 - 11.00am	Ethics	
11.00 – 11.30am	Communication	
11.30 – 12 noon	Safety	

Assessment: Day 13

Time	Topic	Faculty
9.00 – 10.00 am	MCQ exam	
10.00am – 12 noon	Oral exam	

Broad outline of revised curriculum

BHARATI VIDYAPEETH UNIVERSITY MEDICAL COLLEGE, PUNE DEPARTMENT OF ANAESTHESIOLOGY REVISION OF CURRICULUM 2016

(I) **GOAL-:** The UG student should know basic concepts in anaesthesia and resuscitation.

(II) **OBJECTIVES -:** The UG student should know

- 1) Terminologies
- 2) Types of anaesthesia
- 3) Resuscitation: BLS and ACLS
- 4) Bag and mask ventilation

(a) KNOWLEDGE

At the end of the course, student should have the knowledge of:

- 1) Different types of anaesthesia
- 2) Drugs used in general, regional and local anaesthesia.
- 3) Complications associated with different types of anaesthesia and their management.
- 4) Cardiopulmonary resuscitation

(b) SKILLS

At the end of the course, the student should be able to:

- 1) Perform venepuncture and set intravenous drip.
- 2) Able to secure airway patency, administer oxygen by AMBU bag
- 3) Perform BLS
- 4) Basic monitoring

(c) COMMUNICATION

At the end of the course, the student should be able to:

- 1) Take proper history, during pre anaesthesia evaluation.
- 2) Explain and take proper consent from patients and relatives (under supervision).

(d) INTEGRATION: Anatomy & Critical Care Department

(III) COMPETENCIES: The student is expected to demonstrate:

- 1) Venepuncture
- 2) Secure airway patency and administration of oxygen by AMBU bag (BMV- Bag mask ventilation).
- 3) Administer local anaesthesia
- 4) Able to perform BLS (CPR)

(IV) TEACHING SCHEDULE:

Theory

Total teaching - 20 hours

Didactic Lectures - _____ hours

Tutorials/ Seminars/Integrated teaching – 10 hours

Clinical Teaching – 10 hours

Self-Directed Learning – _____ hours

List of lectures Topics

1. Introduction to Anaesthesia
2. Pre- Anaesthesia Evaluation
3. Pre-op Preparation & Premedication
4. IV Induction Agents
5. Inhalational anaesthesia
6. Spinal Anaesthesia
7. Epidural Anaesthesia
8. Local Anaesthetics
9. Depolarizing muscle relaxant
10. Non-Depolarizing muscle relaxants
11. IV fluids
12. Day care Anaesthesia

LIST OF PRACTICAL/CLINIC TOPICS

1. Name of the Topic
2. Introduction to Anaesthesia
3. Pre-anaesthesia Evaluation (PAE)
4. Pre-operative preparation & Premedication
5. IV Induction Agents
6. Spinal Anaesthesia
7. Epidural Anaesthesia
8. Depolarizing Muscle Relaxant
9. Non- Depolarizing muscle relaxants
10. Instruments
11. CPR-BLS & ACLS
12. Mannequin Training

Department of Anaesthesiology
BVUMC, Pune
VIIIth Semester Tutorials/Theory Hours

Sr. No	Topic	SLOs		
		Must Know	Desirable To Know	Nice To Know
1	Introduction to Anaesthesia	1) Definition and components of anaesthesia 2) Brief History – list of important landmarks 3) ASA Grading 4) Role of anaesthesiologist inside and outside the OT 5) Types of Anaesthesia 6) Terminologies	10 golden rules of anaesthesia	Development of super speciality of anaesthesia
2	Pre- Anaesthesia Evaluation	1) Objectives 2) Components - History - Examination - Investigation 3) Airway Assessment - Importance 4) Instructions in brief - Planning of Anaesthesia , Medico Legal Aspects, Unfavourable outcome, prevention 5) Consent: - Importance - How consent should be taken?	1) Past history and family history 2) Addictions if any	1) Anticipation of duration of surgery and complications 2) Other judgments e.g. Requirement of post op ICU Stay
3	Pre-op Preparation	1) Definition and Purpose	1) Monitoring	Preparation and

	& Premedication	2) Nil by mouth period 3) Consent 4) Special instructions according to the medical element/ surgical pathology 5) Preparation of the patient 3) Psychological 4) Pharmacological 6) Drugs and Doses 7) Specific orders	2) Different routes use for premedication 3) Precautions taken	premedication of 1) Paediatric patient 2) Critically ill patients
4	IV Induction Agents	1) Definition 2) Ideal IV induction agent characteristics 3) Drug used for IV induction of anaesthesia 4) Individual drug 4) How it is available? 5) Mechanism of action 6) Dose 7) Pharmacodynamics and kinetics 8) Indication and contra indications 9) Adverse effects	1) Special precautions 2) Complications and management 3) Other uses	1) Other methods/ routes for induction of anaesthesia 2) Misc. effects 3) Demerits of previous intra venous agents
5	Inhalational anaesthesia	1) Definition 2) Delivery of inhalational agents 3) Mechanism of action 4) Pharmacodynamics and kinetics	1) Complications 2) Contra indications	1) Historical anaesthetic agents like chloroform ether, cyclopropane, etc. 2) Demerits of previous inhalational agents
6	Spinal Anaesthesia	1) Anatomy of vertebral column 2) Landmarks and technique 3) Indications contra indications 4) Drugs : Volume and	Delayed/ rare complications and their management	1) History 2) Spinal anaesthesia in paediatric patients

	Epidural Anaesthesia	concentration, doses of local anaesthetic used 5) Common complications and their management 1) Definition 2) Anatomy and physiology 3) Indications/ contra indications 4) Technique 5) Epidural needle and Catheter considerations 6) Dose, volume, and concentration of local anaesthetics	1) Advantages over spinal anaesthesia 2) Complications with their management	1) Epidural in paediatric patient 2) Labour analgesia
7	Local Anaesthetics	1) Classification 2) Mechanism of action 3) Systemic effects 4) Side effects 5) Doses 6) Uses	1) Structure of local anaesthetics 2) Other uses 3) Treatment of toxicity	Newer local anaesthetics
8	Depolarizing muscle relaxant Non-Depolarizing muscle relaxants	1) Anatomy and physiology of NMJ 2) Mechanism of action 3) Pharmacokinetics / dynamics 4) Contra indications 5) Side effects 6) Uses 1) Classification 2) Mechanism of action 3) Pharmacokinetics / dynamics 4) Contra indications 5) Side effects	1) Reversal of neuromuscular blockade 2) Reversal agents	Factors affecting / prolonging NM blockade Newer non depolarizing muscle relaxants

		6) Uses 7) Reversal agents	3) Factors affecting neuromuscular blockade 4) Criteria for extubation	
9	IV fluids	1) Basic physiology 2) Basic principles of fluid therapy 3) Crystalloids & colloids	Fluid therapy in surgical patients	1) IV Fluids in special conditions - children - Diabetes mellitus - Medical disorders, etc. 2) Current guidelines
10	Day care Anaesthesia	1) Definition 2) Indications/ contra indications 3) Inclusion / exclusion criteria 4) Procedures suitable for ambulatory surgery 5) Anaesthetic techniques	Benefits	1) History 2) Fast tracking concept 3) Discharge criteria

Tutorials - 1 hour sessions x 10 =10 hours

CLINICAL TRAINING PROGRAMME

Practical/clinical Competencies to be attained are:

The clinical training programme will be conducted in 1 phases:

Phase	Term	No of weeks
1 October To November	Vth (Current afternoon posting)	6

2 August To November	VIIth Semester	17

Each **clinic/practical** (Strike out as necessary) will be a 3 hours session which includes anaesthetic procedure demonstration & briefing in OT along with clinic on following topics.

**Vth Semester / VIIth Semester
Clinics/ Practical Hours**

Sr. No	Name of the Topic	Must Know	Allied Equipments/ information
1	Introduction to Anaesthesia	1) Definition 2) Components of anaesthesia 3) Terminologies 4) Brief history 5) ASA grading 6) Role of anaesthesiologist outside the OT 7) Types of anaesthesia 8) What students are expected to know by the end of the term	Departmental anaesthesia museum tour.
2	Pre-anaesthesia Evaluation (PAE)	1) Objectives 2) Components • History • Examination • Investigations 3) Airway assessment – Importance 4) Instructions in brief	PAE form
3	Pre operative preparation & Premedication	1) Definition and purpose 2) Preparation • Pharmacological	• Anticholinergic premedicants • Consent form

		• Psychological 3) Special groups (DM, HTN, IHD etc.) 4) Consent 5) Drugs used 6) Specific orders	
4	IV Induction Agents	1) Definition 2) Characteristics of ideal IV Induction agent 3) Drug used for IV Induction of Anaesthesia 4) Individual drug • How it is available • Mechanism • Dose • Pharmacokinetics / Pharmacodynamics • Indications and contraindications • Side effects • Special precautions	All induction agents including etomidate.
5	Spinal Anaesthesia	1) Anatomy of spinal column 2) Indications and contraindications 3) Technique 4) Drug used / equipment required 5) Physiological effects 6) Complications and their management	• Spinal needle/tray • Local anaesthetics used for spinal anaesthesia
6	Epidural Anaesthesia	1) Definition 2) Anatomy and physiology 3) Indications and contra indications 4) Technique 5) Dose, volume /concentration of local anaesthetics 6) Advantages and disadvantages over spinal anaesthesia 7) Complications and treatment	• Epidural needle • Epidural Catheter • Local anaesthetics used

7	Depolarizing Muscle Relaxant	1) Anatomy and physiology of neuromuscular junction 2) Classification of muscle relaxants 3) Mechanism of action 4) Pharmacokinetics / Pharmacodynamics 5) Contraindications 6) Uses and side effects	• Scoline
	Non- Depolarizing muscle relaxants	1) Classification 2) Mechanism of action 3) Pharmacokinetics / Pharmacodynamics of individual drug 4) Contraindications 5) Uses and side effects 6) Special precaution	• Brief mention: reversal agents along with understanding of extubation criteria • All non depolarizing muscle relaxants
8	Instruments	1) Endotracheal tubes 2) Laryngoscopes 3) Airways 4) AMBU bag 5) Face mask 6) LMAs 7) Magill's forceps	
9	CPR-BLS & ACLS	1) Diagnosis, possible causes 2) CPR Guidelines 3) Steps of BLS 4) Steps of ACLS	• Mannequins • All drugs used in ACLS. • Paediatric CPR, CPR in Special situations like drowning, hypothermia, pregnancy
10	Mannequin Training	1) Bag and mask ventilation (using AMBU-bag)	intubation on mannequin

(V) ASSESSMENT

The performance in essential components of training is to be assessed based on attendance and Internal assessments.

At the end of the course, the student shall appear for the summative examination conducted by the university provided he/she fulfils the eligibility criteria for appearing at the Final examination

Attendance

Attendance requirements are 75% attendance in theory classes and 75% in clinics in each of the terms separately i.e. 5th or 7th and 8th terms

Internal Assessment:

The internal assessment of 20 marks is done at the end of clinical posting (Term end exam.) as a table viva voce. Short notes on anaesthesia topics will be included in surgery theory evaluation in final examination.

Internship -: At the end of the course, the intern should be able to:

- 1) Perform Pre Anaesthesia Evaluation
- 2) Perform venepuncture and set up intravenous drip
- 3) Perform lumbar puncture
- 4) Manage airway and oxygenate patient with BMV
- 5) Assist expert in endotracheal intubation
- 6) Monitor patient during anaesthesia and post operative period
- 7) Recognise and manage problems associated with emergency anaesthesia
- 8) Recognise and treat complications in post operative period
- 9) Perform cardiopulmonary cerebral resuscitation

Expectations from intern during anaesthesia posting:

- 1) 15days attendance with assistance in emergency cases
- 2) Log book for practical skills

Suggested Reading

Lee's synopsis of anaesthesia

BHARATI VIDYAPEETH UNIVERSITY MEDICAL COLLEGE,PUNE

DEPARTMENT OF ANATOMY

REVISED CURRICULUM

(I) GOAL:

The broad goal of the teaching of undergraduate students in Anatomy aims at providing comprehensive knowledge of the gross and microscopic structure and development of human body to provide a basis for understanding the clinical correlation of organs or structures involved and the anatomical basis for the disease presentations.

(II) OBJECTIVES :

(a) KNOWLEDGE:

At the end of the course the student shall be able to -

- (a) Comprehend the normal disposition, clinically relevant interrelationships, functional and cross sectional anatomy of the various structures in the body
- (b) Identify the microscopic structure and correlate elementary ultra-structure of various organs and tissues and correlate the structure with the functions as a pre requisite for understanding the altered state in various disease processes.
- (c) Comprehend the basic structure and connections of the central nervous system to analyze the integrative and regulative functions of the organs and systems. He/she shall be able to locate the site of gross lesions according to the deficits encountered.
- (d) Demonstrate knowledge of the basic principles and sequential development of the organs and systems; recognize the critical stages of development and the effects of common teratogens, genetic mutations and environmental hazards. He/she shall be able to explain the developmental basis of the major variations and abnormalities.

(b) SKILLS:

At the end of the course the student shall be able to-

- (a) Identify and locate all the structures of the body and mark the topography of the living anatomy.
- (b) Identify the organs and tissues under the microscope.
- (c) Understand the principles of Karyotyping and congenital anomalies.
- (d) Understand principles of newer imaging techniques and interpretation of CT scan, ultra-sonograph etc.
- (e) Understand clinical basis of some common clinical procedures i.e. intramuscular and intravenous injection, lumbar puncture and kidney biopsy etc.

(c) COMMUNICATION:

At the end of the course the student shall have the necessary communication skills required for explaining the anomalies and the anatomical basis of certain procedures and interpreting the X-rays and other imaging techniques.

(d) INTEGRATION

At the end of the integrated teaching the student shall acquire an integrated knowledge of organ structure and function and its regulatory mechanisms and deviation from normal function as judged by clinical examination and biochemical investigations.

III. COMPETENCIES:

The student will be able to demonstrate- the various bony and other surface landmarks in the human body, the actions of different muscles and movements of the joints and identify and interpret the human parts in various imaging techniques.

The student will be able to identify and discuss the anatomy of all the parts of the body and identify under the microscope the basic structure of the tissues of the body.

IV. TEACHING SCHEDULE:

TOTAL TEACHING HOURS	650 Hours

Theory	Hours
Semester I	
Didactic Lectures - 120 lectures of 45 minutes	090
Tutorials - 45tutorials of 1 hour	045
Semester II	
Didactic Lectures - 66 lectures of 45 minutes	050
Tutorials - 20 tutorials of 1 hour	020
Total Lectures	140
Total Tutorials	065
Total Theory	205

Practical	Hours
Semester I	
Dissection	250
Histology practical	030
Semester II	
Dissection	150
Histology practical	015
Total Dissection	400
Total Histology practical	045
Total Practical	445

V. TEACHING LEARNING METHODOLOGY:

1. **Didactic lectures:** Five hours /week of interactive classroom lectures are conducted to facilitate learning of the structure of different parts of the body including the organ systems and their correlation in clinical practice. Books and resource material are suggested to encourage self-directed learning.
2. **Tutorials:** Two hours /week. In every tutorial a new topic is introduced and taught with one to one interaction. This helps the students understand the topic in depth. Optimum communication skills are developed in these sessions as the students can express their thoughts in the small group.

3. **Histology practicals:** Two hours /week.

Microscopic structure of basic tissues as well as of the different organs is explained with the help of slide projection and the students identify the structures under the microscope.

Students study the developmental anatomy of all the organ systems on the embryology models. This enhances their learning further.

4. **Dissection:** The students get 'Hands on' experience in four sessions of two and half hours/week by dissecting the body parts of human cadavers. Each student gets equal opportunity to dissect the body parts.

5. Integrated Teaching :

To understand the interrelationship between anatomy, physiology and biochemistry.

VI. COURSE CONTENT

Ist MBBS (ANATOMY) SEMESTER I: THEORY

I. LECTURES

GENERAL ANATOMY: LECTURES

Sr.No.	Topic
001	Introduction to Anatomy-Scope of the subject, Body preservation, Terms & their meanings.
002	Bones - I Functions, Classification, Ossification.
003	Bones - II Parts of growing bone and adult bone, Blood supply of bone.
004	Blood vessels, Lymphatic system - Classification & anastomosis of blood vessels, arrangement of lymph vascular system.
005	Muscle I- Structure and classification.
006	Muscle II -Muscle actions and clinical aspects.
007	Joints I- Definition &classification, synovial joints-functions, structure and classification.
008	Joints II–Fibrous and cartilaginous joints.

GENERAL&SYSTEMIC EMBRYOLOGY: LECTURES

Sr.No.	Topic
009	Introduction to Embryology & Cell division- Define developmental periods, embryological terminology, mitosis & meiosis.
010	Spermatogenesis – Stages of Spermatogenesis & spermiogenesis, structure of a sperm.
011	Oogenesis –Stages of oogenesis, comparison of male& female gametes.
012	Fertilization - Transport of gametes, maturation of sperms, stages of fertilization and significance, ‘in vitro’ fertilization.
013	2 nd week of development - Cleavage and morula, blastogenesis, formation of epiblast, hypoblast &trophoblast.
014	2 nd week of development - Chorion and its parts, formation of the chorionic villi with classification and functions.
015	Implantation – Sites and stages of implantation, methods of contraception, the formation of bilaminar embryo, the formation of amnion, yolk sac & chorionic cavity.
016	3 rd week of development - Formation of trilaminar disc, primitive streak and its derivatives.
017	3 rd week of development - Notochord,neural tube,allantois - derivatives
018	Fetal membranes- Formation & fate of yolk sac,amnion,umbilical cord, structure & functions of placenta
019	Heart I - Development of pericardial cavity & formation of tubular heart tube
020	Heart II - Partitioning of the A-V canal,atrium. Changes in sinus venosus & its fate.
021	Heart III Partitioning of the bulbo-ventricular cavity & truncus arteriosus, formation of cardiac valves.
022	Heart IV- Anomalies of development of heart.
023	Respiratory system- Development of embryonic body cavity and development of larynx, trachea &lung and their anomalies.

024	Development of the respiratory diaphragm- four components, anomalies.
025	Stomach-Development of peritoneal cavity, stomach, formation of lesser sac.
026	Spleen, Pancreas, Liver- Development & rotation of duodenum and pancreas. Histogenesis of pancreas , anomalies of duodenum & pancreas
027	Midgut - The derivatives, rotation and anomalies of midgut.
028	Urinary system-Kidney -Development of pronephros, mesonephros & metanephros, The development of ureters, positional changes of kidneys.
029	Urinary system-Kidney-The anomalies of kidneys & ureters
030	Hindgut and Urinary bladder-Derivatives of hindgut, the formation & partitioning of cloaca.
031	Urinary bladder-Formation and anomalies of urinary bladder.
032	Anal canal-Formation of anal canal, anomalies of hindgut & anal canal.
033	Gonads-Testis-Development of indifferent gonads, sex determination in embryo, development of male genital ducts & glands descent of testes.
034	Gonads- Ovary-Stages of development and differentiation of ovaries.
035	Uterus-Development of female genital ducts, development of uterus and fallopian tubes, anomalies of uterus and fallopian tube.
036	Revision-Development of genital system and external genital organs.

GENERAL &SYSTEMIC HISTOLOGY: LECTURES

Sr.No.	Topic
037	Introduction to Histology, Cell- Scope of histology, basic tissues, cell& cell organelles.
038	Epithelium-Glands- Classification and functions of epithelium. Classification and functions of glands
039	Connective Tissue – I - Components of connective tissue, functions of each component.
040	Connective Tissue - II (Cartilage) - Classification and structural features of cartilage.
041	Connective Tissue - III (Bone) Functions, classification, composition of bone. Haversian system /osteons. Decalcified bone and ground section of bone. Differences between cartilage and bone.
042	Muscle- Histological classification of muscle. Structure of striated muscle /skeletal muscle, smooth muscle /non- striated muscle and cardiac muscle.
043	Blood vessels- Parts of circulatory system, structure and classification of blood vessel and differences between artery and vein.
044	Lymphoid tissue –I- Primary and secondary lymphoid organs, structure and functions of a lymph node.
045	Lymphoid tissue –II-Structure, site and age changes and functions of thymus
046	Mammary Gland, Placenta, Umbilical cord-Structure of mammary gland, placenta, umbilical cord. Active and passive mammary gland.
047	Respiratory system-Trachea, Epiglottis, Lung, Bronchi Respiratory epithelium. Structure of trachea, bronchus, lung.
048	Esophagus, Stomach-Structure of alimentary canal. Structure of esophagus and stomach.
049	Small & large intestine, Appendix-Microscopic structure of small intestine, large intestine and appendix.

050	Liver, Gall Bladder, Pancreas-Structure and functions of liver. Microscopic structure of gall bladder. Exocrine and endocrine part of pancreas.
051	Kidney, Ureters, U.Bladder- Uriniferous tubules, nephron, differences between PCT and DCT, microscopic structure of urethra and a note on urothelium.
052	Supra renal, Testis, Vas deference, Epididymis- Supra renal gland-microscopic structure, cell types and functions .Structure of testis, seminiferous tubule and the cells lining it. Microscopic structure of epididymis & vas deference.
053	Prostate, Penis-Microscopic structure of prostate & penis, age changes in structure of prostate.
054	Uterus, Ovary, Uterine tube- Uterus-Endometrium , myometrium, perimetrium. Microscopic structure of ovary and uterine tube.

GROSS ANATOMY LECTURES- UPPER LIMB

Sr. No.	Topic
055	Axilla- Definition, boundaries, contents and applied anatomy of axilla.
056	Female Breast -Definition, extent, gross anatomy, blood supply, venous drainage and applied anatomy of mammary gland.
057	Brachial Plexus I- Formation, parts, relations and applied anatomy of brachial plexus.
058	Brachial Plexus II- Axillary nerve-Origin, course, branches, distribution Relations and applied anatomy.
059	Shoulder Girdle –Bones, joints & their classification forming shoulder girdle, movements of girdle.
060	Shoulder Joint I-Classification, factors for mobility & stability of the joint, relations, blood supply & nerve supply of the joint.
061	Shoulder Joint II-Movements of the joint and muscles causing them, applied anatomy of shoulder joint.
062	Radio-Ulnar Joints I- Names, classification and bones forming the R-U joints. A note on interosseous membrane.
063	Radio-Ulnar Joints II-Pronation and supination movements in details..
064	Elbow Joint and Wrist joint-Classification, movements, muscles producing movements.
065	Hand-I-Arrangement of fascia, muscles, vessels, nerves of hand. Palmar aponeurosis and intrinsic muscles of hand in details.
066	Hand-II -Ulnar and median nerves in hand.
067	Hand-III-Palmar arterial arches and their description.
068	Revision-All theory topics of upper limb.

GROSS ANATOMY LECTURES-LOWER LIMB

Sr. No.	Topic
069	Introduction -Lower limb- Functions of lower limb and comparison of shoulder and pelvic girdles.
070	Femoral sheath -Formation, compartments of femoral sheath. Boundaries and contents of femoral triangle.
071	Femoral canal -Boundaries and contents of femoral canal. Applied anatomy of

	femoral region.
072	Lumbar plexus–Formation, branches and their distribution and applied anatomy of lumbar plexus.
073	Femoral nerve-Formation, course, branches& distribution of femoral and obturator nerves.
074	Gluteal region-Muscles of gluteal region. Structures under gluteus maximus.
075	Sciatic nerve -Origin, course, relations, branches and applied anatomy of sciatic nerve.
076	Hip joint I-Classification, articular surfaces, capsule and ligaments, relations, blood supply and nerve supply of hip joint.
077	Hip joint II -Movements and applied anatomy of hip joint.
078	Knee joint I-Classification, articular surfaces, capsule and ligaments, relations, blood supply and nerve supply of knee joint.
079	Knee joint II-Movements of knee joint, locking and unlocking of knee joint and applied anatomy.
080	Arches of foot -Classification, functions and formation of arches of foot. Factors responsible for maintenance of arches of foot& applied anatomy.
081	Veins of lower limb I-Classification and description of the veins.
082	Veins of lower limb II -Factors helping venous return of lower limb. Applied anatomy of the veins of lower limb.
083	Revision -Inversion and eversion movements of foot . Describe ankle joint and its movements.

GROSS ANATOMY LECTURES-THORAX

Sr. No.	Topic
084	Introduction-Thorax- Boundaries of thorax, inlet, outlet and the contents of thoracic cavity.
085	Intercostal Spaces- Typical and atypical intercostals spaces, contents of the space -muscles, vessels and nerves, course of typical intercostal nerve Enumerate points of Applied anatomy
086	Lung-Broncho-pulmonary segments, mediastinal and vertebral surfaces of right and left lungs, structures at root of the lung.
087	Mediastinum I-Subdivisions and boundaries and contents of each. Know the gross anatomy of arch of aorta
088	Mediastinum II-Pericardium and pericardial sinuses and their applied anatomy.
089	Mediastinum III-Gross anatomy of esophagus and thoracic duct. Formation, tributaries and functions of azygos venous system.
090	Heart-Blood Supply-Arterial supply and venous drainage of heart. Variation of blood vessels and applied anatomy.
091	Heart -Interior-Interior of all the chambers of heart and applied anatomy
092	Revision - Describe the boundaries and contents of the thoracic cavity. Arrangement and functions of pleura

GROSS ANATOMY LECTURES- ABDOMEN

Sr. No.	Topic
093	Theory paper (I midterm examination) discussion.
094	Introduction-Boundaries and walls of abdomen and general arrangement of the organ systems in abdomen.

095	Anterior abdominal wall -Landmarks, planes and quadrants of anterior abdominal wall. The different layers of abdominal wall.
096	Rectus sheath-Rectus sheath formation and its contents.
097	Applied anatomy of anterior abdominal wall- Applied anatomy of rectus sheath and anterior abdominal wall. Principles of surgical incisions through anterior abdominal wall.
098	Inguinal canal I-Boundaries and contents of inguinal canal.
099	Inguinal canal II-Normal mechanism of inguinal canal and the different types of hernia.
100	Peritoneum I-The layers and functions of peritoneum
101	Peritoneum II-Formation, composition and circulation of peritoneal fluid.
102	Peritoneum III-Lesser sac and greater sac. Mesentery and its attachments. Peritoneal recesses and applied anatomy of peritoneum
103	Stomach-Parts and surfaces of stomach. Peritoneal and visceral relations. The interior of stomach. Blood supply of stomach (arteries & veins)
104	Stomach-Nerve supply, lymphatic drainage and applied anatomy of stomach
105	Duodenum –Length, situation, parts, functions, interior, relations and Blood supply of duodenum.
106	Duodenum-Applied anatomy of duodenum
107	Pancreas I-Situation, extent, parts, peritoneal and visceral relations of pancreas.
108	Pancreas II-Blood supply, duct system and applied anatomy of pancreas.
109	EHBS (Extrahepatic biliary system) I-Parts of EHBS. Gall bladder -Situation, extent, parts, peritoneal and visceral relations and blood supply.
110	EHBS II-Applied anatomy of EHBS.
111	Portal vein-Formation, function, length, relations, tributaries& branches. Porta-caval anastomosis and applied anatomy.
112	Pelvic diaphragm-Formation, functions, relations and applied anatomy.
113	Perineum I-Arrangement of fasciae of perineum.
114	Perineum II-Formation of perineal pouches and their contents and applied anatomy.
115	Urinary bladder I-Situation, surfaces & borders, peritoneal and visceral relations.
116	Urinary bladder II-Interior, nerve supply, blood supply and applied anatomy.
117	Prostate-Situation,size,shape,surfaces,lobes,relations,capsules,blood supply, structure and age changes of prostate and its applied anatomy
118	Ischio anal fossa –Situation, boundaries & walls, parts, contents and applied anatomy
119	Uterus- Size, shape, anteflexion & anteversion, relations ,blood supply, supports and applied anatomy. Functions, parts, peritoneal relations, applied anatomy of fallopian tube
120	Revision-Gross anatomy of all the intra-abdominal organs. Arrangement of peritoneum. Blood vessels of abdomen. Applied anatomy of all the abdominal contents.

II. TUTORIALS

Upper Limb: Tutorials

Sr. No.	Topic
01	Introduction
02	Clavicle I

03	Clavicle II
04	Scapula I
05	Scapula II
06	Humerus I
07	Humerus II
08	Radius
09	Radius/ Ulna
10	Ulna
11	Articulated Hand
12	X-rays
13	X-rays
14	Revision

Lower Limb: Tutorials

Sr. No.	Topic
15	Hip Bone-I
16	Hip Bone-II
17	Femur-I
18	Femur-II
19	Tibia-I
20	Tibia-II
21	Fibula
22	Foot, ankle joint
23	X-rays
24	Revision

Thorax: Tutorials

Sr. No.	Topic
25	Ribs
26	Sternum
27	Vertebral column and thoracic vertebrae
28	Thoracic vertebrae
29	X-rays

Abdomen: Tutorials

Sr. No.	Topic
30	Lumbar vertebrae
31	Sacrum
32	Bony pelvis-I
33	Bony pelvis-II
34	Bony pelvis-III
35	Testis, scrotum
36	Stomach
37	Duodenum and pancreas
38	Liver

39	Kidney
40	Bony pelvis-revision
41	Posterior abdominal and pelvic wall
42	Urinary bladder, prostate
43	Uterus, ovary, fallopian tube
44	X-rays
45	Revision

SEMESTER II: THEORY

I. LECTURES

GROSS ANATOMY LECTURES: HEAD -NECK

Sr. No.	Topic
1	Paper discussion of I semester examination. Introduction to HFN.
2	Scalp and Face-Structure, muscles, blood vessels, nerve supply and applied anatomy.
3	Deep cervical fascia- Arrangement, modification and attachments of deep cervical fascia and applied anatomy of deep cervical fascia.
4	Triangles of the neck-Boundaries and contents of the triangles.
5	Meninges I-Arrangement, modifications and folds of cerebral dura mater. Blood supply and nerve supply of the cranial dura mater. Arrangement and characteristic features of arachnoid and pia mater.
6	Meninges II-Applied anatomy of meninges.
7	Intracranial venous sinuses - Dural venous sinuses-the relations, tributaries, draining channels and applied anatomy.
8	Thyroid gland- Situation, extent, capsules, relations, blood supply, lymphatic drainage, functions of the thyroid gland and its applied anatomy.
9	Eyeball Muscles I-Contents of the orbit, attachments and nerve supply of extra ocular muscles.
10	Eyeball Muscles II-Movements of the eyeball-axes, muscles causing the movements and applied anatomy of movements of the eyeball.
11	Parotid gland- Situation and extent, capsule, relations, blood supply, lymphatic drainage and function of the parotid gland. Nerve supply and applied anatomy.
12	Infra-temporal region- Location, communications and contents of the infra-temporal region.
13	Muscles of mastication-Attachments and nerve supply of the muscles of mastication. Actions and applied anatomy of the muscles of mastication.
14	Infra-temporal fossa-Boundaries and contents of infra-temporal fossa and their relations.
15	Temporo-mandibular joint-Articular surfaces, articular disc, ligaments, relations, blood supply and nerve supply. The movements and muscles producing the movements and applied anatomy of the Temporo-mandibular joint
16	Pharynx-Parts and features of each, naso-pharynx in detail, muscles of pharynx, nerve supply, blood supply and lymphatic drainage of pharynx, applied anatomy of naso, oro and laryngo-pharynx.
17	Larynx- Laryngeal cartilages, intrinsic muscles of the larynx with their attachments, actions and nerve supply. Rima glottis, vocal cords, laryngoscopy and applied anatomy of larynx.

18	Nasal cavity-Nasal septum, lateral wall of nose, paranasal air sinuses.
19	Tongue I-Oral and pharyngeal parts of the tongue.
20	Tongue II-Intrinsic and extrinsic muscles, blood supply and lymphatic drainage of the tongue. Sensory and motor nerve supply of the tongue and applied importance.
21	Palate-Structure and functions, blood supply, lymphatic drainage and nerve supply of hard and soft palate .Muscles of soft palate and their attachments and nerve supply.

GROSS ANATOMYLECTURES: BRAIN

Sr. No.	Topic
22	Introduction-Stages of formation, fate and derivatives of neural tube. Formation, fate and derivatives of neural crest. Development of spinal cord.
23	Spinal cord - Blood supply of spinal cord, ascending and descending pathways, dorsal root ganglion, laminae (alar and basal) and their derivatives. Distribution and arrangement of grey and white matter at different levels.
24	Nuclei of brainstem-Development, position and connections of brainstem nuclei, Functional components of cranial nerves (III to XII).
25	Brainstem I -Medulla Oblongata -Sections of medulla at the level of-pyramidal decussation, sensory decussation and at the level of floor of fourth ventricle. Sensory and motor nuclei of medulla.
26	Brainstem II– Pons-Sections of the pons at upper level and lower level, formation and branches of basilar artery, nuclei of pons and auditory pathway.
27	Brainstem III–Midbrain- Sections at the level of superior colliculi and inferior colliculi, midbrain nuclei, connections of red nucleus and substantia nigra.
28	Cranial nerves I-Functional components of the cranial nerves.
29	Cranial nerves II-Origin, course, relations and distribution of the cranial nerves.
30	Cranial nerves III-Applications of knowledge of the cranial nerves in clinical practice.
31	Development of Brain- Development of external features, morphological and functional subdivisions of brain.
32	Cerebrum-Surfaces, functional areas, nuclei, lobes of brain.
33	White matter I- Formation, blood supply and applied anatomy of internal capsule. Development, boundaries, communications, recesses and applied anatomy of the third ventricle.
34	White matter II-Corpus callosum-Development of cerebral white matter. Parts and fibers and functional significance of corpus callosum.
35	Lateral ventricle-Parts and boundaries of each part. Applied anatomy of lateral ventricle.
36	Fourth Ventricle -Parts and boundaries and floor of fourth ventricle –formation and relations.
37	Cerebellum-External features, morphological and functional subdivisions of cerebellum, connections and functions of peduncles and nuclei of cerebellum and its applied anatomy.
38	Choroid plexus, Circle of Willis, Basal nuclei- Formation and description of choroid plexus and circle of Willis. Basal nuclei and their connections and functions.
39	Revision-Brain-Surfaces, borders and poles and sulci and gyri of cerebral hemispheres. Functional areas and blood supply of cerebral cortex.

SYSTEMIC EMBRYOLOGY: LECTURES

Sr. No.	Topic
40	Branchial apparatus-Formation, components and fate of pharyngeal arches.
41	Branchial apparatus- Pharyngeal clefts, pouches and their fate. Anomalies of head and neck originating during transformation of pharyngeal apparatus into adult structures.
42	Development of Face -Various components contributing to the formation of face and changes due to formation of special sense organs. Co-relation of sensory and motor nerve supply and anomalies of face.
43	Development of Palate - Formation of primitive, secondary and definitive palate. Origin of muscles of soft palate and basis of cleft palate.
44	Development of Tongue – Development of oral and pharyngeal parts of the tongue and origin of muscles of the tongue and co-relation of sensory and motor nerve supply of tongue with its development.
45	Development of Thyroid, Eye, Ear-Organogenesis, histogenesis and anomalies of thyroid gland. Development and anomalies of pinna and external acoustic meatus. Development of auditory tube, middle ear cavity, ear ossicles and tympanic membrane. Development of retina, ciliary body, iris, optic nerve, lens, cornea, vitreous humor and anterior chamber of eye.
46	Development of Neural tube, Neural Crest – Formation and derivatives of neural tube and neural crest.
47	Spinal cord- Stages of formation and functional components and anomalies of spinal cord.
48	Brainstem-Formation of different parts and development of the nuclei of brainstem.
49	Brainstem-Development of cerebellum and ventricles of brain.
50	Development of cerebral hemispheres, sulci and gyri and lobes of brain.
51	Brain-Cerebrum-Development of basal nuclei and lateral ventricle of brain.
52	Revision-Development and anomalies of nervous system.

SYSTEMIC HISTOLOGY: LECTURES

Sr. No.	Topic
53	Skin-Structure of skin and its appendages (sebaceous glands, sweat gland, hair follicle)
54	Lip, Tongue, Tooth- Parts of gastro intestinal tract, histological structure of lip, tooth, tongue.
55	Salivary glands- Structure of submandibular, parotid, sublingual salivary glands.
56	Thyroid, Parathyroid, Pituitary-Microscopic structure of thyroid, parathyroid and pituitary glands. Hormones produced by these glands.
57	Eye I-Gross features and 3 coats of eye ball. Histological features of cornea, eyelids and lacrimal glands.
58	Eye II-Microscopic structure of retina, optic disc, macula and lens.
59	Spinal cord, Nerve (T.S.), Ganglia-Microscopic structure of spinal and autonomic ganglion ,nerve T.S.
60	Cortex-Cerebrum, Cerebellum-Layers and different types of neurons of cerebrum and cerebellum.

GENETICS & REVISION LECTURES

Sr. No.	Topic
61	Genetics I-Process of karyotyping, X & Y chromosomes, Barr body, inheritance.
62	Genetics II-Know the chromosomal aberrations, Down's syndrome, Turner's syndrome, Kline filter's syndrome.
63	Revision-Limbs
64	Revision-Trunk
65	Revision-Head, Neck
66	Revision-Brain

II. TUTORIALS

HEAD, NECK: TUTORIALS

Sr. No.	Topic
01	Cervical Vertebrae
02	Introduction to skull, norma verticalis, norma occipitalis.
03	Norma frontalis
04	Norma lateralis
05	Norma basalis-I
06	Norma basalis-II
07	Interior of skull-I
08	Interior of skull-II
09	Mandible
10	Fetal skull, Hyoid bone
11	Section of head and neck
12	X-rays

BRAIN: TUTORIALS

Sr. No.	Topic
13	Spinal cord and meninges
14	Spinal cord and meninges
15	Brainstem-medulla and pons
16	Brainstem-midbrain, fourth ventricle
17	Sulci and gyri of brain, superolateral surface of cerebrum
18	Third and lateral ventricles, white matter of cerebrum
19	Cerebellum
20	X-rays

CLINICAL/PRACTICAL TRAINING PROGRAMME

SEMESTER I: PRACTICAL

I. HISTOLOGY PRACTICAL

Sr. No.	Topic
1	Microscope, cell and epithelium

2	Connective tissue, cartilage
3	Bone
4	Muscle
5	Blood vessels
6	Lymphoid tissue
7	Placenta, Umbilical cord, Mammary gland.
8	Trachea, Epiglottis, Lung, Bronchus.
9	Esophagus, Stomach
10	Small & large intestine, Appendix
11	Liver, Gall Bladder, Pancreas
12	Urinary System-Kidney, Ureter, Bladder
13	Suprarenal, Testis, Vas deference, Epididymis
14	Prostate, Penis
15	Ovary, Fallopian tube, Uterus

II. DISSECTION

Sr. No.	Topic/Hours
01	Upper limb/80 hours
02	Lower limb/65 hours
03	Thorax/35 hours
04	Abdomen/100 hours

SEMESTER II: PRACTICAL

I. HISTOLOGY PRACTICAL

Sr. No.	Topic/Hours
01	Skin
02	Lip, tongue, Tooth
03	Salivary glands
04	Thyroid, Parathyroid, Pituitary
05	Eye
06	Eye
07	Spinal cord, Nerve (T.S.), Ganglia
08	Cortex-Cerebrum, Cerebellum

II. DISSECTION

Sr. No.	Topic/Hours
01	Head, Neck/80 hours
02	Brain/70 hours

VII. List of topics and contents for integrated teaching by Anatomy, Physiology and Biochemistry departments:

Sr. No.	Topic	Anatomy Department	Physiology Department	Biochemistry Department
1.	Liver	Gross, microscopic & developmental Anatomy	Functions of liver	Liver function tests
2.	Pancreas	Gross, microscopic & developmental Anatomy	Functions of endocrine pancreas (insulin & Glucagon)	Regulation of blood sugar level
3.	Kidney	Gross, microscopic & developmental Anatomy	Functions of kidney	Kidney function tests
4.	Thyroid	Gross, microscopic & developmental Anatomy	Functions of thyroid gland	Thyroid function tests

VIII. SLOs (Specific learning objectives)

Anatomy- Lectures - Semester I				
Sr. No.	Topic Lectures	At the end of teaching-learning session the students will be able to-		
	General anatomy	Must know	Desirable to know	Nice to know
1	Introduction to Anatomy	Define the word Anatomy. Body preservation. Know the subdivisions of anatomy. Know different planes/ terms which are commonly used. Define different movements.		
2	Bones - I	Classify the bones. Give examples of each type of bone. Define ossification. Describe the process & types of ossification.		
3	Bones - II	Describe the different parts of growing long bone. Discuss in details about epiphysis, metaphysis & diaphysis. Describe the blood supply of a growing long bone.		
4	Blood vessels, Lymphatic system	Name different vessels. Define & give function of 1. Elastic artery 2. Muscular artery 3. Arteriole 4. Capillary 5. Sinusoid 6. Vein. Explain the terms anastomosis & end arteries. Describe the lymph vascular system & lymph nodes. Clinical significance of lymphatic system & end arteries.		
5	Muscle I	Define muscle & give basic property of a muscle. Enumerate the different types of muscles. Give the differences between skeletal, cardiac, smooth muscle. Classify the skeletal muscle according to size, shape, parts, situation, pinnation, actions etc.		
6	Muscle II	Define tendon, aponeurosis... Describe basic functional unit of a muscle.		
7	Joints I	Classify the joints in 3 types.		

		Describe synovial joints.		
8	Joints II	Classify fibrous & cartilaginous joints Give example of each type of fibrous & cartilaginous joints		
	<u>Embryology</u>			
9	Introduction to Embryology, Cell division	Define developmental periods. Know embryological terminologies. Know significance of embryology Distinguish between mitosis & meiosis. Explain significance of meiosis.		
10	Spermatogenesis	Define & explain- a. Spermatogenesis b. Spermiogenesis Describe & draw the structure of a sperm.		
11	Oogenesis	Define & explain Oogenesis. Compare male & female gametes. Know about formation of abnormal gametes.		
12	Fertilization	Explain the transport of gametes. Explain the maturation of sperms. Describe the process of fertilization. Enumerate the effects of fertilization. Discuss 'In Vitro' fertilization.		
13	2nd week of development	Describe cleavage. Define morula. Describe blastogenesis. Define epiblast, hypoblast & trophoblast.		
14	2nd week of development	Describe decidua. Name the parts of decidua. Decidual reaction. Define Chorion. Name the parts of chorion & describe formation of the chorionic villi.		
15	Implantation	Discuss the process of implantation. Explain normal & ectopic implantation. Discuss methods of contraception. Describe the formation of bilaminar embryo. Describe the formation of amniotic cavity, yolk sac & chorionic cavity.		
16	3rd week of development	Trilaminar disc- Describe formation of Primitive streak under a. Definition b. Derivatives c. End result d. Anomalies		
17	3rd week of development	Describe formation of notochord under a. Stages of formation b. End result		

	nt	c. Anomalies of development Describe formation of neural plate Describe formation of allantois and its derivatives		
18	Fetal membranes	Describe formation & fate of a. Fetal membranes b. Chorion c. Yolk Sac d. Amnion e. Umbilical cord f. Allantois Structure & functions of placenta		
19	Heart I	Development of pericardial cavity Formation of tubular heart tube		
20	Heart II	Partitioning of the A-V canal Atrium. Changes in Sinus venosus & its fate.		
21	Heart III	Partitioning of the bulboventricular cavity & truncus arteriosus. Formation of cardiac valves.		
22	Heart IV	Anomalies of heart development		
23	Respiratory system	Development of embryonic body cavity, its divisions and fate. The development of 1. Larynx, 2. Trachea 3. Lung Developmental anomalies		
24	Respiratory diaphragm	Development of the diaphragm from 4 components Developmental anomalies		
25	Stomach	Development of peritoneal cavity, stomach & its rotation Formation of lesser sac.		
26	Spleen Pancreas, Liver	Development & rotation of duodenum and pancreas. Histogenesis of pancreas. Anomalies of duodenum & pancreas.		
27	Midgut Rotation	Describe the derivatives of midgut. Describe the rotation of midgut. Discuss the anomalies of midgut.		
28	Urinary system- Kidney	Describe the development of pronephros, mesonephros & metanephros. Describe the development of kidneys from metanephros and ureteric bud. Describe the development of ureters from mesonephric ducts Discuss the positional changes of kidneys Discuss the changes in blood supply of		

		kidneys		
29	Urinary system-Kidney Anomalies	Understand and Discuss the Anomalies of Kidneys Ureters		
30	Hindgut, Urinary bladder	Name the derivatives of hindgut Describe the formation & partitioning of cloaca.		
31	Urinary bladder	Describe the formation urinary bladder. Discuss the anomalies of urinary bladder.		
32	Anal canal	Describe the formation of anal canal& discuss the anomalies of hindgut &anal canal.		
33	Gonads-Testis	Describe the development of indifferent gonads. Discuss sex determination in embryo. Describe the development of 1. Testes 2. Male genital ducts & glands Describe the descent of testes. Discuss the factors causing the descent of testes. Discuss cryptorchidism & ectopic testes. Discuss congenital inguinal hernia &hydrocele.		
34	Gonads-Ovary	Describe the development of ovaries. Discuss the descent of ovaries		
35	Uterus	Describe the development of female genital ducts. Describe the development of uterus and fallopian tubes. Enumerate the anomalies of uterus and fallopian tube.		
36	External genitals	Discuss the development of male external genitalia and female external genitalia Discuss hermaphroditism. Discuss hypospadias.		
	Histology			
37	Introduction to Histology, Cell	What is histology? Cell & cell organelles.		
38	Epithelium-glands	Name the basic tissues. Define epithelium. Name the sites of epithelium. Enumerate the functions of epithelium. Classify the types and the subtypes of epithelium. Define gland. Classify the glands with examples.		

39	Connective Tissue – I	Know the components of connective tissue. Functions of each component.		
40	Connective Tissue - II (Cartilage)	Know the main types of cartilage. Know the basic structural features of cartilage. Define perichondrium. Enumerate the functions of perichondrium. Sites of all cartilages Applied anatomy of cartilage.		
41	Connective Tissue - III (Bone)	Functions and composition of bone. Classification of bone. Haversian system /Osteon. Cells of the bone and their functions. Differences between cartilage and bone	Preparation of a slide of decalcified bone. Preparation of a slide of ground section of bone.	
42	Muscle	Histological classification of muscle. Histological features of striated muscle /skeletal muscle. Histological features of smooth muscle /non- striated muscle. Histological features of cardiac muscle.		
43	Blood vessels	Know the parts of circulatory system Enumerate the basic components of a blood vessel. Enumerate the differences between artery and vein. Elastic artery and muscular artery.	Special stains for adventitia.	
44	Lymphoid tissue -I	Enumerate the primary and secondary lymphoid organs. Enumerate the functions of lymph node Know about the histological features of lymph node . Enumerate the types of lymphocytes present in the lymphoid follicles and medulla.	Know about the thymus dependent zone.	
45	Lymphoid tissue II	Enumerate the development, age changes and functions of thymus. Know the histological features of thymus. Enumerate the cells present in thymus. Know about the thymic nurse cells, Hassall's corpuscles . Enumerate the functions of epithelial cells.	Blood-thymus barrier	
46	Mammary Gland, Placenta,	Enumerate the gross features of mammary gland, placenta, umbilical cord.		

	Umbilical cord	Enumerate histological features of active mammary gland and passive mammary gland.		
47	Respiratory system	Know the respiratory epithelium. Histological structure of 1. Trachea 2. Bronchus 3. Lung 4. Cells forming the lining epithelium of alveoli (pneumocytes)		
48	Oesophagus, Stomach	Know the basic pattern of structure of alimentary canal. Know the histological structure of 1. Oesophagus 2. Stomach Know the microscopic differences of different parts of stomach.		
49	Small & large intestine, Appendix	Know the histological structure of 1. Small intestine 2. Large intestine 3. Appendix. Know the microscopic differences of small and large intestine.		
50	Liver, Gall Bladder, Pancreas	Know the basic histology of liver and portal triad. Enumerate the functions of liver. Enumerate the histological features of gall bladder. Know the histological structure of exocrine and endocrine parts of pancreas. Know the islets of Langerhan.	Special stain for islets of Langerhan.	
51	Kidney, Ureter, Bladder	Know about the uriniferous tubules Know about the Nephron – Renal corpuscle, renal tubules Enumerate the differences between PCT and DCT Enumerate the histological feature of ureter. Define transitional epithelium/urothelium.	Know about the Juxtaglomerular apparatus.	
52	Suprarenal, Testis, Vas def. Epididymis	Identifying features of supra renal Gland. Know about the general structure of seminiferous tubule and the cells lining it. Discuss about the Sertoli cells, interstitial cells. Know about the histological structure of epididymis & ductus deferens.		
53	Prostate,	Know about the histological structure		

	Penis	of prostate, penis.		
54	Uterus, Ovary, Uterine tube	Know about histological features of uterus & uterine tube.		
	<u>Upper limb</u>			
55	Axilla	Define axilla. Give the boundaries of axilla. Enumerate the contents of axilla. Explain the application of knowledge of axilla in clinical practice.		
56	Female Breast – Gross, Applied	Define & classify mammary gland. Tell the extent of mammary gland. Enumerate the arteries supplying breast. Explain lymphatic drainage of breast. Explain applied anatomy of breast.	Classifications of carcinoma breast	
57	Brachial Plexus I	Explain the formation & need of brachial plexus. Explain the trunks, divisions, cords & branches of brachial plexus. Give all the branches of brachial plexus. Discuss the applied anatomy of brachial plexus		
58	Brachial Plexus II	Explain the axillary nerve under the following heads- Origin, course, branches, distribution, relations and applied anatomy. Explain the axillary artery under the following , 1. Origin 2. Course 3. Termination 4. Branches plain the anastomosis between different branches of the artery.	Anastomosis around scapula	
59	Shoulder Girdle -	Define shoulder girdle. Name the bones forming shoulder girdle. Joints formed in girdle & their classification. Movements taking part in girdle.		
60	Shoulder Joint - I	Classification. Bones taking part. Explain the mobility & stability of the joint. Relations of the joint.		

		Blood supply & N supply of the joint.		
61	Shoulder Joint - II	Enumerate the movements of the Joint. Explain the axis of movements. Muscles causing movements. Explain in detail the abduction of shoulder joint.		
62	Radio-Ulnar (R-U) Joint I	Name the R-U joints. Classification of each joint. Bones taking part. Blood supply & N supply of the joint. Give the functions of interosseous membrane.		
63	Radio-Ulnar Joint II	Explain the movements in joints. Explain the axis of movement. Muscles causing movements.		
64	Elbow Joint and Wrist joint	Describe both the joints under the following, 1. Classification, 2. Bones taking part 3. Relations 4. Movements 5. Muscles producing movements		
65	Hand I	Know general arrangement of fascia, muscles, vessels, nerves. Explain palmar aponeurosis under 1. Formation 2. Extent 3. Function 4. Applied Anatomy Enumerate the intrinsic muscles of Hand. Describe lumbricals, palmar & dorsal interossei under 1. Origin 2. Insertion 3. Nerve Supply 4. Action		
66	Hand II	The ulnar nerve and median nerves under the following 1. Origin 2. Course 3. Branches 4. Distribution, 5. Relations 6. Applied anatomy		
67	Hand III	Describe the palmar arterial arches under 1. Formation 2. Branches		

		3. Distribution, 4. Applied anatomy		
68	Revision			
69	Introduction – Lower Limb	Have an insight of the region. Understand the overall view. Plan and schedule of dissection. Topics covered and examination pattern.		
70	Femoral sheath	Describe the boundaries of the triangle. Enumerate the contents of the triangle. Describe the formation of femoral sheath. Describe the compartments of the sheath. Draw appropriate diagrams.		
71	Femoral canal	Enumerate the boundaries of femoral ring. Enumerate the contents of femoral canal. Draw appropriate diagrams.		
72	Lumbar Plexus	Describe the lumbar plexus under 1. Formation 2. Branches 3. Distribution of the branches		
73	Femoral nerve	Describe the femoral nerve under 1. Formation 2. course 3. branches 4. distribution Describe the obturator nerve under 1. Formation 2. course 3. branches 4. distribution		
74	Gluteal Region	Describe the muscles of the gluteal Region. Enumerate the structures under gluteus maximus. Draw appropriate diagrams.		
75	Sciatic nerve	Describe the sciatic nerve under 1. Origin 2. Root value 3. Course 4. Relations 5. Branches Explain the applied anatomy of sciatic nerve. Draw appropriate diagrams.		
76	Hip joint I	Describe hip joint under		

		1. Classification 2. Articular surfaces 3. Capsule 4. ligaments 5. Relations 6. Blood supply 7. Nerve supply		
77	Hip joint II	Describe the movements of hip Joint. Explain the applied anatomy of hip Joint.		
78	Knee Joint I	Describe knee joint under 1. Classification 2. Articular surfaces 3. Capsule 4. ligaments 5. Relations 6. Blood supply 7. nerve supply		
79	Knee Joint II	Describe the movements of knee joint Explain locking and unlocking of knee joint Explain the applied anatomy of knee joint		
80	Arches of foot	Classify the arches of foot. Describe the formation of arches of foot. The factors responsible for maintenance of arches of foot. The functions of arches of foot. Applied anatomy of the arches of foot.		
81	Veins of lower limb I	Explain the factors helping venous Return. Classify and describe the veins of lower limb. Explain applied anatomy of the veins of lower limb.		
82	Veins of lower limb II	Explain the factors helping venous return of lower limb. Describe the veins of lower limb. Explain applied anatomy of the veins of lower limb.		
83	Revision	Define inversion and eversion of foot . Enumerate the joints at which the inversion and eversion of foot occurs. Describe axis of movement inversion and eversion of foot. Describe the muscles producing	Describe range of movement of inversion and eversion of foot	

		inversion and eversion of foot . Describe ankle joint under 1. Classification 2. Articular surfaces 3. Capsule 4. ligaments 5. Relations 6. Blood supply 7. Nerve supply 8. movements Explain the Applied anatomy of Ankle joint		
	Thorax			
84	Introduction – Thorax	Enumerate the boundaries of Thorax. Enumerate the bones forming thoracic cage . Understand the inlet and outlet and contents of thoracic cavity.		
85	Intercostal Spaces	Differentiate the typical and atypical intercostal spaces. Know the contents of the space – muscles, vessels and nerves. Understand the course of typical intercostal nerve. Enumerate points of Applied anatomy.		
86	Lung – Bronchopulmonary Segment	Understand mediastinal and vertebral surface of lung. Know the structures relate to mediastinal surface of right and left lung. Know the structures at root of the Lung. Understand the anatomy of Bronchopulmonary segments. Enumerate points of Applied Importance.		
87	Mediastinum-I	Understand the division of Mediastinum. Know the boundaries of superior Mediastinum. Enumerate the contents of sup. Mediastinum. Know the gross anatomy of arch of Aorta.		
88	Mediastinum- II	Understand the boundaries of and contents of middle mediastinum. Understand the layers of Pericardium. Know about pericardial sinuses. Enumerate points of applied		

		Importance.		
89	Mediastinum-III	Understand the boundaries and contents of posterior mediastinum. Know the gross anatomy of 1. Oesophagus 2. Thoracic duct 3. Azygosvenous system		
90	Heart – Blood Supply	Understand Arterial supply of Heart. Understand Venous drainage of Heart. Know the variation of blood Vessels.		
91	Heart-Interior	Know about the dominance of Heart. Describe the interior of all the chambers of Heart. Enumerate points of Applied Anatomy.		
92	Revision	Describe the boundaries and contents of the thoracic cavity. Arrangement and functions of Pleura.		
	<u>Abdomen</u>			
93	Ist Mid-term Paper discussion	Understand the proper answer writing in theory paper. Understand the mistakes by them in the I midterm examination.		
94	Introduction – Abdomen,	Boundaries and walls of abdomen. Explain the general arrangement of the organ systems in abdomen.		
95	Anterior abdominal wall	Enumerate different landmarks of anterior abdominal wall. Draw and define the different planes of abdomen. Name different quadrants of Abdomen. Give the importance of abdominal Quadrants. Name the different layers of abdominal wall.		
96	Rectus Sheath / Abdomen	Define the rectus sheath. Explain the development of rectus Sheath. Give the contents and importance of rectus sheath.		
97	Anterior abdominal wall-applied	Describe the applied anatomy of anterior abdominal wall. Enumerate the applied anatomy of Rectus sheath. Understand the principles of surgical		

		incisions through anterior abdominal wall.		
98	Inguinal canal I	Define inguinal canal. Give the boundaries of inguinal canal. Name the contents of inguinal canal.		
99	Inguinal canal II	Name the factors which maintain the integrity of inguinal canal. Define inguinal hernia. Name the different types of hernia. Enumerate the other points of applied anatomy.		
100	Peritoneum I	Define peritoneum. Name the layers of peritoneum. Functions of peritoneum.		
101	Peritoneum II	Formation and composition of Peritoneal fluid. Circulation of peritoneal fluid.		
102	Peritoneum III	Define lesser sac and greater sac. Define mesentery and its attachment. Define peritoneal recesses. Explain different peritoneal Compartments. Enumerate all points of applied anatomy of peritoneum.		
103	Stomach	Give the functions of stomach. Name the parts and surfaces of stomach. Give relations- peritoneal and visceral . Describe the interior of stomach. Describe the blood supply of stomach (arteries & veins).		
104	Stomach	Give the nerve supply of stomach. Describe the lymphatic drainage of Stomach. Describe the points of applied Anatomy.		
105	Duodenum	Describe duodenum under 1. Length 2. Situation 3. Parts 4. Functions 5. Interior 6. Relations 7. Blood supply		
106	Duodenum/ Pancreas	Describe second part of duodenum in detail. Enumerate the points of applied anatomy of duodenum.		
107	Pancreas I	Classify pancreas as a gland. Describe pancreas under 1. Situation 2. Extent		

		3. Parts		
108	Pancreas II	Describe pancreas under 1. Peritoneal relations 2. Relations of all parts of pancreas 3. Blood supply 4. Duct system of pancreas Describe the points of applied anatomy		
109	EHBS I	Name the parts of EHBS. Describe the gall bladder under 1. Situation 2. Extent 3. Parts 4. Peritoneal relations 5. Visceral relations 6. Blood supply 7. Applied anatomy of EHBS		
110	EHBS II	Functional anatomy of EHBS. Describe the applied anatomy of EHBS.		
111	Portal vein	Describe the portal vein under 1. Formation 2. Function 3. Length 4. Relations 5. Tributaries & branches 6. Applied anatomy		
112	Pelvic diaphragm	Describe pelvic diaphragm under 1. Formation 2. Function 3. Relations 4. Applied anatomy		
113	Perineum I	Describe arrangement of fasciae of Perineum. Formation of perineal pouches.		
114	Perineum II	Know the boundaries & extent of perineal pouches. Contents of perineal pouches. Applied anatomy.		
115	Urinary bladder I	Describe the urinary bladder under the following 1. Introduction 2. Situation 3. Surfaces 4. borders 5. Relations-Peritoneal & Visceral		
116	Urinary bladder- II	Interior ,Nerve supply in details Blood supply, Applied anatomy.		

117	Prostate	Know the Prostate under 1. Situation 2. Size 3. Shape 4. Surfaces 5. Lobes 6. Relations 7. Capsules 8. Blood supply 9. Intra-glandular structures 10. Age changes of prostate 11. Applied anatomy		
118	Ischio anal fossa	Know the Ischio anal fossa under 1. Definition 2. Situation 3. Boundaries 4. Walls 5. Parts 6. Contents of both parts 7. Recesses 8. Applied anatomy		
119	Uterus	Know the uterus under 1. Parts 2. Size, Shape 3. Antiflexion & antiversion 4. Relations-Peritoneal and visceral 5. Blood supply 6. Supports in details 7. Applied anatomy Know the fallopian tube under 1. Functions 2. Parts 3. Peritoneal relations 4. Applied anatomy of		
120	Revision	Describe the gross anatomy of all the intra-abdominal organs. Arrangement of peritoneum. Blood vessels of abdomen. Applied anatomy of all the abdominal Contents.		

<u>Anatomy- Lectures - Semester II</u>				
Sr. No.	Topic Head,neck	At the end of teaching-learning session the students will be able to-		
		<u>Must know</u>	<u>Desirable to know</u>	<u>Nice to know</u>
1	Paper discussion, Intro. HFN, Scalp	Have an insight of the region. Understand the overall view, plan and schedule of dissection, topics covered and examination pattern of questions.		

2	Face	Describe the blood supply and nerve supply of face. Name the muscles of face. List the layers of scalp. Explain blood supply, lymphatic drainage and nerve supply of scalp. Specify the application of the knowledge of scalp.		
3	Deep Cervical Fascia	Enumerate the layers of deep cervical fascia. Explain the arrangement, modification and attachments of deep cervical fascia. Discuss the applied anatomy of deep cervical fascia. Draw and label appropriate diagrams of the layers of deep cervical fascia.		
4	Triangles of Neck	Classify the triangles of the neck. Describe the boundaries of the Triangles. Enumerate the contents of each Triangles. Draw appropriate diagrams.		
5	Meninges I	Enumerate the names of the meninges. Explain the arrangement, modifications and folds of cerebral dura mater. Differentiate between cranial and Spinal dura mater.		
6	Meninges II	Explain the blood supply and nerve supply of the cranial dura mater. Discuss the applied anatomy of dura Mater.		
7	Intracranial venous sinuses	Enumerate and classify dural venous Sinuses. Explain the relations, tributaries and draining channels of dural venous sinuses. Discuss the factors helping expulsion of blood from the dural venous sinuses. Discuss the applied anatomy of the dural venous sinuses. Draw and label the appropriate diagrams of the dural venous sinuses.		
8	Thyroid Gland	Describe thyroid gland under 1. Classification 2. Situation 3. Extent		

		4. Capsules 5. Relations 6. Blood supply, 7. lymphatic drainage 8. function Discuss the applied anatomy of the thyroid gland.		
9	Eyeball Muscles I	List the contents of the orbit. Describe the orbital and bulbar Fascia. Enumerate the extra ocular muscles. Describe the attachments and nerve supply of extra ocular muscles.		
10	Eyeball Muscles II	Describe the movements of extra ocular muscles. Define the axes of movements of Eyeball. Discuss the applied anatomy of movements of the eyeball.		
11	Parotid Gland	Describe parotid gland under 1. Classification 2. Situation 3. Extent 4. Capsules 5. relations 6. Blood supply 7. Nerve supply Describe duct of the parotid gland. Discuss the applied anatomy of the parotid gland.		
12	Infratempo ral region	Define the infratemporal region. Enumerate communications of the infratemporal region.		
13	Muscles of Mastication	Define and enumerate the muscles of Mastication. Describe the attachments and nerve supply of the muscles of mastication Explain the actions of the muscles of Mastication. Discuss the applied anatomy of the muscles of mastication. Draw and label necessary diagrams.		
14	Infratempo ral fossa	Describe the boundaries of infratemporal fossa. List the contents of Infratemporal fossa and explain their relation.		
15	T.M.Joint	Define the origin, course, relations and branches of the mandibular nerve. List the structures supplied by the mandibular nerve.		

		Discuss the applied anatomy of mandibular nerve. Define and classify the temporomandibular joint Describe articular surfaces of the temporomandibular joint. Describe articular disc of the temporomandibular joint. Describe ligaments of the temporomandibular joint. Describe relations, blood supply and nerve supply of the T-M joint. Define and discuss the movements of the T-M joint. Describe the muscles producing the movements of T-M joint . Explain applied anatomy of the temporomandibular joint.		
16	Pharynx	Define the extent boundaries and parts of the Pharynx. Explain the features of naso pharynx in detail. Enumerate and describe the muscles of pharynx with diagrams. Describe the nerve supply of pharynx and co-relate applied anatomy of its muscles. Describe the blood supply and lymphatic drainage of pharynx . Will be able to explain the application of the knowledge of all three parts of pharynx.		
17	Larynx	Identify Laryngeal cartilages, Rima glottis, vocal cords. Know about intrinsic muscles of the larynx with their ,attachments, Actions, nerve supply. Laryngoscopy and applied anatomy of larynx.		
18	Nasal cavity	Give the blood supply and nerve supply of– 1. Nasal septum, 2. Lateral wall of nose 3. Paranasal air sinuses Identify the openings of all Paranasal air sinuses. Applied anatomy of nasal cavity.		
19	Tongue I	Describe external features of the Tongue. Define oral and pharyngeal parts of the tongue.		

		Describe papillae of the tongue.		
20	Tongue II	Enumerate and describe intrinsic and extrinsic muscles of the tongue. Describe blood supply and lymphatic drainage of the tongue. Co-relate sensory and motor nerve supply of the tongue. Discuss applied importance of the Tongue.		
21	Palate	Classify palate into hard and soft Palate. Enumerate the functions of soft Palate. Describe the surfaces, borders and structure of soft palate. List the muscles of soft palate and describe their attachments and nerve supply. Explain the blood supply, lymphatic drainage and nerve supply of soft palate Discuss movements of soft palate. Discuss the applied anatomy of soft Palate.		
	Brain			
22	Introduction	Stages of formation of neural tube. Fate and derivatives of neural tube. Formation, fate and derivatives of neural crest. Draw and label the diagram of neural tube. Draw and label the diagram of neural crest.		
23	Spinal cord – Gross	Development of spinal cord Blood supply of spinal cord. Ascending and descending pathways Dorsal root ganglion. Laminae (alar and basal) and their Derivatives. Distribution and arrangement of gray and white mater at different levels.		
24	Brainstem- Nuclei	Describe development position and connections of nuclei of brainstem. Explain formation of new pathways in brainstem. Understand the functional components of cranial nerves (III to XII).		
25	Brainstem I- Medulla Oblongata	Draw and label sections of medulla at the level of 1. Pyramidal decussation		

		2. Sensory decussation 3. Floor of fourth ventricle Describe the sensory and motor nuclei of medulla. Explain formation and relation of fourth ventricle.		
26	Brainstem I - Pons	Draw and label section of the Pons at Upper level & Lower level. Explain the formation and branches of basilar artery. Describe the nuclei of Pons. Trace the auditory pathway.		
27	Brainstem II - Midbrain	Draw and label sections of midbrain at the level of superior colliculi & Inferior colliculi Locate midbrain nuclei Explain connections of red nucleus Explain connections of substantia Nigra.		
28	Cranial nerves I	Understand and explain functional components of the cranial nerves.		
29	Cranial Nerves II	Understand and explain origin, course, relations and distribution of the cranial nerves.		
30	Cranial Nerves III	Discuss applications of knowledge of the cranial nerves.		
31	Brain-Development	Explain the development of brain. Explain the external features, subdivisions and morphological and functional subdivisions of brain.		
32	Cerebrum – Surfaces, Functional Areas	Describe the lobes of brain. Describe the lobes functional areas of brain. Describe the nuclei.		
33	White matter – I- Int. Capsule	Describe the development of third Ventricle. Describe boundaries, communications, recesses and applied anatomy of the third ventricle. Classify white matter of cerebrum. Describe the internal capsule under Parts, formation, fibers passing relations, blood supply. Explain the applied anatomy of internal capsule.		
34	White matter –II- Corpus callosum	Explain the development of Cerebrum. Describe parts and fibers of corpus Callosum. List the parts of brain connected by		

		Corpus callosum. Explain the functional significance of corpus callosum.		
35	Lateral Ventricle	Define and describe the parts of lateral ventricle. Define the boundaries of central parts of lateral ventricle. Define the boundaries of anterior horn of lateral ventricle. Define the boundaries of posterior horn of lateral ventricle. Define the boundaries of inferior horn of lateral ventricle. Define the choroid fissure. Discuss the applied anatomy of lateral ventricle.		
36	Fourth Ventricle	Define and describe the parts of fourth ventricle. Define the boundaries of fourth Ventricle. Describe the floor of fourth ventricle.		
37	Cerebellum	Explain the development of Cerebellum. Explain the external features, subdivisions and morphological and functional subdivisions of cerebellum. Describe the connections and peduncles of cerebellum. Describe the nuclei of cerebellum. Describe the functions of cerebellum Explain the applied anatomy of Cerebellum.		
38	Choroid plexus, Circle of Willis, Basal nuclei	Formation and function of choroid Plexus. Formation and branches of Circle of Willis. Enumerate the Basal nuclei and give their connections and functions.		
39	Revision-Brain	Sulci and gyri of all surfaces of brain. Boundaries of ventricles. White matter of brain.		
	<u>Embryology</u>			
40	Branchial Apparatus I	Explain the rearrangement and adaptation of gills in human. Explain the formation of pharyngeal Arches. List the components of pharyngeal Arches.		

		Name the pharyngeal arches. Explain the fate of various components of pharyngeal arches.		
41	Branchial Apparatus II	Define pharyngeal clefts, pouches and explain their fate. Explain the anomalies of head and neck originating during transformation of pharyngeal apparatus into adult structures.		
42	Development of Face	Enumerate the various components contributing to the formation of face. Explain the changes in development of face due to formation of organs of special senses. Co-relate the sensory and motor nerve supply of face. Discuss the anomalies of face.		
43	Development of Palate	Explain the separation of oral cavity from nasal cavity. Discuss the formation of primitive, secondary and definitive palate. Explain the origin of muscles of soft palate and co-relate their nerve supply. Apply the knowledge to understand the basis of cleft palate .		
44	Development of Tongue	Explain the development of oral and pharyngeal part of the tongue. Explain the origin of muscles of the Tongue. Co-relate the sensory and motor nerve supply of tongue.		
45	Development of Thyroid, Eye, Ear	Discuss the organogenesis and histogenesis of thyroid gland. Discuss the anomalies of tongue and thyroid gland. Explain the development of pinna and external acoustic meatus. To explain the anomalies of pinna and external acoustic meatus. To explain the development of auditory tube, middle ear cavity, ear ossicles and tympanic membrane. Explain the anomalies of ear. Explain the development of retina from two layers of optic cup and the pathology of retinal detachment. Explain the development of ciliary body and iris. Explain the development of optic nerve and its coverings.		

		Explain the development of central artery of retina. Explain the development of lens, cornea, vitreous humor and anterior chamber of eye. Explain the anomalies of eye.		
46	Development - N. Tube, N. Crest	Explain the formation and derivatives of neural tube. Development of neural crest. Derivatives of neural crest.		
47	Spinal cord	Explain the stages of formation of Spinal cord. Formation of the functional components of spinal cord. Developmental anomalies of spinal Cord.		
48	Brainstem	The formation of different parts of Brainstem. Development of the nuclei of Brainstem.		
49	Brainstem	Development of cerebellum. Development of ventricles of brain.		
50	Brain - Cerebrum	Development of cerebral hemispheres and lobes of brain. Development of sulci and gyri.		
51	Brain- Cerebrum	Development of basal nuclei. Development of lateral ventricle of Brain.		
52	Revision	Developmental anomalies of nervous System.		
	<u>Histology</u>			
53	Skin	Know the basic facts of skin Enumerate the layers of skin. Give the differences between thick skin and thin skin. Appendages of skin – sebaceous glands, sweat gland, hair follicle.		
54	Lip, Tongue, Tooth	Enumerate the parts of G.I.T. Know the lining epithelium of oral Cavity. Know the histological structure of lips, teeth, tongue.		
55	Salivary Glands	Know the Histological structure of Salivary glands-submandibular, parotid, sublingual.		
56	Thyroid, Parathyroid, Pituitary	Know about the histological features of thyroid, parathyroid and pituitary gland. Enumerate the cells of each gland Enumerate the hormones produced		

		by these glands. Know about the histological features of-adenohypophysis, neurohypophysis.		
57	Eye I	Enumerate the Gross features of eye ball Describe the 3 coats of eye ball Know about the Histological features of- Cornea, Eyelids , Lacrimal glands		
58	Eye II	Know about the histological features of, retina ,optic disc, macula, lens .		
59	Spinal cord, Nerve (T.S.), Ganglia	Know about the histological features of -spinal ganglion, sympathetic ganglion ,nerve T.S.		
60	Cortex- Cerebrum, Cerebellum	Know the layers of cerebrum. Enumerate the different types of neurons – pyramidal cells. Enumerate the layers of cerebellum. Enumerate the cells of cerebellum. Know about the parallel fibers Know about the cerebellar islands.		
61	Genetics I	Process of karyotyping. X & Y chromosomes. Barr body. Inheritance.		
62	Genetics II	Know the chromosomal aberrations. Down's syndrome. Turner's syndrome. Kline filter's syndrome.		
63	Revision – Limbs			
64	Revision - Trunk			
65	Revision – Head, Neck			
66	Revision - Brain			

<u>Anatomy- Dissection- Semester I</u>				
<u>Sr. no</u>	<u>Topic</u>	<u>SLOs</u>		
		<u>Must know</u>	<u>Desirable to know</u>	<u>Nice to know</u>
01	Upper limb /80 hours	Anatomical terms of position. Basic structure and functions of bones. Basic structure and functions of muscles. Formation of a typical spinal nerve.		

		Structure and functions of vessels. How to use the instruments and take the section. Types and stages of ossification. The parts and the surface landmarks of the upper limb. Extent of female breast. Demonstrate the muscles of pectoral region. Show the muscles forming the boundaries of axilla. Show the contents of axilla. Name the branches of brachial plexus. Name the branches of axillary artery Name the muscles of scapular region. Show the boundaries of triangular & quadrangular spaces. Enumerate the structures in these spaces. Show the muscles causing the movements of shoulder girdle and shoulder joint. Name the muscles of anterior aspect of arm. Show the muscles of posterior aspect of arm. Show the boundaries of cubital fossa. Demonstrate the contents of cubital fossa. Name and demonstrate the contents of cubital fossa Show the muscles of anterior compartment of fore-arm. Show the muscles of posterior compartment of fore-arm. Demonstrate the nerves and vessels of anterior compartment of fore-arm. Demonstrate the nerves and vessels of posterior compartment of forearm. Show the muscles of thenar and hypothenar eminences. Show the tendons of digits. Show the branches of median nerve Show the branches of ulnar nerve Demonstrate the lumbricals and Interossei muscles .		
02	Lower	Show the important landmarks of		

	limb/65 hours	thigh. Demonstrate the muscles forming boundaries of femoral triangle. Show the femoral nerve and its branches. Show the femoral artery and its branches Demonstrate the muscles of medial compartment of thigh. Show the obturator nerve and its branches. Show the muscles of gluteal region. Enumerate the structures deep to the muscle. Demonstrate the components of Hamstring group of muscles. Name the muscles forming Popliteal fossa. Name the contents of popliteal fossa Demonstrate the important landmarks of leg. Name the muscles of anterior compartment of leg. Show the muscles and vessels of posterior compartment of leg. Show the muscles of lateral compartment of leg. Demonstrate the tendons crossing front of the ankle joint. Demonstrate the course and termination of anterior tibial artery. Demonstrate the contents of the various layers of sole of foot.		
03	Thorax/35 hours	Demonstrate the important landmarks of the thoracic wall. Demonstrate the intercostal muscles. Demonstrate the course of intercostal nerves and vessels. Demonstrate the surfaces and borders of lung. Show the structures in the hilum and identify them. Identify the structures of anterior Mediastinum. Name and Show the pericardial Sinuses. Define the surfaces and borders of heart. Identify the chambers of heart. Identify the coronaries and its branches . Demonstrate all the vessels of		

		superior mediastinum. Show the course and termination of thoracic duct. Show the relations of oesophagus.		
04	Abdomen/ 100 hours	Demonstrate the important landmarks of the abdominal wall. Demonstrate the muscles of the abdominal wall. Show the structures in the inguinal canal. Identify the side ,surfaces and borders of testes. Demonstrate the different folds of peritoneum. Show surfaces, borders and relations of spleen. Show surfaces, borders, ends, relations of stomach. Identify the branches of coeliac trunk. Identify the parts of small intestine. Identify the large intestine and its parts. Show Surfaces, borders ,ends, relations of duodenum. Show the structures opening into the 2nd part of duodenum. Demonstrate the parts , surfaces, borders ,and relations of pancreas. Demonstrate the formation of portal vein. Show the lobes, surfaces, borders and relations of liver& gall bladder. Identify the-side, surfaces, borders, relations of kidney and suprarenal gland. Demonstrate the structures seen in coronal section of kidney. Demonstrate the origin and insertion of the respiratory diaphragm. Demonstrate the muscles of posterior abdominal wall. Show the abdominal aorta and its branches. Show the IVC and its tributaries. Identify the branches of lumbar plexus. Identify the internal iliac artery and its branches. Identify the muscles of pelvic diaphragm. Show the boundaries of perineum.		

		Enumerate the contents of superficial and deep perineal pouches. Identify the, surfaces,borders and relations of urinary bladder. Identify the, surfaces,borders and relations of uterus. Show the parts of fallopian tube. Identify the surfaces,borders and relations of rectum and anal canal.		

<u>Anatomy- Dissection- Semester II</u>				
<u>Sr. no</u>	<u>Topic</u>	<u>SLOs</u>		
		<u>Must know</u>	<u>Desirable to know</u>	<u>Nice to know</u>
01	Head, Neck/80 hours	Demonstrate the important landmarks of head , face and neck Demonstrate the layers of Scalp. Show the muscles of face. Identify the boundaries of posterior triangle of neck. Demonstrate the contents of posterior triangle of neck. Demonstrate the boundaries of suboccipital triangle. Identify the contents of suboccipital triangle. Identify the boundaries of anterior triangle of neck. Demonstrate the divisions of anterior triangle of neck. Show the contents of anterior triangle of neck. Show the different parts of meninges of brain. Demonstrate the various venous sinuses. Identify the thyroid gland and show the arteries supplying it. Show the relations of thyroid gland. Identify the external carotid artery and its branches. Identify the extra ocular muscles. Identify the nerves in the orbit. Identify the lacrimal gland. Demonstrate the surfaces, borders and relations of parotid gland. Identify the duct of parotid, and branches of facial nerve. Identify the temporalis. Identify the muscles of mastication.		

		Identify otic ganglion. Identify mandibular nerve and its branches. Identify the maxillary artery and its branches. Identify the submandibular gland and its duct. Identify the submandibular ganglion. Show the different parts of the pharynx. Identify the opening of the eustachian tube. Identify the palatine tonsil. Show the different meatuses of nose. Enumerate the structures opening in the meatuses. Show the cartilages of larynx. Show the vocal and vestibular folds in the interior of larynx. Identify the vallecula and pyriform fossa. Show the different parts of tongue. Identify the different muscles of tongue. Dissect middle ear cavity and show ear ossicles. Dissect and remove the spinal cord.		
02	Brain/70 hours	Demonstrate the coverings and different parts of the Spinal cord. Show the borders, surfaces, poles and lobes of the cerebrum. Show the sulci and gyri on superolateral surface of brain. Show the sulci and gyri on medial surface of brain. Show the sulci and gyri on inferior surface of brain. Identify the inter-peduncular fossa. Define its boundaries and contents Show the different parts of medulla oblongata. Identify the nerves emerging from medulla oblongata. Identify the basilar artery and its branches. Identify the nerves emerging from pons and midbrain. Identify the boundaries and the structures present in floor of 4th ventricle.		

		Show the structures seen in lateral wall of 3rd ventricle. Show the different parts of lateral ventricle. Identify the different fissures and lobes of the cerebellum. Identify the different parts of vermis. Show the dentate nucleus. Identify the different peduncles of cerebellum. Demonstrate the basal nuclei in the horizontal section of cerebrum. Identify all the parts dissected so far of the brain. To name the functions of these parts.		

<u>Anatomy- Tutorials - semester I</u>				
<u>Sr No.</u>	<u>Topic Tutorial</u>	<u>SLOs</u>		
		<u>Must know</u>	<u>Desirable to know</u>	<u>Nice to know</u>
01	Introduction	To know different anatomical terms of positions. To know the different planes. To know names of bones of upper limb and the names of joints formed by them.		
02	Clavicle	Classify type of bone. Functions of bone. Name the parts of bone and identify the side of bone. Enumerate peculiarities of clavicle.	Why clavicle is called a dermal bone?	
03	Clavicle	Name the muscles, ligaments attached. Enumerate sex differences. tell common site of fractures revision.		
04	Scapula	Classify type of bone. Name the parts and side of bone. Know the anatomical position. Show the primary and secondary ridges. Name the Muscles, ligaments attached.		
05	Scapula	Show the nerves, vessels related Name the joints formed & classify of them. Demonstrate the movements of scapula.		
06	Humerus	Classify type of bone.		

		Name the parts of bone and identify side of it. Show the anatomical neck. Show the surgical neck and give its Relations. Mention the importance of morphological neck. Show the bicipital groove, muscles attached to the lips and contents of the groove. Name the muscles attached lesser tubercle & greater tubercle . Show the deltoid tuberosity and muscle attached. Enumerate muscles attached to the shaft.		
07	Humerus	Show the capitulum, trochlea, coronoid fossa, olecranon fossa. Show the three nerves related. Show the common sites of fracture. Explain about carrying angle. Enumerate and classify the joints formed.	Angle of Humoral torsion Ligament of Struthers	
08	Radius	Classify type of bone. Determine the side. Name the joints formed by the bone. Show radial tuberosity , styloid process, dorsal tubercle of lister. Show the attachment of muscles and ligaments.		
09	Radius/Ulna	Enumerate the common site of fractures of radius. Classify the type of bone- ulna. Identify the side of ulna. Show three processes-coronoid ,olecranon ,trochlear notch and ulnar tuberosity. Muscles, ligaments attached to ulna.	Colle's fracture Smith's fracture	
10	Ulna	Name the joints formed by ulna and the movements at these joints. Enumerate the points of applied anatomy. Demonstrate the movements of pronation and supination.		
11	Articulated Hand	Identify the carpals. Identify the metacarpals and phalanges. Name the different joints formed. Enumerate the muscles attached.		Identify the side of carpal bones
12	X - rays	Know the basic principles of x ray Technique.		

13	X - rays	Identify all bones and their parts in the X ray.	To identify the age from the bone	
14	Revision	Identify all bones. Name important muscle attachments. Name all joints formed by all bones.		
15	Hip Bone I	Identify the side of hip bone and Parts. Anatomical position. Parts of ilium attachments of ilium. Parts of pubis with their attachments & relations. Identify parts of ischium & their attachments. Describe acetabulum.	Structures in right & left iliac fossa Posterior relations of body of pubis & superior ramus Relation of sciatic nerve to ischium Structures passing through acetabular notch	
16	Hip Bone II	Identify the Obturator foramen & tell its attachments. Enumerate structures passing through greater & lesser sciatic notches. Discuss sex differences of hip bone. Discuss the ossification of hip bone.		Attachment of falciform process to ischial rami
17	Femur	Identify the side of femur & anatomical position. Identify parts of upper end. Identify parts of shaft. Enumerate the attachments of upper end & shaft.	Mark the capsule of the hip joint. Growing end of femur.	
18	Femur	Identify the parts of lower end. Show the attachments of lower end. Tell the growing end of femur. Discuss the ossification of femur.	Blood supply of head & neck of femur Angle of femoral antversion Neck shaft angle	
19	Tibia	Identify the side of tibia and anatomical position. Identify parts of upper end attachments of upper end. Identify the parts of shaft & their Attachments. Relations at the lower end the bone. Name the joints formed & classify the joints formed.		
20	Tibia& Patella	Ossification of tibia. Identify the side of patella. Classify patella as a bone. Enumerate its attachments. Factors preventing its lateral displacement.	Attachment of tibial collateral ligament Attachment of patellar retinacula Q angle	Reasons for non union of fracture of tibia Patella alta Patella baja
21	Fibula	Identify the side & normal		Why the bone is

		anatomical position. Identify parts of bone. Tell the relation of the neck & lateral malleolus. Name the attachments all parts. Enumerate the functions of fibula. Discuss the ossification of fibula & explain how fibula violates the law of ossification.		so named? Discuss Pott's fracture
22	Foot , Ankle joint	Name the bones of skeleton of foot Identify the sides of talus & calcaneus. Enumerate ligaments attached to talus & calcaneus. Discuss the arches of foot Identify sustentaculum tali & tell its Attachments. Discuss the movements taking place at these joints. Tuberosity of navicular bone & its attachment. Attachments of the medial cuneiform. Show the joints involved in inversion & eversion movements.	Differences between metacarpals & metatarsals Formation, ligaments & movements at ankle joint Classify ankle joint	
23	X - Rays	Identify all bones and their parts in the X ray.	To identify the age from the bone.	
24	Revision	Identify all bones. Name important muscle attachments. Name all joints formed by all bones.		
25	Ribs	Identify the side of the rib & hold it in anatomical position. Classify ribs. Name the parts of the rib. Classify ribs. Articulation & movements of rib with thoracic vertebrae. Name the structures in costal groove in proper order. Identify 1st rib , 2nd , 10th , 11th' & 12th ribs give identifying features.	Mark the line of pleural reflection on 12th rib. Mark the attachment of serratus anterior to the ribs. Mark the attachment of diaphragm to the 12th rib.	Name the attachment to the posterior angle of the ribs. Give the superior relations of neck of 1st rib.
26	Sternum	Identify & classify the bone. Name the parts of the sternum. Name the articulations of manubrium. Name the posterior relations of manubrium. Discuss the significance of sternal angle. Mark the area related to pleura on	Name the attachments of xiphisternum. Classify all the articulations of sternum.	Ossification of sternum.

		posterior surface of body of sternum.		
27	Vertebral Column and Thoracic Vertebrae	Discuss the functions of vertebral column. Tell the number of vertebrae forming the vertebral column. Tell the number of vertebrae in each region. Discuss the curvatures of the vertebral column. Discuss the movements of the vertebral column. Identify thoracic vertebrae. Name the atypical thoracic vertebrae Discuss body, vertebral arch & vertebral foramen of thoracic vertebrae.	Classify vertebrae according to region and movement.	Explain the terms Scoliosis, Kyphosis Lordosis
28	Thoracic Vertebrae	Discuss the ossification of thoracic vertebrae. Mark neuro central junction. Identify 1st, 9th, 10th, 11th & 12 th thoracic vertebra.	Enumerate the structures passing through inter-vertebral foramen.	
29	X - rays	Identify all bones and their parts in the X ray.		
30	Lumbar Vertebrae	Identify features of lumbar vertebrae. Name the atypical and atypical lumbar vertebrae . Features of L5 vertebra. Attachment of the transverse process. Know the muscles attached to the body of the vertebrae. Name the structure passing through the lumbar vertebral canal.	Know about lumbar puncture.	
31	Sacrum	Parts & anatomical position of bone. Name the structures related to the ala and the pelvic surface of the sacrum. Name the content of sacral canal. Name the joints formed by the sacrum & classify them.	Know the differences between male & female sacrum. Sacralization of the first lumbar vertebra.	Define spondylolisthesis
32	Bony Pelvis - I	Formation of the bony pelvis. Joints of bony pelvis & classification. Know the anatomical position of the bony pelvis. Know the division of the bony pelvis.		
33	Bony Pelvis - II	Know the boundaries of the pelvic Inlet & pelvic outlet. Name the muscles forming the		

		pelvic diaphragm ? Name the pelvic visceral organ.		
34	Bony Pelvis - III	All planes of pelvimetry. Know the differences between male & female pelvis.		
35	Testis, Scrotum	Know the location and the side of the testis. Name the covering and blood supply of the testis. Know the functions of the testis. Know the path of descent of the testis. Name the abnormal position of the testis. Know the function of the epididymis. Enumerate the content of spermatic cord.	Know about vasectomy. Know about Hydrocele.	
36	Stomach	Name the parts of stomach Name the ligaments attached & different contents of ligaments. Describe interior of stomach Define stomach bed Anterior relations of stomach.	Know about vagotomy. Reason why gastric ulcer is more common along the lesser curvature.	
37	Duodenum and Pancreas	Name the part of duodenum. Tell the length of each part of duodenum. Tell the relations of duodenum with peritoneum. Blood supply of duodenum. Anterior relations of 1st & 2nd part of duodenum. Posterior relations of 1st & 2nd part of duodenum? Describe interior of duodenum Name the parts of pancreas. Classify pancreas as a gland. Anterior relations of head of pancreas. Posterior surface of neck of pancreas. Name the ligament which contain tail of pancreas .	Duodenal cap Name part of pancreas prone for cancerous growth. Splenectomy.	
38	Liver	Know the anatomical position of liver & lobes of liver . Classify liver as a gland. Name the factors which keep the liver in normal position Know the relation of right surface of liver.	Name the true & false ligaments of liver. Know about hepatomegaly.	

		Structures in portahepatis. Name the bare areas of liver. Name the various ligament attached to the liver. Know the blood supply of liver.		
39	Kidney	Identify the side of kidney. Name the relations of hilum , anterior surface and posterior surface of both the kidneys . Extent of hilum of the kidney. Describe the coronal section of kidney. Name the different covering of kidney Tell the length of ureter. Tell about the normal constrictions present in ureter.	Nephrectomy. Hydronephrosis	
40	Bony Pelvis - Revision			
41	Posterior Abdominal and Pelvic Wall	Abdominal aorta & its branches. Inferior vena cava & its tributaries. Know about cisterna chyli Formation & branches of lumbar plexus. Name the muscle of posterior abdominal wall. Lumbosacral plexus& branches . Name the muscle forming pelvic diaphragm. Name the branches of internal iliac artery.		
42	Urinary Bladder, Prostate	Name the surfaces & give the relations of all surface of urinary bladder. Name the peritoneal pouches in relation of urinary bladder. Identify features of male urinary bladder. Tell the capacity of urinary bladder. Describe interior of Urinary bladder Name of muscles of urinary bladder.		
43	Uterus, Ovary, Fallopian tube	Name the parts of Uterus. Tell the angle of anteversion and anteflexion. Name the peritoneal pouches in relation of uterus. Name the common site of implantation. Name the three layers of wall of uterus.	Prolapse of uterus. Hysterosalpingogra phy Hysterectomy. Tuboplasty Tubectomy	

		Enumerate the contents of broad ligament of uterus. Give the different factors which supports the uterus. Tell about Name the parts of fallopian tube Describe fallopian tube		
44	X - ray	Identify all bones and their parts in the X ray. Enumerate & describe all special radiological procedures. Barium swallow. Barium meal Barium Follow through. Pyelography. Hyterosalphingography,		
45	Revision			

<u>Anatomy- Tutorials - semester II</u>				
<u>Sr No.</u>	<u>Topic Tutorial</u>	<u>SLOs</u>		
		<u>Must know</u>	<u>Desirable to know</u>	<u>Nice to know</u>
01	Cervical Vertebrae	Identify Typical /Atypical vertebra. Identify parts of typical cervical vertebra with their attachment. structures passing through foramen transversarium. Costal and transverse element with costotransverse bar. Know the different attachments. Structures passing through vertebral foramen. Identify atypical cervical vertebrae & their attachments. Know the joints formed by atlas and their classification.		
02	Introduction to Skull, Norma Verticalis, Norma Occipitalis	Identify skull sutures, external occipital protuberance, nuchal lines, bregma, lambda. Identify and remember the attachments of mastoid process. Identify parietal foramen. Know fontanellae and their importance.		
03	Norma Frontalis	Nasal aperture. Supraorbital, infraorbital & mental foramina and structures passing through them. Zygomatic arch, molar eminence, canine fossa and nasion. Parts of maxilla.		

		Identify orbital margins.		
04	Norma Lateralis	Identify acoustic meatus, tympanic plate, styloid process, temporal, infra temporal fossa with muscles attach to them. Attachment of muscles of mastication. Identify mastoid process, suprameatal triangle and crest. Identify mandibular fossa and bones forming T-M joint with its classification. Identify and know importance of pterion. Know the attachments of zygomatic arch.		
05	Norma Basalis	Identify incisive fossa and posterior nasal spine with its attachments. Identify greater and lesser palatine foramina and structures passing through them. Remember attachment of posterior palatine margin. Identify foramen ovale, f. spinosum, f. lacerum and pterygoid canal with structures passing. Identify spine sphenoid, pterygoid plates and hamulus, scaphoid fossa and pharyngeal tubercle with their attachments.		
06	Norma Basalis	Identify the sulcus tubae. Identify carotid canal, jugular foramen and foramen magnum with structures passing. Remember the attachments and relations of spine of sphenoid. Identify mandibular fossa and petrotympanic fissure with structures passing through them. Remember boundaries and contents of infratemporal fossa. Identify occipital condyles and joint formed by it. Remember attachment of muscles of mastication. Classify temporo-mandibular joint and other joints of skull bones. Show styloid process, its relations and attachments.		
07	Interior of Skull	Identify crista galli, frontal crest, orbital plates, jugum sphenoidale,		

		lesser wing of sphenoid, anterior clinoid process and optic canal sella turcica, pituitary fossa and sulcus chiasmaticus with their relations. Know the attachment of anterior clinoid process and structures passing through optic canal. Identify sulcus for cavernous sinus and attachment of diaphragm sellae greater wing of sphenoid. Identify cavernous sinus, carotid canal and foramen lacerum with structures passing through them. Identify foramen ovale and spinosum with structures passing through them. Know trigeminal impression and its relations. Identify arcuate eminence and sulcus for superior petrosal sinus. Identify tegmen tympani, hiatus of lesser and greater petrosal nerves.		
08	Interior of Skull	Identify posterior clinoid process and clivus with its relations. Identify vermillion fossa, foramen magnum and structures passing through it. Identify internal occipital crest and protuberance. Identify sulci of transverse, sigmoid, sagittal and inferior petrosal venous sinuses. Identify jugular foramen, hypoglossal canal and structures passing through them. Identify internal acoustic meatus and structures passing through it.		
09	Mandible	Identify base, ramus, coronoid and condylar processes of mandible. Identify digastric, submandibular and sublingual fossae with their relations. Identify alveolar arch and dental formula. Identify mylohyoid line and its attachment. Know the nerves, vessels and salivary glands related to mandible. Know attachment of muscles of mastication and facial muscles. Identify mandibular canal, mental foramen and mandibular notch with		

		structures passing through them. Know the classification and ligaments of T-M joint. Know the ossification of mandible. Know the movements of mandible.		
10	Fetal Skull, Hyoid Bone	Name all sutures, classify them. Functions of sutures. Parts of hyoid bone. Attachments and development of hyoid.		
11	Section of Head and Neck	Identify parts of larynx, pharynx, tongue, palate, and nose.		
12	X-Rays	Identify all bones and their parts in the X ray. Know the special procedures like an various skull bones and para nasal air sinuses. Lateral View –Sella turcica, sphenoidal air cells, orbital plate, mastoid air cells and external acoustic meatus. Diploe, sutures and vascular markings. Various para nasal sinuses.	What is CT scan? What is MRI?	
13	Spinal cord and Meninges	Extent & length of spinal cord, Number of spinal nerves and spinal segments. Relations of spinal segments to vertebrae.	Syrigomyelia, tabes dorsalis, polio myelitis. Spinal cord injuries.	
14	Spinal cord and Meninges	Coverings of spinal cord, cauda equine. Blood supply of spinal cord. Major tracts and their locations. lumbar puncture.		
15	Brainstem – Medulla and Pons	Location and external features of brain stem. Anatomy of rhomboid fossa. fourth ventricle. Cranial nerve nuclei in medulla. Nerves attached to medulla. Pyramid, olive and cerebellar peduncles. Blood supply of medulla oblongata. Basilar part and tegmentum of pons. Pontine nuclei and their locations. Middle cerebellar peduncle. Blood supply of pons.	Coning of Medulla, Bulbar Paralysis. Lateral medullary syndrome, medial medullary syndrome. Pontine hemorrhage and its manifestations. Millard Gubler syndrome, Ponto cerebellar angle syndrome, Astrocytoma	
16	Brainstem	Location, shape and extent in	What is internal	

	– Midbrain, Fourth ventricle	relation to brain stem and cerebellum. Communications of fourth ventricle. Floor and roof of fourth ventricle. Choroid plexus and circulation of CSF. Location and external features. Pineal body. Internal features – Red nucleus, substantia nigra, aqueduct of sylvius. Tectum ,tegmentum and crus cerebri. Functions of superior and inferior colliculus. Superior cerebellar peduncle, Trochlear nerve and other cranial nerves attached to midbrain.	Hydrocephalus. Area postrema, & its significance. Weber’ Syndrome, Benedict’s Syndrome. Argyll Robertson pupil	
17	Sulci and gyri of brain, Superolateral surface of cerebrum	Surfaces and borders, lobes and poles. Major gyri and sulci. Classification of sulci. Important functional areas. Internal structure – grey and white matter. Various type of fibers in white matter. Internal capsule parts and blood supply. Corpus striatum. Blood supply of cerebral hemisphere.	Upper and lower motor neuron paralysis. Various types aphasia and areas involved. Functions of frontal lobes. Effects of damage to Visual cortex	
18	Third and lateral ventricles, white Matter of Cerebrum	Location, boundaries and extent of third ventricle. Communications of third ventricle. Inter thalamic adhesions. Various commissures near third ventricle. Pituitary gland.	Various recesses of third ventricle. Choroid plexus of third ventricle.	
19	Cerebellum	Location, fissures and lobes. Internal structure ‘ Arbor vitae’ Connections and cerebellar Peduncles. Intra cerebellar nuclei. Functions of cerebellum.	Arteries supplying cerebellum. Manifestations of cerebellar diseases Dysdiadochokineses. Archi,paleo and neo cerebellum	

IX. ASSESSMENT:

A) INTERNAL ASSESSMENT

Theory:

Maximum marks 20 are computed from maximum of 300 marks obtained in four written examinations and three viva voce as shown below-

Semester	Examination	Theory	Viva	Total
I	Mid semester	50	---	50
	Semester	50	20	70
II	Mid semester	50	10	60
	Preliminary	100	20	120
Total		250	50	300

Practical:

Maximum marks 20 are computed from maximum of 100 marks obtained in three practical examinations as shown below-

Semester	Examination	Practical	Total
I	Semester	40	40
II	Mid Term	20	20
II	Preliminary	40	40
Total			100

The student must secure at least 35% marks separately in theory and practical in internal assessment to be eligible to appear for the university examination.

Attendance:

75% of attendance in a subject for appearing in the examination is compulsory inclusive of attendance in non-lecture teaching .i.e. seminars, group discussions, tutorials, demonstrations and practical.

B) UNIVERSITY EXAMINATION

I. THEORY:

There will be two papers of 50 marks & of two hours duration each.

Pattern of Theory Paper: Out of 6 questions any 5 questions are to be attempted.

- Three Long Answer Questions (LAQs) :10 Marks each.
- Three Short Answer Questions (SAQs) :10 Marks each.

Paper wise distribution of Topics:

Paper – I

- Gross anatomy, Embryology, Histology and Applied anatomy of -Upper limb, Lower limb, Abdomen-Pelvis.
- General anatomy, General Embryology, General Histology, Genetics.

Paper – II

- Gross anatomy, Embryology, Histology and Applied anatomy of-Thorax, Head-Neck, Neuroanatomy.

II. PRACTICAL EXAMINATION:

	Marks
Practical Examination	
Bones	15
Specimens	15
Two Histology slides	10
Total Practical	40

	Marks
Viva (Embryology and Radiology)- Marks to be added to theory marks.	20

The candidate will be declared as passed in the subject only when he obtains 50% in aggregate with a minimum of 50% in Theory including viva and minimum of 50% in practicals.

III. Ist MBBS Final Examination :Theory

	Marks
Paper I	50
Paper II	50
Viva (Embryology and Radiology)	20
Internal assessment	20
Total Theory	140

Ist MBBS Final Examination :Practical

	Marks
Practical Examination (Bones-15,Specimens-15,Two Histology slides-10)	40
Internal assessment	20
Total Practical	60

X. SUGGESTED BOOKS FOR REFERENCE AND READING

READING-TEXTBOOKS

- 1) Cunningham's Manual of Practical Anatomy-Vol. I, II, III.
- 2) B.D.Chaurasia's Human Anatomy-Vol I, II, III, IV.
- 3) Functional Histology-Wheater, P. C.
- 4) Human Embryology-Inderbir Singh
- 5) Human Histology-Inderbir Singh
- 6) Textbook of clinical neuroanatomy-Vishram Singh

REFERENCE

- 1) Gray's Anatomy
- 2) Gray's Anatomy for students
- 3) Last's Anatomy: Regional and Applied
- 4) Clinical Anatomy for Medical Students-Richard Snell
- 5) Grant's Method of Anatomy
- 6) Clinical Neuro-anatomy-Richard Snell
- 7) Langman's Medical Embryology
- 8) The Developing Human-K.L.Moore

e-SITES-ANATOMY

- 1) www2.uclan.ac.uk
- 2) www.blausen.com
- 3) www.bio-alive.com
- 4) www.apchute.com
- 5) www.innerbody.com

BHARATI VIDYAPEETH DEEMED UNIVERSITY MEDICAL COLLEGE, PUNE

GENERAL FEATURES OF MBBS CURRICULUM REVIEW

DEPARTMENT OF BIOCHEMISTRY

I. GOAL:

To provide medical students the knowledge of basic and applied biochemistry in order to understand the basis of health and diseases and to implement good laboratory services for patient care.

II. OBJECTIVES:

a) Knowledge:

At the end of the course, the student should be able to: demonstrate his knowledge and understanding on the:

1. Structure, function and interrelationship of biomolecules (Carbohydrates, Lipids and Proteins) and consequences of deviation from normal; role of mitochondria in generating energy.
2. Basic and clinical aspects of enzymology and regulation of enzymatic activity;
3. Digestion and assimilation of nutrients and consequences of malnutrition;
4. Integration of the various aspects of metabolism, and their regulatory pathways;
5. Biochemical basis of inherited disorders and their associated sequelae;
6. Mechanisms involved in maintenance of body fluid and pH homeostasis;
7. Structure and functions of nucleotides, metabolism and nucleic acids DNA and RNA.
8. Molecular mechanisms of gene expression and regulation, the principles of genetic engineering and their application in medicine;
9. Biochemical basis of environmental health hazards; and biochemical basis of cancer and carcinogenesis, principles of metabolism, and detoxication of xenobiotics.
10. Principles of various conventional and specialized laboratory investigations and instrumentation, analysis and interpretation of a given data; the ability to suggest experiments to support theoretical concepts and clinical diagnosis.

b) Skills:

At the end of the course, the student should be able to

1. Make use of conventional techniques/ instruments to perform biochemical analysis relevant to clinical screening and diagnosis
2. Analyze and interpret investigative data
3. Demonstrate the skills of solving clinical problems and decision making.

c) Communication:

At the end of the course, the student should be able to explain the biochemical findings and its clinical correlation with the disease.

d)Integration:

At the end of the integrated teaching the student shall acquire an integrated knowledge of organ structure (Anatomy) and function and its regulatory mechanisms (Physiology) and deviation from normal function as judged by clinical examination and biochemical investigations (Biochemistry).

III) COMPETENCIES:

At the end of the course, the student will have the competencies:

1. To explain the chemistry and metabolism of biomolecules (e.g Carbohydrates, Lipids and Proteins) and their role in normal functioning of various cells and systems.
2. To understand how the abnormalities in these biomolecules can lead to deranged functions of the body, and altered biochemical profiles in various diseases.
3. To perform & interpret various biochemical tests to diagnose, assess and monitor the progression of various diseases.

IV) TEACHING SCHEDULE:

Total Teaching Hours: 240	
Didactic lectures	93 hrs
Practicals	70 hrs
Tutorials	30 hrs
Lecture and Demonstrations	08 hrs
Case Studies	10 hrs
Seminar & Quiz	02 hr
Written tests/Vivas/Integrated Teaching/Visit to Central Clinical Laboratory	27 hrs
Total	240 hrs

V) TEACHING-LEARNING METHODOLOGY:

1. Didactic lectures: Lectures are conducted to facilitate learning of terminology, principles and concepts.

2. Tutorials: They are conducted in the form of problem based small group discussions, questions-answer sessions, revision and reinforcement of difficult concepts in tutorial hours. The purpose is to inculcate skills of reasoning, meaningful approaches to learning and facilitate understanding of the subject.

3. Laboratory exercises: They are conducted in order to

- a) Substantiate and clarify theoretical concepts with experimental evidence
- b) To develop skills of performing basic biochemical tests important in clinical investigations
- c) To develop familiarity with biochemical laboratory instrumentations techniques.

They are in the form of:

- (1) Hands on Practical work
- (2) Demonstration
- (3) Analyses and interpretation of data
- (4) Discussions on the practicals with the help of clinical case studies.

VI) COURSE CONTENT:

A) Didactic Lectures: I Semester

1. Introduction to Biochemistry:

Sr No	Topic
1	Introduction to Biochemistry: Objectives. Scope. Relation to diseases use of biochemical tests as a diagnostic aid.

2. Carbohydrates: Chemistry & functions

Sr No	Topic
2	Definition, General importance and Classification.
3	Important properties, reactions and functions in relation to human body. A brief account of Monosaccharides
4	A brief account of Disaccharides(Lactose, Sucrose and Maltose) ,Properties and functions
5	A brief account of Polysaccharides: Homopolysaccharides and Heteropolysaccharides. Chemistry and Functions

3. Proteins :Chemistry & functions:

Sr No	Topic
6	Definition, General importance, Classification and Important properties. Reactions and functions of proteins.
7	A brief account of Proteins: Simple, Conjugated and Derived proteins
8	Classification of Amino acids. Biologically important free Peptides
9	Structural Organization of Protein Molecule: Primary and Secondary Importance of studying the structure
10	Structural Organization of Protein Molecule: Tertiary and Quaternary. Importance of studying the structure. Specialized Protein Collagen
11	Plasma proteins: Separation, Functions and Clinical Significance. Immunoglobulins

4. Lipids: Chemistry & functions:

Sr No	Topic
12	Definition, General importance, Classification of lipids and fatty acids
13	A brief account of Simple lipids e.g Triacylglycerol
14	A brief account of Complex lipids. e.g Phospholipids and Glycolipids
15	A brief account of Derived lipids. Cholesterol and Lipoproteins

5. Enzymes:

Sr No	Topic
16	Definition, classification, Specificity, Coenzymes and cofactors
17	Mechanism of Enzyme action
18	Factors affecting enzyme action.
19	Enzyme Inhibition: Competitive, Noncompetitive and Irreversible
20	Enzyme Inhibition: Competitive, Noncompetitive and Irreversible. Regulation of enzyme activity
21	Clinical Enzymology. (Diagnostic. Therapeutic and analytical applications) Isoenzymes and their diagnostic use.

6. Biological Oxidation:

Sr No	Topic
22	General concept of oxidation and reduction and importance. Electron transport chain : Organization in Mitochondria
23	Electron transport chain – Components, Sequence, role of enzymes and coenzymes.
24	Oxidative phosphorylation, inhibitors and uncouplers.
25	Substrate Level Phosphorylation, Shuttle mechanisms

7. Hemoglobin Chemistry and Metabolism:

Sr No	Topic
26	General importance of hemoproteins. Structure of heme and globin. Types of normal Hemoglobin
27	Functions of hemoglobin in details. Transport of O ₂ (Co-operativity), CO ₂ , and H ⁺ (Bohr's Effect)
28	Hemoglobin derivatives
29	Abnormal Hemoglobins: Hemoglobinopathies and Thalassemias
30	Heme synthesis and Catabolism
31	Bilirubin metabolism : Formation, transport and excretion
32	Jaundice: Classification, Etiology and Laboratory findings. Neonatal Jaundice

8. Liver Function:

Sr No	Topic
33	Functions of liver. Biochemical Tests commonly done to assess functions of liver

9. Detoxification

Sr No	Topic
34	Detoxification : Metabolism of Xenobiotics by oxidation, hydrolysis, conjugation

10. Mineral Metabolism

Sr No	Topic
35	Concept of Macro minerals and Trace elements. Study of calcium and Phosphorus: Sources, RDA, functions ,Factors affecting absorption,
36	Study of calcium and Phosphorus: Maintenance of their serum level, disorders
37	Study of Iron: Sources, RDA, functions ,Factors affecting absorption, transport , storage and disorders
38	Trace elements: Functions and Biochemical Importance

11. Radio isotopes:

Sr No	Topic
39	Definition, Applications and hazards

12. Carbohydrate Metabolism:

Sr No	Topic
40	Digestion and Absorption of carbohydrates
41	Glycolysis : Steps, Energetics and Regulation
42	TCA cycle : Steps ,Energetics, amphibolic role
43	Gluceneogenesis: Significance and Steps
44	Glycogen metabolism: Glycogenesis and Glycogenolysis and their regulation. Glycogen Storage diseases
45	Pentose phosphate Pathway: Steps, significance and G6PD deficiency
46	Uronic Acid pathway : Steps and Significance of Galactose Metabolism and Galactosemia, Metabolism of Fructose
47	Blood glucose level and its regulation, Glycosuria :Types

48	Diabetes Mellitus: Types metabolic derangements, complications, laboratory diagnosis and Glucose Tolerance Test

13.Lipid Metabolism

Sr No	Topic
49	Digestion and Absorption of lipids.
50	Oxidation of fatty acids: Alpha, Beta and Omega Beta Oxidation oxidation: Steps and Energetics
51	Biosynthesis of fatty acids in brief
52	Metabolism of Cholesterol: Synthesis, transport, Functions and Excretion. Atherosclerosis
53	Metabolism of ketone bodies. Ketosis
54	Fatty liver(Types, Biochemical Derangement and Lipotropic Factors)
55	Adipose tissue metabolism ,Prostaglandins (Functions and clinical applications)

14. Kidney Function Tests:

Sr No	Topic
56	Kidney: Functions of kidney, Tests to detect glomerular and tubular function.

• Didactic Lectures: II Semester

15. Protein Metabolism:

Sr No	Topic
57	Digestion and Absorption of proteins.
58	General Reactions of amino acids: Transamination, Deamination and decarboxylation
59	Formation and fates of ammonia and its toxicity. Urea cycle,
60	Fates of Glycine, Metabolism of Phenylalanine and Tyrosine and their Inborn Errors of Metabolism
61	Metabolism of Tryptophan and related disorders. Creatine metabolism
62	Metabolism of Sulfur containing amino acids.

16. Metabolic Interrelation & Starvation :

Sr No	Topic
63	Metabolic interrelations of carbohydrate, lipid and protein metabolisms at cellular and tissue level.
64	Metabolic changes during starvation.

17. Vitamins

Sr No	Topic
65	Definition and classification of vitamins Vitamin A: Sources, RDA, Active form, Metabolic Role
66	Vitamin A: Deficiency manifestations and Hypervitaminosis. Vitamin D: Sources, RDA, Active form, Metabolic role
67	Vitamin D: Deficiency manifestations Vitamin E : Sources, Active form and Biochemical Role
68	Vitamin K,C : Sources, Active form and Biochemical Role, Deficiency : Sources, Active form and Biochemical Role, Deficiency
69	Thiamine ,Riboflavin, Niacin: Sources, Active form and Biochemical Role, Deficiency
70	Vitamin B12 and Folic acid: Sources, Active form and Biochemical Role, Deficiency
71	Pyridoxine, Biotin, Pantothenic acid: Sources, Active form and Biochemical Role, Deficiency

18. Chemistry & Metabolism of Nucleic Acids:

Sr No	Topic
72	Chemistry of Purines, Pyrimidines, Biologically important free nucleotides. Synthetic nucleotide derivatives
73	Biosynthesis and catabolism purines nucleotides ,
74	Purine salvage pathway, Gout
75	Biosynthesis and Catabolism of pyrimidine in nucleotides
76	Structure and Function of DNA and RNA
77	DNA Replication and Transcription

19. Genetics:

Sr No	Topic
78	Genetic code, Mutations
79	Protein Biosynthesis: Requirements and Steps
80	Post transnational modifications and Inhibitors of protein biosynthesis
81	Molecular mechanisms of gene expression and regulation
82	Principles of genetic engineering and their application in medicine

20. Acid – base and water electrolyte balance and imbalance:

Sr No	Topic
83	Concept of pH and its importance, Normal blood pH, Role of blood buffers
84	Role of respiration and kidney in regulation of pH
85	Acidosis and Alkalosis
86	Body fluid distribution, regulation of water and electrolytes
87	Dehydration and Importance of Na, K

21. Environmental Biochemistry and Cancer:

Sr No	Topic
88	Environmental health hazards: Air and water pollutants
89	Biochemical basis of cancer, carcinogenesis, Tumour Markers

22. Free Radicals and Antioxidants in Health and disease:

Sr No	Topic
90	Definition of Free Radicals, ROS, Generation, Hazards, Antioxidants and Oxidative stress

23 Mechanism of Hormone action:

Sr No	Topic
91	General characteristics, classification of Hormones
92	Mechanism of hormone action

24. Thyroid Function Tests

Sr No	Topic
93	Biochemical test to assess thyroid function

B) Practicals:

Sr No	I Semester Practicals
1	Tests for Monosaccharaides
2	Tests for Disacharrides
3	Precipitation Reactions of proteins
4	Color Reactions of proteins
5	Revision Mono, Disacharrides Precipitation & color Reactions of proteins
6	Exam: Mono, Disacharrides, Precipitation & color Reactions of proteins
7	Estimation of Serum Proteins
8	Estimation of Serum Cholesterol
9	Estimation of Serum Bilirubin
10	Estimation of Serum Glutamate Pyruvate Transaminase (SGPT/ALT)
11	Estimation of Serum Glutamate Oxaloacetate Transaminase (SGOT/AST)
12	Revision: Estimation of Sr Proteins, cholesterol, SGPT, SGOT Bilirubin
13	Exam: Estimation of Sr Proteins, cholesterol, SGPT, SGOT Bilirubin
14	Estimation of Blood Glucose
15	Normal Organic Constituents of Urine:
16	Abnormal Constituents of urine I: Glucose and Ketone Bodies
17	Abnormal Constituents of urine II: Protein and Blood
18	Abnormal Constituents of urine III: Bile Salts and Bile Pigments
19	Revision: Normal Organic Constituents of Urine, Abnormal Urine I, II, III, Estimation of Blood Glucose,
20	Exam: Normal Organic Constituents of Urine, Abnormal Urine I, II, III, Estimation of Blood Glucose,
Sr No	II Semester Practicals
21	Estimation of serum alkaline phosphatase
22	Examination of CSF
23	Estimation of Blood Urea
24	Estimation of Serum Creatinine
25	Estimation of urine Creatinine and calculation of clearance
26	Revision: Examination of CSF, Estimation of Blood urea, Serum Creatinine, urine Creatinine and calculation of clearance, Estimation of serum alkaline phosphatase
27	Exam: Examination of CSF, Estimation of Blood urea, Serum Creatinine, urine Creatinine and calculation of clearance, Estimation of serum alkaline phosphatase
28	Estimation of Serum Calcium
29	Estimation of Serum inorganic Phosphorus

30	Estimation of Serum Uric acid
31	Revision: Estimation of Serum Calcium, Serum inorganic Phosphorus, Serum Uric acid
32	Exam: Estimation of Serum Calcium, Serum inorganic Phosphorus, Serum Uric acid
33	Revision Qualitative Experiments
34	Revision: Quantitative experiments
35	Journal Completion and Certification

C) Tutorials: 10

Sr No	I Semester Topics:
1	Chemistry of carbohydrates
2	Chemistry of Proteins and Plasma proteins
3	Chemistry of lipids
4	Enzymes
5	Biological Oxidation
6	Chemistry & Metabolism of Hemoglobin
7	Jaundice and Liver Function Tests
8	Mineral Metabolism
9	Carbohydrate Metabolism I: Digestion and absorption, Glycolysis, TCA cycle, Gluconeogenesis, Glycogen Metabolism
10	Carbohydrate Metabolism II: HMP shunt, Uronic acid Pathway, Metabolism of Galactose, Regulation of BGL, Glycosuria, Diabetes Mellitus, Glucose Tolerance test
Sr No	II Semester Topics
11	Lipid Metabolism I: Digestion and Absorption, Beta Oxidation, Fatty acid synthesis, Metabolism of Cholesterol
12	Lipid Metabolism II: Ketone body metabolism, Fatty liver and Prostaglandins
13	Protein Metabolism
14	Fat soluble vitamins
15	Water soluble vitamins
16	Chemistry & Metabolism of Nucleic Acids
17	Genetics
18	Acid base balance and imbalance
19	Water electrolyte balance and imbalance

20	Case studies

(D) Lecture Demonstration:

Sr No	I Semester Topics
1	Colorimetry : Principle, Working and applications
2	Electrophoresis: Principle, Working and applications
	II Semester Topics
3	Chromatography: Principle, Working and applications
4	Flame photometry: Principle, Working and applications

(E) Case Studies:

Sr No	Topic
	I Semester
1	Case Study: Clinical Enzymology
2	Case Study: Jaundice
3	Case Study: Mineral Metabolism
4	Case Study: Carbohydrate Metabolism
5	Case Study: Lipid Metabolism
	II Semester
6	Case Study: Vitamin Deficiency
7	Case Study: Protein Metabolism
8	Case Study: Nucleic acid Chemistry & Metabolism
9	Case Study: Acid Base balance and imbalance
10	Case Study: Water Electrolyte balance and imbalance

(F) Seminars:

Sr No	Topic
1	Depending upon the syllabus covered, every year topics of seminar are changed. Emphasis is given on topics with clinico biochemical relevance

(G) Quiz:

Sr No	Topic
1	As per the syllabus covered, topics are declared. Quiz is conducted as per following general pattern: i) MCQs, ii) Match the column, iii) Justify and Give Reason iv) Crossword v) Multiple true/false vi) Rapid Fire

(H) Written Tests/Vivas/Revision/Integrated Teaching:

- **List Of Topics And Contents For Integrated Teaching By Anatomy, Physiology And Biochemistry Department:-**

Sr. No.	Topic	Anatomy Department	Physiology Department	Biochemistry Department
1.	Liver	Gross, microscopic & developmental Anatomy	Functions of liver	Liver function tests
2.	Pancreas	Gross, microscopic & developmental Anatomy	Functions of endocrine pancreas (insulin & Glucagon)	Regulation of blood sugar level
3.	Kidney	Gross, microscopic & developmental Anatomy	Functions of kidney	Kidney function tests
4.	Thyroid	Gross, microscopic & developmental Anatomy	Functions of thyroid gland	Thyroid function tests

VII) SPECIFIC LEARNING OBJECTIVES (SLOS)

➤ **THEORY:** At the end of Teaching and Learning Session, the student must be able to:

Biochemistry - Lectures - Semester I				
Sr. No.	Topic Lectures	At the end of teaching-learning session the students will be able to-		
	Introduction to Biochemistry	Must know	Desirable to know	Nice to know
1	Introduction to Biochemistry	Understand the Objectives, Scope of medical biochemistry in relation to diseases. Explain the use of biochemical tests as a diagnostic aid	-----	-----
	Carbohydrate Chemistry	Must know	Desirable to know	Nice to know
2	Biomedical Importance and Classification of Carbohydrates	Discuss the biomedical importance, definition and classification of carbohydrates,	Explain what is meant by Glycemic index of carbohydrates	
3	Properties and Functions of Carbohydrates	Explain the physical and chemical Properties and functions of mono, di and polysaccharides		Enumerate Clinically important glycosides
4	Homopolysaccharides	Explain the definition and different types of homopolysaccharides and their physiological significance,	Describe chemistry and functions of Glycoproteins	
5	Heteropolysaccharides	Explain the definition, classification, composition and functions of different Heteropolysaccharides (GAGs)		
	Protein Chemistry	Must know	Desirable to know	Nice to know
6	Biomedical Importance and Classification of Proteins	Describe biomedical importance, definition and classification of proteins as per functional ,nutritional ,composition etc		
7	general reactions of Proteins		Explain the general reactions of Proteins and amino acids	
8	Biomedical Importance and Classification of amino acids	Explain the classification and properties of amino acids and biologically important peptides		

9	Protein Structure	Explain the different levels of organization of protein structure: a) Primary b) Secondary c) Tertiary d) Quaternary and different bonds stabilizing		
10	Importance of Protein structure	Emphasize the importance of studying protein structure	Discuss specialized proteins like collagen	
11	Plasma Proteins	Describe the methods of separation, functions (in detail) of plasma proteins. Describe the structure, types and functions of Immunoglobulins		Explain the etiology and biochemical derangement in hyper and hypoproteinemia .
	Lipid Chemistry	Must know	Desirable to know	Nice to know
12	Biomedical Importance and Classification of Lipids	Describe biomedical importance, definition and classification of lipids	Explain the different ways of classification of Fatty Acids. Explain the clinical importance of essential fatty acids	
13	Properties of Lipids	Discuss properties and functions of fatty acids, triglycerides and waxes		
14	Phospholipids	Explain compound lipids such as Phospholipids : Composition, Classification and Functions	Explain the types and functions of glycolipids	
15	Lipoproteins	Explain Lipoproteins: Structure, Composition, Classification, Functions, Methods of Separation To know the chemistry, Structural features, transport, Functions of cholesterol		Understand amphipathic lipids and their applications
	Enzymes	Must know	Desirable to know	Nice to know
16	Introduction to Enzymes and Co enzymes	Define and classify (IUBMB) classification enzymes with suitable examples		Define coenzymes with examples To know the concept of cofactors with examples

17	Mechanism of enzymes action	Explain Mechanism of enzymes action: Concept of Active site, Models of ES complex formation, Activation energy	Explain Enzyme specificity with examples To Explain enzyme catalysis mechanisms	
18	Factors affecting enzyme activity	Enumerate the factors affecting enzyme activity and explain how they affect the activity		
19	Enzyme Inhibition	Discuss competitive inhibition of enzymes with suitable examples and their clinical importance		
20	Enzyme Inhibition	Discuss Non competitive, Irreversible competitive inhibition of enzymes with suitable examples and their clinical importance	Explain Regulation of enzyme activity	
21	Clinical Enzymology	Enumerate enzymes with diagnostic, therapeutic and analytical applications. Define isoenzymes, their formation and clinical importance with suitable examples	Explain what is clinical enzymology?	Deduce the difference between plasma functional and nonfunctional enzymes
	Biological Oxidation	Must know	Desirable to know	Nice to know
22	Organization of Electron Transport Chain	Define biological oxidation and Electron Transport chain Describe the double membrane structure of mitochondria .Explain the functioning of ETC	Explain the concept of Redox Potential which explains the direction of flow of electrons thorough ETC	
23	Components of Electron Transport Chain	Describe the arrangement, composition of complexes and carriers of ETC which help in flow of electrons		Explain the concept of P:O ratio in ATP synthesis
24	Oxidative Phosphorylation	Explain mechanism of oxidative phosphorylation by chemiosmotic hypothesis	Define substrate level phosphorylation with suitable examples Explain mechanism of oxidative phosphorylation by chemical and conformational coupling hypothesis	
25	Inhibitors of Electron Transport Chain	Enumerate the inhibitors of electron transport chain and oxidative phosphorylation		Explain the mechanism of oxidation of extramitochondrial NADH through various

				shuttles Discuss the role of brown adipose tissue in thermogenesis
	Hb Chemistry and Metabolism	Must know	Desirable to know	Nice to know
26	Chemistry and structure of hemoglobin	Discuss the chemistry, structure & types of hemoglobin.	Explain chemistry, structure and clinical importance of myoglobin	
27	Function of Hemoglobin	Describe in detail the role of hemoglobin in transport of O ₂ , CO ₂ , and H ⁺ Explain the structure function relationship		
28	Derivatives of hemoglobin	To learn the different derivatives of hemoglobin like Glycated Hemoglobin, Methemoglobin		
29	Abnormal hemoglobins	Explain the formation of abnormal hemoglobins at molecular level. To explain in detail HbS and Thalasemia	Explain the abnormal hemoglobins like HbM	Describe abnormal hemoglobins like Hb Tak and Hb Gun Hill
30	Metabolism Of hemoglobin	Explain the synthesis and breakdown of Hb.		To know various types of porphyrias
31	Metabolism Of hemoglobin	Explain the fate of bilirubin: a) Hepatic Uptake b) Conjugation c) Secretion in bile Explain formation of urobilinogen in intestine and its fates as a) Enterohepatic circulation b) Excretion thro urine(Urobilin) c) Excretion thro faces (Stercobilin)		
32	Jaundice	To classify jaundice as: a) Prehepatic/Hemolytic b) Hepatic/Hepatocellular c) Post Hepatic/Obstructive ,their etiology and laboratory tests for their differential diagnosis	Describe the pathophysiology of neonatal jaundice	Explain the Gilbert, Crigler Najjar and Dubin Johnson syndrome
	Liver Function Tests	Must know	Desirable to know	Nice to know
33	Liver Function Tests	Discuss the need for liver function tests Classify liver function tests based		Discuss the newer techniques for

		on functions of liver Excretory Function: Based on Enzyme assays: Test Based on Synthetic Function Tests Based on Detoxification		assessing Liver Function like USG,CT Scan, PET Scan and MRI
	Detoxification	Must know	Desirable to know	Nice to know
34	Detoxification	Explain Two general phases of xenobiotics metabolism. Phase I involving mainly hydroxylation and phase II conjugation reactions with examples.	Describe different types of exogenous and endogenous compounds to be detoxified	
	Mineral Metabolism	Must know	Desirable to know	Nice to know
35	Introduction to Minerals and Metabolism of Calcium and Phosphorus	Classify minerals based on daily requirement as Macro elements and Trace Elements Describe the metabolism of Calcium, Phosphorus under following points a)Sources b)RDA c) Biochemical functions	Discuss role of minerals in human life	
36	Metabolism of Calcium and Phosphorus	Explain Metabolism of Calcium and Phosphorus under following points: Factors affecting absorption Regulation of their serum levels Deficiency diseases/Toxicity		
37	Metabolism of Iron	Describe the metabolism of Iron under following points a)Sources b)RDA c) Biochemical functions d)Factors affecting absorption. e) Regulation of their blood levels f) Deficiency diseases/Toxicity		
38	Trace Elements	Explain trace elements like Iodine, Selenium, under following points a)Sources c) Biochemical functions f) Deficiency diseases/Toxicity	Explain trace elements like Zinc, Copper, fluorine, Magnesium under following points a)Sources c) Biochemical functions f) Deficiency diseases/Toxicity	
	Radioisotopes	Must know	Desirable to know	Nice to know
39	Radioisotopes	Enumerate and explain Applications of radioisotopes:	Explain the Structure of atom	Explain the concept of

		Diagnostic, Therapeutic, Experimental. Explain Radiation hazards: Immediate and delayed	Define Isotopes, Radioactivity, Half life. Enumerate different Types of radiation	Radiation safety
	Carbohydrate Metabolism	Must know	Desirable to know	Nice to know
40	Digestion and absorption of carbohydrates	Explain the utilization of glucose by various pathways	Describe the process of digestion and absorption of carbohydrates Explain the biochemical basis of disorders of digestion like Lactose Intolerance	Discuss the uptake of glucose by the cells via various Glucose Transporters
41	Glycolysis	Describe Glycolysis as: Definition, Steps, Energetics, Special features of glycolysis in RBCs		Discuss regulation of glycolysis
42	Tricarboxylic Acid (TCA) cycle	Describe the TCA cycle as: Steps, Energetics, Significance (Amphibolic role)		Explain the anaplerotic reaction of TCA cycle.
43	Gluconeogenesis	Describe Gluconeogenesis: Definition, significance and pathway	Explain the importance of Cori's and glucose alanine cycle	
44	Glycogen metabolism		Explain the definition, steps of Glycogenesis and Glycogenolysis. Glycogen Metabolism	To explain the regulation of glycogen metabolism and types of Glycogen storage disorders.
45	Hexose monophosphate (HMP) Shunt	Explain the significance of HMP shunt. Explain the consequences of genetic defects of G6PD deficiency	Delineate the steps of HMP Shunt	
46	Metabolism of Galactose and Fructose, Uronic acid pathway	Explain the metabolism of Galactose in brief and genetic disorder such as Galactosemia	Explain the steps and significance of uronic acid pathway	Explain importance of fructose metabolism in short

47	Regulation of blood glucose	Explain Regulation of blood glucose level under the following headings i) Importance ii) Role of Diet, liver, muscle, kidney and Hormones	Describe different types of glycosuria	
48	Diabetes mellitus (DM)	Explain Diabetes mellitus under following heading Definition (WHO Criteria) Symptoms, Types Metabolic derangements in carbohydrate, lipid and protein metabolism. Complications: Acute, Chronic and their biochemical basis	Explain Laboratory Investigations for diagnosis and monitoring of DM (Role of HbA1C) Explain the procedure and Interpretation of Glucose Tolerance Test(GTT)	Explain consequences and causes of Hypoglycemia.
	Lipid Metabolism	Must know	Desirable to know	Nice to know
49	Digestion and absorption of Lipids	Describe the process of digestion and absorption i) Emulsification and role of Role of Bile Salts ii) Role of Pancreatic Lipase iii) Formation of Chylomicrons	Explain Transport of lipids via lipoproteins	
50	Oxidation of Fatty Acids	Describe various ways of oxidation of fatty acids: a)Beta oxidation : Definition, Role of carnitine, Steps and energetics.		Explain other ways of oxidation of fatty acids such as alpha and omega oxidation
51	Denovo Synthesis of Fatty Acids.	Discuss the Denovo Synthesis of Fatty Acids.		
52	Metabolism of Cholesterol and Atherosclerosis	Discuss in detail i)synthesis, ii)transport, iii) excretion iv)Functions of cholesterol v)Hypercholesterolemia: Etiology Describe Atherosclerosis: Definition Pathogenesis, Risk Factors and Prevention		
53	Metabolism of Ketone Bodies	Explain the process of Ketogenesis, Ketolysis Discuss understand the biochemical basis, causes and features of ketosis		Discuss the Regulation Ketogenesis
54	Fatty liver	Explain the definition, Types and causes of Fatty liver	Explain the role of lipotropic factors	

55	Prostaglandins	Describe the Synthesis, Functions and Pharmacological Applications of Prostaglandins	Discuss the metabolism of adipose tissue	
	Kidney Function Tests	Must know	Desirable to know	Nice to know
56	Kidney Function Tests	Discuss the functions of kidney and need for kidney function tests Explain the clearance tests (Creatinine, Urea and Inulin Clearance) done to assess glomerular function with advantage and disadvantages of each. Explain the tests done to assess tubular function (Concentration and Dilution tests)	Explain the tests done to assess renal plasma flow. (Diodrast clearance, Para Amino Hippurate) excretion test	-----
	Protein Metabolism	Must know	Desirable to know	Nice to know
57	Digestion and absorption of proteins and Nitrogen Balance	Discuss the process of digestion and absorption of proteins. Explain nitrogen balance. Enumerate clinical conditions causing positive and negative nitrogen balance	Discuss importance of body amino acid pool	Explain the role of Gamma Glutamyl cycle in absorption of amino acids.
58	General Reactions of Amino acids	Describe the general reactions of amino acids with examples such as: a), Transamination, b) Deamination c) Transdeamination d) Decarboxylation		
59	Formation and Fates of Ammonia	Explain various ways of Formation, fate of ammonia Explain the clinical features and biochemical basis of ammonia toxicity. Explain Urea Cycle in detail		
60	Importance of Glycine and Metabolism of aromatic amino acids like Phenylalanine and Tyrosine	Document the role of glycine in biosynthesis of heme, purines, creatine and role in detoxification. Explain the metabolism Metabolism of aromatic amino acids like Phenylalanine and Tyrosine and document their role in synthesis of biologically compounds like Epinephrine, Norepinephrine, Thyroid	Explain the biochemical basis of Inborn errors of metabolism like Phenylketonuria, Albinism, Alkaptonuria	

		Hormones, Melanin etc		
61	Explain the metabolism Metabolism of aromatic amino acid :Tryptophan	Explain the metabolism Metabolism of aromatic amino acid like Tryptophan and document its role in synthesis of biologically compounds like serotonin, Melatonin, coenzymes like NAD and NADP etc.	Explain the biochemical basis of Inborn errors of metabolism like Hartnup's disease.	Discuss the etiology and biochemical derangement in Malignant Carcinoid syndrome
62	Metabolism of Sulphur containing amino acids and Creatine	Document the role of s Adenosyl Methionine in Transmethylation reactions with examples Outline the synthesis of creatine and the role of creatine phosphate in energy metabolism	Explain the metabolism of Sulphur containing amino acids like Cystenine, Cystine and Methionine and their role in formation of important compounds like PAPS.	Explain excretion of Sulphur Discuss the etiology and biochemical effects of Hyperhomocyst enimeia in progression of atherosclerosis
	Interlinking of Metabolism and Starvation	Must know	Desirable to know	Nice to know
63	Interlinking of Metabolism	Explain the integration of carbohydrate, Protein and Lipid Metabolism at cellular and tissue level		
64	Metabolism of Starvation	Explain early and prolonged phases of starvation and the metabolic adaptations during the same		
	Vitamins	Must know	Desirable to know	Nice to know
65	Classification and Importance of Vitamins	Classify vitamins as Fat and Water soluble. Understand the chemistry, active forms, RDA, Transport of Vitamin A		
66	Vitamin A	Enumerate and explain biochemical functions, deficiency manifestations of Vitamin A	Explain effects of Hypervitaminosis A	
67	Vitamin D	Describe the chemistry, active forms, RDA, synthesis, biochemical functions, deficiency manifestations of Vitamin D	Explain effects of Hypervitaminosis D Discuss chemistry, ,biochemical functions of Vitamin E	

68	Vitamin K and Vitamin C	Describe the chemistry, active forms, ,biochemical functions and deficiency manifestations of Vitamin K and Vitamin C		
69	Thiamine, Riboflavin ,Niacin	Describe the active forms, ,biochemical functions and deficiency manifestations of Thiamine, Riboflavin ,Niacin		
70	Vitamin C,B12 and Folic acid	Describe the chemistry, active forms, ,biochemical functions and deficiency manifestations of Vitamin C,B12 and Folic acid		
71	Pyridoxine, Biotin and Panthothenic acid	Describe the active forms, ,biochemical functions and deficiency manifestations of Pyridoxine		Explain the ,biochemical functions and of biotin, panthothenic acid
	Chemistry and Metabolism of Nucleic acids	Must know	Desirable to know	Nice to know
72	Chemistry of Nucleotides	Explain the chemistry and types of purine and pyrimidine bases To know the composition of nucleosides and nucleotides	Describe the various types of Biologically important free nucleotides and their significance	Explain how synthetic analogues of purine and pyrimidine bases serve as anticancer drugs.
73	Purine biosynthesis	Explain the steps of purine biosynthesis (In brief)and formation of AMP and GMP from IMP		Discuss the process of digestion of dietary nucleic acids
74	Catabolism of purines and Gout	Discuss the steps of catabolism of purines to uric acid. To know the importance and steps of purine salvage pathway. Describe the disorders of purine catabolism: Gout under following headings a) Definitionb) Clinical Features c) Types d) Treatment	Explain the genetic disorders of purine catabolism: Lesch Nyhan syndrome	
75	Synthesis and catabolism of pyrimidines	Explain the synthesis and catabolism of pyrimidine nucleotide in brief		Delineatethe difference between

				synthesis and catabolism of purine and pyrimidine nucleotides
76	Types and Functions of DNA and RNA	Explain the chemistry, structure and functions. Explain the chemistry, structure, functions and types of RNAs.	Differentiate between the structure and function of DNA and RNA.	
77	Replication and Transcription	Explain how the genetic information of DNA can be faithfully duplicated (Replication).		Explain how the genetic information is transcribed into different types of RNA
	Genetics	Must know	Desirable to know	Nice to know
78	Genetic code and Mutation	Explain the properties of genetic code. Define mutation with its types and explain effects of point mutation		
79	Translation	Explain the steps of translation of genetic information into protein molecule(Protein biosynthesis)		
80	Post-translational modifications and Inhibitors of translation	Enumerate different post-translational modifications with examples	Discuss the role of inhibitors of translation	
81	Regulation of gene expression	Explain the mechanism regulation of gene expression with Lac Operon model in prokaryotes		Discuss the process of regulation of gene expression in eukaryotes
82	Recombinant DNA technology and PCR	Explain the steps of recombinant DNA technology with its applications in medicine		Explain the process of PCR in brief with its applications
	Acid Base and Water electrolyte balance and Imbalance	Must know	Desirable to know	Nice to know
83	Blood Buffers	Discuss the normal blood pH and the three defense lines maintaining normal blood pH	Explain the factors on which buffering power of buffer system depends	Explain derivation of Henderson –

		Explain blood buffers under following headings: A) Definition B) Principal buffers of plasma and RBCs C) Mechanism of action		Hasselbach Equation
84	Role of respiration and Kidney in maintenance of Acid Base Balance	Explain role of respiration in maintenance of blood pH Explain role of kidney in maintenance of blood pH under following headings: a) Secretion and excretion of protons b) Conservation of bicarbonate (Alkali Reserve) c) Reabsorption of Na^+ and HCO_3^- d) Formation and secretion of ammonia e) Excretion of either acidic or alkaline urine	Explain the advantages of ammonia buffer system	
85	Acid Base Disturbances in balance	Discuss the disturbances in AB balance : i) Metabolic acidosis ii) Respiratory acidosis under following heading: a) Definition b) Causes c) Signs and Symptoms Compensatory mechanism	To understand the disturbances in AB balance : i) Metabolic alkalosis ii) Respiratory alkalosis under following heading: a. Definition b. Causes c. Signs and Symptoms 4) Compensatory mechanism	Explain the concept of Anion gap. Discuss the normal ranges of blood gases and interpretation of ABG report
86	Water Balance	Describe the distribution, functions, input output, transport of water. Discuss the distribution of water and electrolytes in ICF and ECF Explain the role of a) Thirst b) Kidney: i. Role of aldosterone ii. Role of ADH iii. Role of Renin- angiotensin mechanism. c) Role of Atrial Natriuretic Peptide (ANP)	Explain the factors responsible for the compartmental distribution of water and electrolyte	
87	Dehydration and Importance of Na and K	Explain dehydration under following headings a) definition b) Types c) Features d) Treatment	Describe important electrolytes: Na and K under following headings: a) Sources b) Normal serum levels c) Functions	Enumerate and explain causes of Hyper and Hyponatremia and Hyper and Hypokalemia
	Environmental Biochemistry and	Must know	Desirable to know	Nice to know

	Biochemistry of cancer			
88	Environmental Biochemistry	Describe the types and effects of following environmental pollutants on biochemical function of our body A) Air pollution B) Water Pollution C) Food pollution. Define cancer and enumerate different types of carcinogens		
89	Biochemistry of cancer	Describe the types of carcinogens and outline mechanism of Carcinogenesis	Discuss the role of Tumour Markers in diagnosis and Prognosis of Cancer	
	Free Radicals and Antioxidant in health and disease	Must know	Desirable to know	Nice to know
90	Free Radicals and Antioxidant in health and disease	Describe the different Reactive oxygen species, their generation and their biochemical effects Explain the role of enzymatic and non enzymatic defence mechanism of antioxidants	Define oxidative stress and discuss its role in causation of various disorders like DM, Atherosclerosis, cancer etc	
	Hormones	Must know	Desirable to know	Nice to know
91	Classification of hormones and Mechanism of hormone action at Nuclear Level	Explain the classification and General characteristics of hormones		
92	Mechanism of hormone action at membrane level	Discuss the mechanism of hormone action at membrane level	Explain the role of cAMP and phosphatidylinositol /calcium as second messenger	
	Thyroid Function Tests	Must know	Desirable to know	Nice to know
93	Thyroid Function Tests	Classify and explain Thyroid Functions Tests based on I. Measurement of blood levels of thyroid hormones: T3, T4, TSH II. primary function of thyroid eg: a) Radioactive uptake of Iodine b)		Explain newer techniques like PET scan, FNAC, USG scanning of thyroid gland.

		T3 Supression Test		

- **Lecture and Demonstrations:** At the end of Teaching and Learning Session, the student must be able to:

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Colorimetry	Explain the principle, working and applications of colorimetry.	---	----
2.	Electrophoresis	Explain the principle, working and applications of electrophoresis.	---	----
3	Chromatography	Explain the principle, different and applications of chromatography	---	----
4.	Flame photometry	Explain the principle, working and applications of flame photometry	Explain the principle , and advantages of ion selective electrodes over flamephotometry.	----

- **PRACTICAL:** At the end of Teaching and Learning Session, the student must be able to:

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Tests on Monosaccharides	Perform and explain the principle of tests for Monosacharides(Glucose &Fructose) based on i) Reducing Property ii) Furfural Formation. Interpret the observation		
2	Tests on Disaccharides	Perform and explain the principle of tests for disachharides(Lactose/Maltose and Sucrose) based on Reducing and non-reducing properties. Interpret the observation		
3	Color Reactions of Protein	Perform and explain the principle of at least five tests for colour reactions of proteins specific fora)General reactions for protein/all alpha amino acids b)Aromatic amino acids c)Sulphur containing amino acids. Interpret	Explain the clinical significance of colour ractions Reactions of	

		the observation	Proteins.	
4	Precipitation Reactions of Proteins	Perform and explain the principle of at least five tests for precipitation based on a) Denaturation b) Neutralization of charges c) Dehydration. Interpret the observation	Explain the clinical significance of Precipitation Reactions of Proteins.	-----
5	Estimation of blood glucose	Estimate BGL in given blood sample. Explain: a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of BGL	Explain specific instructions for collection of blood sample.	Enumerate the advantages and disadvantages of different methods for estimation of Blood Glucose
6	Estimation of blood Urea	Estimate BUL in given blood sample. Explain: a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of BUL	Explain specific instructions for collection of blood sample.	Explain the concept of Blood Urea Nitrogen
7	Estimation of Serum Proteins	Estimate proteins in given serum sample. Explain the a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of Serum Proteins	Explain specific instructions for collection of blood sample	-----
8	Estimation of Serum cholesterol	Estimate cholesterol in given serum sample. Explain a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of Serum cholesterol	Explain specific instructions for collection of blood sample	Explain clinical significance of estimation of lipid profile
9	Estimation of Serum Glutamate Pyruvate Transaminase (SGPT)	Estimate SGPT/ALT in given serum sample. Explain a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of SGPT/ALT	Explain specific instructions for collection of blood sample	Define IU/L
10	Estimation of Serum Glutamate Oxaloacetate	Estimate SGOT/AST in given serum sample. Explain a) Name of the Method b) Principle c) Calculation d) Normal Range e)	Explain specific instructions for	

	Transaminase (SGOT)	Clinical significance of estimation of SGOT/AST	collection of blood sample	
11	Estimation of Serum bilirubin	Estimate bilirubin in the given serum sample. Explain a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of bilirubin	Explain specific instructions for collection of blood sample	-----
12	Estimation of Serum Alkaline phosphatase	Estimate alkaline phosphatase in the given serum sample. Explain a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of alkaline phosphatase	Explain specific instructions for collection of blood sample	---
13	Estimation of Serum Uric acid	Estimate uric acid in the given serum sample. Explain a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of uric acid	Explain specific instructions for collection of blood sample	----
14	Estimation of Serum Calcium	Estimate calcium in the given serum sample. Explain a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of serum calcium	Explain specific instructions for collection of blood sample	----
15	Estimation of Serum inorganic phosphorus	Estimate inorganic phosphorus in the given serum sample. Explain a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of serum inorganic phosphorus	Explain specific instructions for collection of blood sample	----
16	Normal organic Constituents of Urine	Explain the physical characteristics of normal urine in terms of a) Color B) odour C) Appearance d) Volume e) Specific Gravity f) pH and its significance Perform and explain the principle of the tests for normal organic constituent of urine such as: A) Urea B) Creatinine C) Uric acid D) Etheral Sulphates E) Hippuric acid	-----	-----
17	Abnormal organic Constituents of Urine I, II and III	Explain the physical characteristics of Abnormal normal urine sample in terms of a) Color B) odour C) Appearance d) Volume e) Specific Gravity f) pH and its significance	-----	-----

		Perform and explain the principle of the tests for abnormal constituents of urine such as a) Glucose b) Ketone bodies c) Protein d) Blood e) Bile Salts and Bile Pigments. Explain the clinical interpretation of the Urine Report.		
18	Examination of Cerebrospinal Fluid	Discuss the physical characteristics of CSF sample in terms of a) Color B) Appearance and its clinical significance Estimate glucose and protein in given CSF sample. Explain the a) Name of the Method b) Principle c) Calculation d) Normal Range e) Clinical significance of estimation of CSF glucose and protein.	Explain the formation and functions of CSF Explain specific instructions for collection of CSF Sample	----

➤ **Case Studies: At the end of Teaching and Learning Session, the student must be able to:**

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1-10	Case Studies	Explain the probable diagnosis, biochemical defect according to the signs, symptoms and clinical examination of common clinical conditions. Correlate the clinical findings with laboratory results of the patients	-----	-----

➤ **Tutorial:** Specific Learning Objectives of the Tutorial are the same as the Lectures as during tutorials, reinforcement of important topics is ensured.

VIII. ASSESSMENT:

➤ EXAMINATION REGULATION UNIVERSITY EXAMINATION :

A) INTERNAL ASSESSMENT:

a) Theory: Maximum marks 20 are computed from maximum of 300 marks obtained in four written examinations and three viva voces as shown below:

Semester	Term	Theory	Viva-voce	Total
I	Mid term	50	---	50
	Terminal	50	20	70
II	Mid term	50	10	60
	Preliminary	100	20	120
Grand Total		250	50	300

b) Practicals: Maximum marks 20 are computed from maximum of 100 marks obtained in three practical examinations as shown below:

Semester	Term	Practical	Total
I	Terminal	40	40
II	Mid Term	20	20
III	Preliminary	40	40
Grand Total			100

The student must secure at least 35 % marks separately in theory and practicals in internal assessment to be eligible to appear for the university examination.

B) FINAL EXAMINATION: THEORY

	Marks
Paper I	50
Paper II	50
Viva (On theory portion)	20
Internal assessment	20
Total Theory	140

FINAL EXAMINATION: PRACTICAL

	Marks
Practical Examination (QA: 25,QB:15 QC(case Study): 5	40
Internal assessment	20
Total Practical	60

C) ATTENDANCE:

75% of attendance in a subject for appearing in the examination is compulsory inclusive of non-lecture teaching. i.e. practicals, tutorials, demonstrations, seminars, and group discussions etc.

D) PATTERN OF EXAM:

1) THEORY: 100 Marks.

There will be two (2) papers of 50 marks & of 2 hours duration each.

Pattern of Theory Paper: Total Questions: Six: Attempt Any Five

- a) Three Long Answer Questions (LAQs): 10 Marks each.
- b) Three Questions consisting of three short answer questions (SAQs); out of which any two to be attempted: 10 Marks each.

Paper wise distribution of Topics:

Paper – I: Chemistry & metabolism of Carbohydrates, Chemistry & metabolism of lipids, Enzymes, Mechanism of hormone action ,Biological Oxidation, Vitamins ,Function Tests(LFTs KFTs and TFTs), Detoxification, Environmental hazards and biochemistry of cancer, Free radicals and Antioxidants in health and disease.

Paper – II: Chemistry and metabolism of Proteins, Chemistry and metabolism of nucleotides and nucleic acids, Genetic expression and engineering, Chemistry and metabolism of hemoglobin, Mineral metabolism, Acid – base balance and imbalance, Water and electrolyte balance and imbalance , Laboratory techniques (L.Ds) , Metabolic interrelations and starvation metabolism, Radioisotopes

Note: Students are not expected to draw the structural formulae in the answers in the examinations

2) PRACTICAL EXAMINATION: 60 Marks & 3 hours duration

Experiment A: 20 Marks, Experiment B: 15 Marks, Experiment C(Case Study): 05Marks

Viva (on Theory Portion): 20 Marks. The Viva – voce marks will be added to Theory examination marks.

Experiment A: Any one from the following (20 Marks)

- 1) Estimation of Blood Glucose
- 2) Estimation of blood Urea
- 3) Estimation of Creatinine clearance
- 4) Estimation of Serum Total proteins, albumin and calculation of A: G ratio
- 4) Estimation of Serum Glutamate Pyruvate Transaminase (SGPT/ALT)
- 5) Estimation of Serum Glutamate Oxaloacetate Transaminase (SGOT/AST)
- 6) Estimation of Serum Alkaline phosphatase
- 7) Urine report

Experiment B: Any one from the following (15 Marks)

- 1) Estimation of Serum Cholesterol
- 2) Estimation of CSF: Glucose and Proteins
- 3) Estimation of Serum Uric Acid
- 4) Estimation of Serum Calcium
- 5) Estimation of Serum inorganic Phosphorous
- 6) Normal Urine (organic constituents)
- 7) Tests for Monosaccharides
- 8) Tests for Disaccharides
- 9) Precipitation tests for Proteins
- 10) Color reactions for Proteins

{For quantitative & qualitative estimation, flow chart will be provided.}

Experiment C: Case study (05 Marks)

F) Declaration of Result: The candidate will be declared as passed in the subject only when he obtains at least 50% of marks separately in theory and practical.

IX: SUGGESTED READING:

a) TEXT-BOOKS:

Sr No	Title	Author
1	Text Book of Biochemistry for Medical Students	Mohamad Rafi
2	b) Text Book of Biochemistry for Medical Students	DM Vasudevan
3	R Text Book of Medical Biochemistry	Dinesh Puri

b) REFERENCE BOOKS:

Sr No	Title	Author
1	Harpers Biochemistry	R.K. Murray, D.K. Granner, P.A. Mayes and V.W. Rodwell.
2	Principles of Biochemistry	Lehinger, Nelson and Cox.
3	Textbook of Biochemistry with Clinical Correlations.	Thomas M. Devlin

c)USEFUL E LINKS:

<http://www.medicalstudent.com/>

<http://www.wiley.com/legacy/college/animations/animations.htm>

https://en.wikiversity.org/wiki/Medical_biochemistry

<http://themedicalbiochemistrypage.org/>

<http://www.clinbiochem.info/medstudents.html>

<https://www.nlm.nih.gov/medlineplus/encyclopedia.h>

<https://www.khanacademy.org/>

<http://hms.harvard.edu/>

www.slideshare.net

CURRICULUM 2016

**Department of Community Medicine
Bharati Vidyapeeth Deemed University Medical College,
Pune.**

INSTITUTE

Vision

A world class university in health care education, management, research, consultancy and global resource for creating a healthy world.

Mission

Social transformation through dynamic education.

Goal

To prepare students to function as competent, proactive first contact physician, equipped with scientific temper and capability for specialization befitting to ever-changing health needs of changing community.

DEPARTMENT

(I) Goal

To prepare students to function as proficient Community Physician in contemporary health needs and accountable to community.

(II) Objectives

(a) KNOWLEDGE

At the end of the course, the student should be able to:-

1. Describe the health care delivery system including rehabilitation of the disabled in the country;
2. Describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare planning and population control.
3. List epidemiological methods and describe their application to communicable and non-communicable diseases in the community or hospital situation.
4. Apply biostatistical methods and techniques;
5. Outline the demographic pattern of the country and appreciate the roles of the individual, family, community and socio-cultural milieu in health and disease.
6. Describe the health information systems.
7. Enunciate the principles and components of primary health care and the national health policies to achieve the goal of 'Health for All'.
8. Identify the environmental and occupational hazards and their control.
9. Describe the importance of water and sanitation in human health to understand the principles of health economics, health administration,
10. Health education in relation to community.

(b) SKILLS

At the end of the course, the student should be able to:-

1. Use epidemiology as a scientific tool to make rational decisions relevant to community and individual patient intervention.
2. Collect, analyze, interpret and present simple community and hospital based data.

3. Diagnose and manage common health problems and emergencies at the individual, family and community levels keeping in mind the existing health care resources and in the context of the prevailing socio-cultural beliefs.
4. Diagnose and manage maternal and child health problems and advise a couple and the community on the family planning methods available in the context of the national priorities.
5. Diagnose and manage common nutritional problems at the individual and community level.
6. Plan, implement and evaluate a health education programme with the skill to use simple audio-visual aids.
7. Interact with other members of the health care team and participate in the organization of health care services and implementations of national health programmes.

(c) INTEGRATION

The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand the impact of environment, society and national health priorities as they relate to the promotion of health and prevention and cure of disease.

(III) Competencies

The student must demonstrate:

1. Understanding of physical, social, psychological, economic and environmental determinants of health and disease,
2. Ability to recognize and manage common health problems including physical, emotional and social aspects at individual family and community level in the context of National Health Programmes,
3. Ability to Implement and monitor National health programmes in the primary care setting
4. Knowledge of maternal and child wellness as they apply to national health care priorities and programmes,
5. Ability to recognize, investigate, report, plan and manage community health problems and emergencies
6. Ability to recognize, investigate, report and manage community health problems and emergencies.

(IV) Teaching Schedule:

Total hours of teaching: 362.

The distribution of teaching hours is as follows

Phase	Semester	Theory	Practical
I	I & II	30	30
II	III, IV& V	60	84
III (Part -1)	VI & VII	30	128
Total		120	242

Details of teaching hours with mode of delivery - Theory

Teaching methods	1st yr.	2nd yr.			3rd yr.		4th yr.	Total
	I & II Sem	III Sem	IVSem	V Sem	VI Sem	VII sem		
Didactic lectures	15 (2 Hr each)	17+20 (1 Hr each)	17 (1 Hr each)	-	20 (1 Hr each)	10 (1 Hr each)	-	114
Seminars conducted during the year. Number of students attending each. (attended by all the students of respective semester)- Theory	-	3 (1 Hr each)	3 (1 Hr each)				-	06
Theory total	30	40	20	-	20	10	-	120

Details of teaching hours with mode of delivery – Practical

Teaching methods	1 st yr.	2 nd yr.			3 rd yr. (Part I)		Total
	I & II Sem	III Sem	IVSem	V Sem	VI Sem	VII sem	
Demonstrations	7 (2 Hr each)	-		6 (2 Hr each)	-	2 (3 Hr each)	32
Tutorial (Written)	-	-	-		-	10 (2 Hr each)	20
Tutorial (Oral)						8 (3 Hr each)	24
Seminar					2 (3 Hr each)	2 (3 Hr each)	12
Educational visits	8 (2 Hr each)		-	3 (2 Hr each)	-	7 (3 Hr each)	43
Clinical posting	-	20 (1 Hr each)		11 (2 Hr each)	9 (3 Hr each)	5 (3 Hr each)	84
Extension Activities					1 (3 Hr each)		03
Research project			12 (2 Hr each)				24
Total	30	20	24	40	36	92	242

Course content
Theory: Lectures

I &II Semester

Teaching hours: 30(15*2 hrs.)

Sr. No.	Topic
1.	Introduction- Evolution of community medicine
2.	Health- Definition , spectrum of health and factors affecting health, indicators of health
3.	Health problems in India (urban and rural)- Overall health status of India
4.	Health care delivery system in India- Principles of health care
5.	Demography- Demographic cycle, stages, age pyramid
6.	Fertility and factors affecting it- Fertility indicators
7.	Family welfare and population control-Eligible couples, couple protection rate
8.	Medical ethics, doctor patient relationship- Communication between doctor patient
9.	Sociology and social factors affecting health
10.	Use of audio-visual aids for effective health education
11.	Immunization- National immunization schedule
12.	Health education and communication-Methods of health education
13.	Art of communication and art of history taking
14.	Nutrition and health- Classification of foods
15.	Integration of AYUSH in health care system-Components of AYUSH

III Semester**Teaching hours: 20**

Sr. No.	Topic
1.	Introduction -Introduction to Community Medicine, AYUSH, clinical and community medicine
2.	Concept of Health and Disease I - Concept of health, concept of wellbeing, responsibilities for health.
3.	Concept of Health and Disease II -Disease causation, epidemiological triad, natural H/O disease, iceberg phenomenon
4.	Concept of Health and Disease III - Levels of prevention and modes of intervention
5.	Epidemiology I - Introduction to Epidemiology, tools of measurements (Rates, Ratios and Proportions), incidence, prevalence and mortality, epidemiological studies
6.	Epidemiology II - Descriptive epidemiology and steps, cross-sectional and longitudinal studies, epidemic types, epidemic curve, uses of descriptive epidemiology
7.	Epidemiology III - Analytical epidemiology, case control study, steps in case control study, matching, odds ratio/ cross product ratio, bias, advantages and disadvantages of case control study.
8.	Epidemiology IV - Cohort Study, elements of cohort study, relative, attributable and population attributable risk, advantages and disadvantages
9.	Epidemiology V - Experimental epidemiology (Randomized Control Trials)
10.	Epidemiology VI -Association and causation and uses of epidemiology
11.	Epidemiology VII – (Seminar)- Investigation of an Epidemic
12.	Infectious disease epidemiology I - Dynamics of disease transmission
13.	Infectious disease epidemiology II - Successful parasitism, incubation period and its uses, host defenses
14.	Disease prevention and control - Early diagnosis, notification, isolation, treatment and quarantine.
15.	Screening for disease - Types and uses of screening.
16.	Communication for Health Education I - Types of communication, barriers of communication , functions of health, contents and principles of health education
17.	Communication for Health Education II – Methods of health education and role of A-V aids, planning of health education programme
18.	Sociology I (Seminar) - Socio-cultural and economic factors affecting health and disease.
19.	Sociology II (Seminar) - Social problems, social security, socio-economic classification and health economics
20.	Sociology III (Seminar) - Social problems in India

III Semester Biostatistics**Teaching hours: 20**

Sr. No.	Topic
1.	Introduction to biostatistics – Introduction to topic, uses, sources and types of data
2.	Presentation of data I - types of presentation, different types of tabulation of data
3.	Presentation of data II - types of graphs and methods of preparation of graphs for quantitative data
4.	Presentation of data III - types of graphs and methods of preparation of graphs for qualitative data
5.	Measures of Central Tendency and variation – Mean, median, mode and coefficient of variation
6.	Probability and Normal curve – Concept of probability, normal distribution curve and its uses
7.	Sampling - Sampling methods and sampling techniques, sample size and its estimation
8.	Standard error of means and proportion - sampling variation, concept of standard error, calculation of standard error of mean and proportion.
9.	Tests of significance - Different tests of significance for qualitative and quantitative data, level of significance, null and alternative hypothesis, p value, type I and type II error
10.	Z -Test for difference between two sample means - Concept of Z test, calculation of Z value for quantitative data
11.	Z -Test for difference between two Proportion – SE of difference between two proportions, Z test for qualitative data
12.	Paired t-test - Application of paired t-test, different assumptions for paired t-test
13.	Unpaired t-test - application of unpaired t-test, different assumptions for the use of unpaired t-test.
14.	Chi-square test -Application of Chi-square test, limitations for the use of Chi-square test
15.	Clinical trials - various phases and steps in clinical trials
16.	Fallacies in Biostatistics – concept, types and causes of fallacies
17.	Health information system I - components, sources and uses of health information system, salient features of Census 2011
18.	Health information system II - sources of HIS including registration of vital events, sample registration system, notifiable diseases etc
19.	Role of computer in statistics - Data entry, graphical presentations of the results, preparation of master chart, and data analysis using Microsoft Excel sheet
20.	Introduction to statistical software - SPSS, STATA, R, Epi-Info etc.

IV Semester**Teaching hours: 20**

Sr. No.	Topic
1.	Mode of spread of disease and introduction to environmental sanitation
2.	Water in relation to health and disease I- Sanitary well, water purification and hardness of water
3.	Water in relation to health and disease II- Drinking water surveillance, defluoridation and rain water harvesting
4.	Global Warming and climate change
5.	Air Pollution
6.	Occupational Health I- Ergonomics, occupational environment, occupational hazards
7.	Occupational Health II- Industrial accidents, health hazards of agriculture workers
8.	Occupational Health III- Health problems due to industrialization, ESIS
9.	Nutrition I- Balanced diet, nutritional problems of public health importance
10.	Nutrition II- Vitamin A deficiency, nutritional anemia, endemic fluorosis, lathyrism
11.	Nutrition III- Food borne diseases, milk hygiene, food toxicants
12.	Nutrition IV- Nutritional assessment, growth monitoring, food adulteration and food fortification
13.	Disaster Management- Disaster management, triage ,natural and manmade disaster
14.	Genetics-Chromosomal disorders, genetic counseling population genetics
15.	Mental Health- Mental dimension of health, alcoholism and drug dependence
16.	International Health- Objectives of World Health Organization (WHO) and its membership, UNICEF, Red cross
17.	Demography- Stages of demographic cycle, demographic indicators
18.	Gender inequality (Seminar)- Gender discrimination, remedial measures, PCPNDT Act
19.	Changing social order (Seminar)- Social structure and order, awareness about remedial measures
20.	Palliative care (Seminar)- Various support systems for the terminally ill patient

Sr. No.	Topic
1.	Health care delivery system in India-Levels of primary health care, elements of primary health care and health problems in India
2.	Maternal and Child Health I (Maternal Health)- Antenatal care, postnatal care, maternal health indicators, national health programmes related to maternal health
3.	Maternal and Child Health II (Child Health)- Concept of at risk infants, neonatal care, indicators of child health and related national health programmes
4.	Maternal and Child Health III + Adolescent health and Geriatrics -School health ,child & adolescent problems, geriatrics
5.	Health Planning and Management- Health Planning
6.	Health Planning and Management- Health Management
7.	Introduction to communicable disease- Infectious disease epidemiology, eradication of disease
8.	Airborne infection I-Chickenpox, Measles, Rubella and Influenza
9.	Airborne infection II- Mumps, Diphtheria, Pertussis, Meningococcal-meningitis, ARI
10.	Airborne infection III- Tuberculosis
11.	Epidemiology and prevention of intestinal infections I- Acute diarrheal diseases, Cholera, Food poisoning
12.	Intestinal infections II-Viral Hepatitis, Typhoid
13.	Intestinal infections III -Polio and pulse polio
14.	Epidemiology and prevention of Arthropod borne diseases I-Malaria & Filariasis
15.	Arthropod borne diseases II- Dengue fever, Plague, Japanese Encephalitis
16.	Zoonotic diseases – Rabies
17.	Surface infections I- Leprosy
18.	Surface infections II-STD, Syndromic approach, HIV/AIDS, Post exposure prophylaxis
19.	Hospital acquired infections - Factors behind hospital acquired infections, Standard (Routine) precautions for prevention of nosocomial infections
20.	Emerging and Re-emerging infections - emergence and re emergence of diseases, factors responsible, antimicrobial resistance

VII Semester**Teaching hours: 10**

Sr. No.	Topic
1.	Introduction to Non-communicable disease- Introduction to topic, risk factors, gaps in natural history , integrated approach, WHO STEPS approach
2.	Coronary heart diseases(CHD)- Coronary heart disease presentation, risk factors, prevention and control
3.	Hypertension- Classification, rule of halves, tracking of blood pressure ,risk factors and prevention
4.	Obesity- Malnutrition, assessment of obesity, hazards, and prevention and control
5.	Blindness- WHO definition, common causes ,prevention of blindness and Vision 2020
6.	Accidents- Types ,risk factors ,primary factors in road traffic accidents
7.	Cancers- Categories, causes, approaches to cancer control, warning signs, screening and epidemiological determinants of cancers
8.	Diabetes- WHO classification, epidemiological determinants, screening and prevention of diabetes and self care
9.	Revision-Paper I exam pattern
10.	Revision- Paper II exam pattern

Practical /Clinical posting/ Visits

I Semester

Teaching hours: 30(15*2)

Sr. No.	Topic
1.	Visit to Primary Health Centre/ Rural Health Training Centre
2.	Visit to urban health centre
3.	Visit to Bharati Hospital
4.	Visit to Family Planning Centre (FPAI)
5.	Visit to Mukangan De-addiction Centre /Old age home
6.	Visit to Cipla Palliative Care Centre
7.	Visit to Ayurvedic and Homeopathic college
8.	Visit to Child Guidance Clinic
9.	Nursing Practices I- Administration of parental line (IV/IM)
10.	Nursing Practices II-Bandaging technique and sterilization
11.	Nursing Practices III- Cold chain and National immunization schedule
12.	Nursing Practices IV-Role of nurses in patient care
13.	Socio-drama (Role Play)- To plan, write a script and perform street play on a health problem
14.	Socio-dram (Role Play)- To plan, write a script and perform street play on a health problem
15.	Presentation of work- To systematically present all the skills/knowledge learned during various visit

III Semester Biostatistics**Teaching hours: 20**

Sr. No.	Topic
1.	Sources and types of Data - Introduction to topic, sources and uses of data
2.	Presentation of data I - Types of presentation of data and types of tabulation of data
3.	Presentation of data II – Demonstration of types of graphs and preparation of graphs for quantitative data
4.	Presentation of data III – Demonstration of graphs and charts and preparation of graphs and charts for qualitative data.
5.	Measures of Central Tendency and Variation – Explanation and calculation of Mean, median, mode and coefficient of variation
6.	Probability and Normal curve - Concept and calculation of probability, normal distribution curve
7.	Sampling - Sampling methods and sampling techniques, sample size and its calculation, allowable error
8.	Standard error of means and proportion - Sampling variation, concept of standard error, calculation of standard error of mean and proportion
9.	Test of significance - Tests of significance for qualitative and quantitative data, level of significance, null and alternative hypothesis, p value, type I and type II error
10.	Z -Test for difference between Two Means - Concept of Z test, calculation of Z value for quantitative data
11.	Z -Test for difference between Two Proportion - SE of difference between two proportions and Z test for qualitative data
12.	Paired t-test - Application of paired t-test, degrees of freedom, different assumptions for paired t-test
13.	Unpaired t-test - application of unpaired t-test, degrees of freedom, different assumptions for the use of unpaired t-test.
14.	Chi-square test - Application of Chi-square test, 2 X 2 table, degrees of freedom, limitations for the use of Chi-square test
15.	Clinical trials - Phases and steps in clinical trials
16.	Fallacies in Biostatistics - Concept, types and causes of fallacies
17.	Health information system I and II - Solving examples of vital events like crude death rate, birth rate, infant mortality rate, general fertility rate etc
18.	Revision 1
19.	Revision 2
20	Journal completion

IV Semester posting -Research Projects**Teaching hours: 24 hours (12*2)**

Sr. No.	Topic
1.	Research Projects –Introduction to research work including guidelines for research, selection of research topic, collection, compilation and analysis of collected data and presentation and submission of research work.

V Semester (practical & visits)**Teaching hours: 40 hours (20*2)**

Sr. No.	Topic
1.	Water I- Safe and wholesome water, water borne and water related diseases, mechanism of action of bleaching powder, Horrock's test and OT test demonstration and interpretation, disinfection of well, hardness of water
2.	Water II –Assessment of portability of water, presumptive coliform test and interpretation, collection, transport and storage of water samples
3.	Physical Environment I- Air pollution, noise, light, temperature 1. Air pollution - sources and health hazards, prevention and control 2. Noise pollution- sources, hazards, control of noise pollution and intensity of sound (sound level meter). 3. Light- light factors for efficient vision, biological effects of light 4. Temperature- Various thermometers, Sling psychrometer, effects of temperature/heat on health and measures to prevent it, indices of thermal comfort, Nomogram
4.	Physical Environment II-Radiation, ventilation, pressure, housing, vibration 1. Radiation- Sources, types, health hazards and protective measures of radiation, dosimeter 2. Ventilation- Types and standards of ventilation 3. Pressure –Atmospheric pressure and health, barometer 4. Housing- Housing standards, overcrowding 5. Vibration- Hazards of vibration
5.	Methods of Refuse Disposal- Solid waste, health hazards, sources, storage, collection and disposal of refuse, anaerobic (Bangalore) and aerobic (Mechanical) methods of composting, sewage and sullage, soakage pit
6.	Hospital Waste Management – Sources, health hazards, categories, collection, segregation, treatment and disposal of health- care waste and safety measures
7.	Arthropods of Medical Importance I- Housefly, sandfly, rat flea
8.	Arthropods of Medical Importance II-Mosquito, ticks, mites, louse, Cyclops
9.	Insecticides – Classification, Mechanism of action, Repellants, insecticidal resistance
10.	Occupational Health - Occupational hazards, occupational diseases, prevention, personal protective devices
11.	Nutrition I-Cereals and pulses
12.	Nutrition II- Milk and milk products, fruits and vegetables, fats and oils and meat

13.	Nutrition III-Balanced Diet, nutritional requirement of special groups and nutritional assessment and breast feeding
14.	Disinfection and sterilization –Types of disinfection, disinfection of sputum, sterilization of OT
15.	Family Planning – Family planning methods, advantages and disadvantages, failure rate
16.	Immunization – Cold chain, National immunization schedule, vaccines
17.	Nutritional problems in India (Seminar) – PEM, nutritional anaemia, xerophthalmia, IDD, endemic goiter etc
Educational visits	
18.	Visit to milk diary
19.	Visit to sewage treatment plant
20.	Visit to public health laboratory

VI Semester Morning Posting (Clinical Posting and Visits)**Teaching Hours: 36**

Sr. No.	Topic
1.	Introduction
2.	Family Planning OPD-UHTC
3.	Immunization OPD
4.	Anganwadi visit
5.	Visit to DOTS centre
6.	Extension Activity- Community Health education, Celebration of public health days
7.	Seminar :NPCDCS, RCH
8.	Antenatal Case, Postnatal case
9.	Social cases: Diabetes & Hypertension
10.	Cancer, Diarrhea, Tuberculosis
11.	Protein Energy Malnutrition (PEM), Acute Respiratory Infections (ARI)
12.	Term end exam

VII Semester Morning Posting (Clinical Posting and Visits) Teaching Hours: 72(24*3)

Sr. No.	Topic
1.	Nutrition revision (Demonstration) - Revision of classification of food and important nutrients with their nutritional significance
2.	Environment health + occupational health revision (Demonstration) - Identification and revise all environmental and occupational health spotters and models with their public health importance
3.	Introduction to family health survey + allotment of seminars – a. Family Health Survey - Introduction to family health survey proforma, instructions to fill the proforma, socio-economic status, housing environment, socio-cultural factors, awareness of family members, common medico social problems, advice to family regarding prevention and control of diseases b) Seminars allotment with expected content
4.	Orientation to RHTC, Visit to sub center (Urawade) and visit to village water supply scheme – Infrastructure, staffing, working pattern and role of health care functionaries working at RHTC and sub centre and understanding village water supply system
5	Family Health Survey at RHTC, Lavale (Visit) – Visit to allotted families, establishing rapport and getting information filled in family health survey proforma
6.	Family Health Survey at RHTC, Lavale (Visit) - Visit to allotted families, establishing rapport and getting information filled in family health survey proforma
7.	Family Health Survey at RHTC, Lavale (Visit) - Visit to allotted families, establishing rapport and getting information filled in family health survey proforma
8.	Family Health Survey, at RHTC, Lavale(Visit) - Visit to allotted families, establishing rapport and getting information filled in family health survey proforma
9.	Visit to Mutha PHC(Visit) – Concept and principles of primary health care, functioning (activities, infrastructure and staffing pattern) and delivery of services
10.	Leprosy centre visit, Kondhava (Visit) – Socio-cultural issues, diagnosis, treatment and rehabilitation (Surgical, medical, social and vocational) in leprosy patients
11.	National Vector Borne Disease Control Programme (Seminar) – Evolution , diseases covered and objectives of the program, three pronged strategy, organizational setup and activities of the programme, functions of grass root level functionaries involved in programme

12.	NHM – National Health Mission (Seminar) – Evolution, objectives, organizational setup and activities of the NHM, functions of grass root level functionaries involved in the programme.
13.	Family planning & immunization revision (Demonstration) – Revision of cold chain equipments, National Immunization Schedule and all vaccines (Type, storage, route of administration, dose, adverse reactions etc.)
14.	Vital stat revision, case study & health problem – Revision of definitions, calculations of vital indicators and orientation, revision of case studies and health problems with discussion
15.	Tutorial 1 (Oral): Concept of health & disease, principles of epidemiology & epidemiological methods, screening for diseases.
16.	Tutorial 2 & 3 (Oral): Epidemiology of respiratory infections, epidemiology of intestinal infections, Epidemiology of arthropod borne infections & epidemiology of zoonotic diseases
17.	Tutorial 4 (Oral): Epidemiology of surface infections, epidemiology of emerging & re-emerging infectious disease, hospital acquired infection.
18.	Tutorial 5 (Oral): Epidemiology of non communicable diseases, mental health, disaster management
19.	Tutorial 6 (Oral): Demography & family planning, preventive medicine in obstetrics, pediatrics & geriatrics
20.	Tutorial 7 (Oral): Nutrition, social science & health, genetics.
21.	Tutorial 8 (Oral): Environment & health, occupational health, hospital wastes management.
22.	Tutorial 9 & 10 (Oral): Health care of the community, health Planning & management and National health programmes, Health information & basic medical statistics, health education & communication, international health
23.	Biostatistics Revision
24.	Biostatistics Revision

VII Semester Tutorials (Written)**Teaching hours: 20 (10*2)**

Sr. No.	Topic
1.	Concept of health & disease, principles of epidemiology & epidemiological methods, screening for diseases.
2.	Epidemiology of respiratory infections, epidemiology of intestinal infections
3.	Epidemiology of arthropod borne infections & epidemiology of zoonotic diseases
4.	Epidemiology of surface infections, epidemiology of emerging & re-emerging infectious disease, hospital acquired infection.
5.	Epidemiology of non communicable diseases, mental health, disaster management
6.	Demography & family planning, preventive medicine in obstetrics, pediatrics & geriatrics
7.	Nutrition, social science & health, genetics.
8.	Environment & health, occupational health, hospital wastes management.
9.	Health care of the community, health Planning & management and National health programmes
10.	Health information & basic medical statistics, health education & communication, international health

Theory (Didactic) Lectures topics with SLOs

I Semester (Teaching Hours: 30)

At the end of teaching learning session, students should be able

Sr. No.	Topic	Must Know	Desirable to know
1.	Introduction- Evolution of community medicine	1. To understand history of Medicine 2. To define Public Health and Community Medicine 3. To know achievements of Community Medicine 4. To understand difference between Clinical Medicine and Community Medicine	
2.	Health- definition , spectrum of health and factors affecting – indicators of health	1. To understand the concept of health 2. To define health 3. To know spectrum of health 4. To understand factors determining the health (Determinants of health) 5. To know various indicators of health	
3.	Health problems in India (urban and rural)	1. To understand health problems of public health importance in India 2. To understand urban and rural health problems 3. To know overall health status of India	
4.	Health care delivery system in India	1. To understand principles of health care 2. To know elements of primary healthcare 3. To understand model of healthcare system in India 4. To know delivery of healthcare system in India	
5.	Demography	1. To define demography 2. To understand stages of demographic cycle 3. To know causes of population growth 4. To understand various concepts in demography e.g. - age pyramid, sex ratio, population density, growth rate, etc.	

6.	Fertility and factors affecting it	1. To define fertility 2. To discuss factors affecting fertility 3. To understand various fertility indicators	
7.	Family welfare and population control	1. To understand concept of family welfare 2. To know objectives of family welfare 3. To understand the concept of eligible couples, target couples and couple protection rate 4. Able to discuss population control	
8.	Medical ethics, doctor – patient relationship	1. To understand the concept of ethics 2. To discuss ethical aspects in medicine 3. To understand level of communication between doctor and patient (communication on emotional, cultural & intellectual plane)	1. To get sensitized with consumer protection act & rights of patient
9.	Sociology and social factors affecting health	1. To understand the difference between sociology & medical sociology 2. To know concepts in sociology (society, community, customs culture etc.) 3. To understand socio-cultural factors in health and disease	
10.	Use of Audio-visual aids	1. To know various audio-visual aids 2. To use audio–visual aids appropriately 3. To understand role of audio-visual aids in effective health education	
11.	Immunization	1. To know concept of immunization & its importance 2. To know vaccine preventable diseases 3. To understand National Immunization Schedule	
12.	Health education and communication	1. To know methods of health education 2. To understand communication process 3. To discuss types of communication 4. To know barriers in	

		communication 5. To understand role of communication in effective health education	
13.	Art of communication and art of history taking	1. To understand communication process and its components 2. To understand means of effective communication 3. To learn art of communication for history taking	
14.	Nutrition and health	1. To define nutrition 2. To know classification of foods 3. To understand role of different nutrients in maintaining health	
15.	Integration of AYUSH in health care system	1. To enumerate components of AYUSH 2. To understand indigenous systems of medicine (Ayurveda, Unani, Naturopathy, Siddha and Homeopathy) 3. To discuss integration of AYUSH with existing health care system	

III Semester (Teaching Hours: 20)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must Know	Desirable to know
1.	Introduction (Introduction to Community Medicine)	1. To define Public Health and Community Medicine 2. To know AYUSH system of Medicine 3. To understand difference between Clinical Medicine and Community Medicine	1. To know history of Medicine 2. To know Community Medicine Achievements
2.	Concept of Health and Disease-I (Concept of health)	1. To define health 2. To understand dimensions of health 3. To know concept of wellbeing- Physical quality of life index(PQLI), Human development index(HDI) 4. To discuss spectrum of health. 5. To understand determinants of health 6. To understand responsibilities for health. 7. To discuss indicators of health. 8. To know health profile of India	1. To understand holistic concept of health 2. To know other indicators like HPI (Human Poverty Index), DALY (Disability Adjusted Life Years), HALE (Health Adjusted Life Expectancy) etc. 3. To know about positive health
3.	Concept of Health and Disease-II (Concept of disease causation)	1. To define disease 2. To know risk factors, risk groups and risk approach. 3. To understand different models of disease causation 4. To discuss epidemiological triad 5. To understand model of natural H/O disease, multifactorial causation, iceberg phenomenon of disease and its application in planning intervention.	1. To know epidemiological triangle 2. To discuss advanced model of triangle of epidemiology
4.	Concept of Health and Disease-III (Concept of prevention and modes of intervention)	1. To understand difference between control, elimination and eradication with examples. 2. To know levels of prevention and modes of intervention. 3. To apply different modes of intervention to levels of prevention with reference to natural history of disease. 4. To discuss concept of Community diagnosis	1. To know International Classification of Disease (ICD-10) 2. To enumerate functions of physician
5.	Epidemiology-I	1. To define epidemiology	1. To know direct

	(Introduction to Epidemiology)	2. Able to differentiate between tools of measurement in epidemiology (Rates, Ratios and Proportions) to make a community diagnosis. 3. To discuss measurement of morbidity (incidence and prevalence) and mortality. 4. To classify different epidemiological studies	and indirect standardization
6.	Epidemiology-II (Descriptive epidemiology)	1. To enumerate steps in descriptive studies 2. To understand difference between cross-sectional studies and longitudinal studies 3. To know different types of epidemics 4. To understand epidemic curve. 5. To plan cross-sectional / longitudinal research design and hypothesis formulation 6. To be able to enumerate uses of descriptive epidemiology 7. To know definition and types of variables	1. To understand bimodal pattern of disease
7.	Epidemiology-III (Analytical Epidemiology- Case Control Study)	1. To understand concept of analytical epidemiology 2. To discuss indications for case control study. 3. To enumerate steps in case control study. 4. To understand concept of matching 5. To calculate and interpret of odds ratio/ cross product ratio 6. To enumerate bias in case control studies 7. To know advantages and disadvantages of case control study. 8. To plan a research design of case control study.	1. To discuss examples of case control studies
8.	Epidemiology-IV (Analytical Epidemiology- Cohort Study)	1. To understand concept of cohort 2. To discuss indications for cohort studies 3. To enumerate steps/elements of cohort study 4. To calculate and interpret of relative risk, attributable risk and population attributable risk 5. To discuss advantages and	1. To know types of cohort studies 2. To discuss examples of cohort studies

		disadvantages of cohort study 6. To plan research design of cohort study 7. To compare and contrast between case-control and cohort study	
9.	Epidemiology-V [Experimental Epidemiology (Randomized Control Trials)]	1. To describe the steps of randomized control trial 2. To discuss types of RCT 3. To understand types of blinding 4. To plan and formulate of RCT	1. To know historical human experiments 2. To discuss non-randomized trials
10.	Epidemiology-VI (Association and Causation and Uses of Epidemiology)	1. To understand concept of association and causation 2. To discuss types of association 3. To understand additional criteria for judging causality 4. To discuss uses of epidemiology	
11.	Epidemiology-VII (Seminar- Investigation of an Epidemic)	1. To discuss steps in investigation of an Epidemic (With example)	
12.	Infectious disease epidemiology-I (Dynamics of disease transmission)	1. To define/understand various terms used in infectious disease epidemiology. 2. To understand concept of carrier and its epidemiological significance 3. To know difference between source and reservoir with suitable examples 4. To discuss modes of transmission (Dynamics of disease transmission) of communicable disease.	
13.	Infectious disease epidemiology-II	1. To understand concept of successful parasitism 2. To learn incubation period and its uses 3. To know communicable period 4. To understand and define secondary attack rate and its uses 5. To understand host defense mechanisms 6. To discuss immune response 7. To understand herd immunity 8. To understand methods for protection of susceptible host-immunization, types of vaccines, cold chain system, and adverse effects following immunization (AEFI)	1. To discuss serial interval and generation time 2. To understand investigations following AEFI (Adverse effects following immunization)

14.	Disease prevention and control	1. To understand different methods of control of reservoir like - early diagnosis, notification, isolation, treatment and quarantine. 2. To know recommended isolation periods 3. To know notifiable diseases 4. To discuss interruption of disease transmission 5. To understand protection of susceptible host 6. To understand concept of active immunization 7. To discuss universal immunization programme and immunization schedule 8. To know national immunization schedule	1. To understand difference between UIP and EPI
15.	Screening for disease.	1. To define screening. 2. To understand types and uses of screening. 3. Able to differentiate between screening and diagnostic test. 4. To understand criteria for screening. 5. To understand difference between sensitivity and specificity of a screening test. 6. To know screening tests for diseases of public health importance	1. To know concepts of screening time, lead time 2. To discuss Positive and negative predictive values 3. To understand acceptability of false positive and false negative results
16.	Communication for Health Education -I	1. To discuss communication process 2. To know types of communication 3. To understand barriers of communication 4. To know functions of health communication 5. To define health education 6. To understand approaches to health education 7. To differentiate between health education and health propaganda 8. To know models of health education 9. To discuss contents of health education 10. To discuss principles of health education 11. To understand practice of health	

		education 12. To understand methods in health communication	
17.	Communication for Health Education -II	1. To explain terms like - panel discussion, symposium, workshops, role playing, conference and seminars 2. To discuss role of audiovisual aids in health education. 3. To understand planning of health education programme.	
18.	Sociology-I (Seminar)	1. To discuss socio-cultural and economic factors affecting health and disease. 2. To understand urban and rural problems including problems due to industrialization. 3. To know social principles in medical organization and treatment. 4. To define family and know types of family 5. To understand role of family in health and disease 6. To discuss acculturation 7. To understand concept of intelligent quotient	1. To know anthropology 2. To discuss health related customs 3. To understand concept of standard of living 4. To know types of learning and its domains 5. To discuss role of medico-social worker
19.	Sociology-II (Seminar)	1. To understand social problems. 2. To explain social security, socio-economic classification etc. 3. To discuss health economics	1. To know social agencies 2. To understand global hunger index 3. To know poverty line 4. To discuss operational research
20.	Sociology-III (Seminar)	1. To discuss social problems (Gender inequality, Addictions, Domestic violence, etc) in India	

III Semester Biostatistics (Teaching Hours: 20)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must Know	Desirable to know
1.	Introduction to biostatistics and sources and types of Data	- To introduce with concept of biostatistics. - To define biostatistics - To discuss uses of biostatistics - To understand types of data and sources of data.	- To understand nominal data - To discuss ordinal data - To understand ratio scale
2.	Presentation of data – I	- To know importance of presentation of data. - To understand types of presentation. - To know different types of tabulation of data	
3.	Presentation of data – II	- To understand importance of graphs - To know types of graphs for presentation of quantitative data - To understand methods of preparation of graphs for quantitative data	
4.	Presentation of data – III	- To understand types of graphs for presentation of qualitative data - To understand methods of preparation of graphs for qualitative data.	
5.	Measures of Central Tendency and variation.	- To understand concept of measures of central tendency and variation. - To know different measures of central tendency and variation.	To know and discuss harmonic mean and geometric mean
6.	Probability and Normal curve.	- To discuss concept and importance of probability. - To understand normal distribution. - To know normal distribution curve and its uses	To know binomial distribution, Poisson distribution
7.	Sampling.	- To understand importance of sampling - To discuss sampling methods and sampling techniques. - To understand importance of sample size and its estimation. - To calculate sample size depending on type of data	- To know concept of precision - To discuss sample size calculation for intervention study - To understand concept of allowable error

8.	Standard error of means and proportion.	1. To understand sampling distribution 2. To discuss sampling variation. 3. To know concept of standard error 4. To calculate standard error of Mean and Proportion.	1. To understand sampling and non sampling error
9.	Tests of significance.	1. To understand concept of tests of significance. 2. To demonstrate different tests of significance for qualitative and quantitative data. 3. To discuss level of significance, null hypothesis and alternative hypothesis 4. To interpret p value 5. To understand concept of type I error and type II error	1. To understand power of test 2. To demonstrate use of excel sheet with special reference to statistical functions 3. To know various statistical software - SPSS, SAS, STRATA, Epi Info etc.
10.	Z -Test for difference between two sample Means	1. To understand concept of Z test 2. To demonstrate and discuss Z test for quantitative data	1. To understand concept of ANOVA test and Fishers exact test
11.	Z -Test for difference between Two Proportion	1. To demonstrate and discuss Z test for qualitative data.	
12.	Paired t-test	1. To explain the situation for the application of paired t-test. 2. To know different assumptions for paired t-test.	
13.	Unpaired t-test	1. To explain the situation for the application of unpaired t-test. 2. To understand different assumptions for the use of unpaired t-test.	
14.	Chi-square test	1. To explain the situation for the application of Chi-square t-test. 2. To know limitations for the use of Chi-square test	1. To mention other nonparametric tests
15.	Clinical trials.	1. To understand importance of clinical research and clinical trials 2. To study the various phases of clinical trials	1. To discuss preventive trials 2. To know risk factors trials
16.	Fallacies in Biostatistics	1. To discuss concept of fallacies in Biostatistics 2. To understand various types of	

		fallacies 3. To know causes of fallacies in Biostatistics	
17.	Health information system I	1. To introduce Health Information System 2. To understand components of Health Information System 3. To know sources of Health information System 4. To discuss uses of Health information System 5. To discuss salient features of Census-2011	
18.	Health information system II	1. To discuss registration of vital events 2. To understand sample registration system 3. Able to understand notification of diseases and notifiable diseases 4. To discuss other sources of HIS like Hospital records, Population Surveys etc.	
19.	Role of computer in statistics	1. To understand application of computers for preparation of master chart and data entry in excel sheet 2. To prepare graphical representations for the results 3. To use Microsoft Excel for data analysis	
20.	Introduction to statistical softwares	1. To know data entry and analysis in available statistical softwares like SPSS, STATA, Epi-Info	

IV Semester (Teaching Hours: 20)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must Know	Desirable to know
1.	Mode of spread of disease and introduction to environmental sanitation	a) To understand modes of disease transmission b) Able to discuss role of environmental factors in health and disease c) To define environmental sanitation d) To discuss various intervention measures related to environment for prevention and control of disease	
2.	Water in relation to health and disease-I (Sanitary well Water purification and Hardness of water)	a) To define safe and wholesome water. b) To understand criteria for drinking water quality. c) To discuss water pollution and its effects on health d) To understand concept of sanitary well e) To know various methods of water purification on small scale and large scale f) To understand principles of chlorination g) To discuss water purification methods at household level	
3.	Water in relation to health and disease-II (Drinking water surveillance, Defluoridation and rain water harvesting)	a) To know concept of drinking water quality surveillance. b) To understand activities that ideally included in drinking water quality surveillance. c) To discuss elements of surveillance programme d) To know rain water harvesting e) To define hardness of water f) To know special treatment of hard water g) To discuss prevention and control of endemic fluorosis h) To discuss measures for swimming pool sanitation i) To discuss water conservation	1. To know WHO water quality standards 2. To discuss fluoridation of water 3. To discuss defluoridation of water and Nalgonda technique.
4.	Global Warming and climate change	a) To understand concept of greenhouse gases and its effects on climate change b) To discuss factors associated with ozone layer depletion. c) To discuss effects of global warming on health.	1. To understand concept of human development and its effects on natural resources

5.	Air Pollution	1. To define air pollution 2. To know different air pollutants 3. To discuss sources of air pollution 4. To understand health hazards of air pollution 5. To discuss prevention and control of air pollution	1. To understand monitoring of air pollution
6.	Occupational Health-I (Ergonomics, occupational environment, occupational hazards)	1. To understand concept of Ergonomics 2. To define occupational health 3. To understand occupational environment 4. To discuss occupational hazards in industrial workers 5. To enlist and discuss occupational diseases	
7.	Occupational Health -II (Industrial accidents, health hazards of agriculture workers)	1. To know Pneumoconiosis and its preventive measures 2. To discuss accidents in industry 3. To discuss health hazards in agriculture and other workers 4. To know causes of sickness absenteeism and its prevention 5. To know causes and prevention of accidents in industry	1. To know lead poisoning exposure 2. To discuss preventive measures for lead poisoning
8.	Occupational Health- III (Health problems due to industrialization, ESIS)	1. To discuss health problems due to industrialization 2. To know measures for health protection of workers 3. To discuss prevention of occupational diseases 4. To understand Employees state insurance act (1948) and various benefits to employees	1. To know Factories act 1948 and other industrial acts
9.	Nutrition – I (Balanced diet, nutritional problems of public health importance)	1. To define nutrition 2. To understand concept of balance diet. 3. To know principles in constructing balanced diet 4. To understand dietary goals (Prudent diet) 5. To discuss nutritional problems of public health importance in India. 6. To discuss problem of protein energy malnutrition and its prevention and control measures 7. To discuss problem of iodine deficiency disorders and its prevention and control measures 8. To understand malnutrition as a problem in human ecology (Ecology of malnutrition)	1. To know importance of other trace elements like zinc, cobalt, copper etc 2. To understand various classifications of PEM
10.	Nutrition – II (Vitamin A	a) To discuss prevention and control of: a) Vitamin A deficiency	

	deficiency, nutritional anaemia, endemic fluorosis, lathyrism)	b) Nutritional anemia c) Endemic fluorosis and d) Lathyrism	
11.	Nutrition – III (Food borne diseases, milk hygiene, food toxicants)	1. To define and classify food borne diseases 2. To discuss pasteurization of milk and tests for pasteurized milk 3. To know diseases due to various food toxicants	1. To enumerate minimum standards for slaughter houses according to model public health act (1955) in India.
12.	Nutrition – IV (Nutritional assessment, growth monitoring, food adulteration and fortification)	1. To understand assessment methods of nutritional status of an individual 2. To discuss concept of nutritional surveillance and growth monitoring 3. To understand concept of food fortification and food additives 4. To understand food adulteration with examples and its prevention.	1. To know various food standards
13.	Disaster Management	a) To define disaster b) To discuss disaster management c) To define triage appreciate its importance d) To discuss natural and manmade disasters	1. To understand personal protection in different types of emergencies
14.	Genetics	1. To classify and discuss chromosomal disorders (Relating to sex chromosomes and autosomes) 2. To discuss multifactorial genetic disorders 3. To define population genetics 4. To discuss factors influencing the gene frequencies. 5. To discuss preventive and social measures of genetic diseases. 6. To understand indications for prenatal diagnosis	1. To understand Hardy-Weinberg law. 2. To know human genome project 3. To discuss gene therapy
15.	Mental Health	1. To discuss mental dimension of health 2. To be able to know warning signals of poor mental health 3. To classify mental illnesses 4. To know causes of mental illnesses 5. To discuss problem of alcoholism and drug dependence 6. To understand approaches to prevention of drug dependence	1. To know crucial points in life cycle of human beings

16.	International Health	1. To understand birth, objectives of World Health Organization (WHO) and its membership 2. To discuss role of (WHO) 3. To understand WHO structure and its regions 4. To know about UNICEF and content of services provided 5. To understand functions of Non – governmental and other agencies working in field of health 6. To know and appreciate role of Red Cross Society	1. To know history of international health 2. To know about bilateral agencies working on health and their responsibilities 3. To know about World Bank, COLOMBO plan etc.
17.	Demography	1. To define demography 2. To discuss stages of demographic cycle. 3. To understand various demographic indicators (Age pyramid, sex ratio, density of population etc.) 4. To understand growth rate and its relationship with population growth. 5. To discuss demographic trend in world and India 6. To understand fertility indicators their importance – Net Reproduction Rate (NRR), Total Fertility Rate (TFR) etc 7. To discuss reasons for rapid population growth and its impact.	1. To know other fertility indicators 2. To understand fertility trends
18.	Gender inequality (Seminar)	1. To know difference between sex and gender 2. Able to describe gender discrimination 3. To discuss impact of gender inequality on demography and health (Declining sex ratio, PCPNDT and crime against women) 4. To create awareness about remedial measures	1. To discuss NGOS working on gender issues
19.	Changing social order (Seminar)	1. Able to describe changing social structure and order 2. To discuss impact of changing social order on demography and health 3. To create awareness about remedial measures	
20.	Palliative care (Seminar)	1. To understand concept of palliative care 2. To discuss the importance of palliative care 3. To understand the process of counseling 4. To appreciate the role of various support system for the terminally ill patient	

VI Semester (Teaching Hours: 20)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must know	Desirable to know
1.	Health care delivery system in India	1. To discuss concept of health care and health system 2. To describe levels of health care 3. To discuss elements and principles of primary health care 4. To describe model of health care system 5. To discuss health status, health problems and health resources in India 6. To understand health care delivery systems in India 7. To know Panchayati Raj Institution 8. To understand organization of health care delivery system 9. To describe job description of members of health team 10. To discuss voluntary health agencies in India	1. To know suggested norms for health personnel
2.	Maternal and Child Health I (Maternal Health)	1. To understand objectives of antenatal care 2. To describe antenatal care with reference to antenatal visits, prenatal advice and specific health protection 3. To describe intranatal care - domiciliary care, institutional care and rooming-in 4. To describe postnatal care - Objectives, complications of postnatal period and restoration of mother to optimum health 5. To discuss maternal and child health indicators 6. To define maternal mortality ratio, perinatal mortality rate, infant mortality rate etc 7. To explain determinants of maternal mortality in India. 8. To be able to identify at risk mothers 9. To discuss risk approach 10. To discuss national programmes related to maternal health.	1. To discuss maternal mortality rate
3.	Maternal and Child Health II (Child Health)	1. To discuss childhood - infancy, preschool age and school age 2. To describe objectives and components of neonatal care - early and immediate care 3. To understand neonatal examination 4. To know measurements of the baby - birth weight, length (height), head	1. To know rights of the child 2. To know Universal children's day 3. To discuss national policy

		circumference - To discuss neonatal screening - To be able to identify “At – Risk” infants. - To discuss feeding of infants- breast feeding and artificial feeding - To explain advantages of breasts feeding - To describe weaning process - To understand baby friendly hospitals initiatives - To discuss determinants of growth and development - Physical and behavioural - To explain growth chart and discuss its uses - Able to understand care of preschool child - To understand child health problems - To describe mortality in infancy, childhood and their causes - To understand health programmes related to child - To discuss Integrated Management of Neonatal and Childhood Illnesses (IMNCI)	for children To understand indications and principles of artificial feeding
4.	MCH III + Adolescent health and Geriatrics (School Health , Child & Adolescent problems Geriatrics)	- To know objectives and aspects of school health services - To discuss handicapped children - To understand behavioral problems in children - To understand conditions related to children like behavioral problems, juvenile delinquency, battered baby syndrome, child abuse, street children, child labor and child exploitation, child trafficking, child marriages, etc. - To know preventive measures for the same. - To describe child guidance and child placement. - To know integrated child development scheme (ICDS) - To understand health needs of adolescents - To describe health problems of the aged - To know disease prevention in elderly	- To discuss child welfare agencies - To know National policy for elderly
5.	Health Planning and Management (Health Planning)	- To define – goal, objective, plan, schedule etc. - To understand preplanning and discuss planning cycle - To know recommendations of various committees - To understand areas of health sector planning.	

		5. To discuss five year plans 6. To know and discuss health systems in India-at the central level, state and district level	
6.	Health Planning and Management (Health Management)	1. To know functions of a manager 2. To describe management methods and techniques. 3. To understand evaluation of health services	1. To describe Integrated Rural Development Programme
7.	Introduction to communicable disease (Infectious disease epidemiology, eradication of disease)	1. Able to know definitions and terminologies used in infectious disease epidemiology 2. To discuss epidemiological triad of communicable diseases 3. To understand modes of transmission 4. To discuss prevention and control measures of communicable disease	1. To understand successful parasitism 2. To know serial interval and generation time.
8.	Airborne infection – I (Chickenpox, Measles, Rubella and Influenza)	Smallpox, Chickenpox, Measles and Rubella 1. To understand epidemiological basis of small pox eradication 2. To discuss epidemiological determinants of chickenpox, measles and rubella 3. To explain characteristics of chickenpox rash 4. To explain rash in measles and rubella 5. To know complications of chickenpox and measles 6. To discuss congenital rubella syndrome and its prevention 7. To discuss prevention and control of chickenpox, measles and rubella. 8. To discuss role of vaccines in prevention of these diseases Influenza 1. To discuss epidemiological determinants of influenza 2. To understand antigenic shift and antigenic drift mechanism 3. To discuss prevention of influenza and influenza vaccines 4. To discuss epidemiological determinants	1. To understand difference between rash of chickenpox and smallpox 2. To discuss clinical features of rubella and its management 1. To know laboratory diagnosis of influenza 2. To discuss epidemiological determinants of

		of Pandemic influenza (Swine flu) 5. To discuss preventive measures for Pandemic influenza (swine flu) 6. To know pandemic influenza vaccines 7. To understand antiviral treatment for pandemic influenza	Avian flu & its preventive measures 3. To know chemoprophylaxis against H1N1
9.	Airborne infection – II (Mumps, diphtheria, pertussis, meningococcal-meningitis, ARI)	Mumps, Diphtheria, Pertussis, and Meningococcal meningitis 1. To understand and discuss epidemiological determinants and clinical features of diphtheria, mumps, pertussis and meningococcal-meningitis 2. To explain respiratory and non-respiratory forms of diphtheria 3. To know complications of mumps 1. To understand importance of seriousness and prompt treatment of cases of meningococcal meningitis 2. To know chemo prophylactic measures in close contacts of the meningitis cases 3. To understand role of immunization against mumps, diphtheria, pertussis and meningococcal-meningitis 4. To discuss prevention and control measures of the same Acute Respiratory Infections (ARI) 1. To discuss agent, host and risk factors of acute respiratory infections 2. To know clinical assessment and physical examination in acute respiratory infections 3. To understand classification and treatment of acute respiratory infections in children up to 5 years 4. To know pneumonia in young infant (infant under 2 months of age) 5. To discuss prevention of acute respiratory infections	1. To discuss mumps surveillance 2. To know role of diphtheria antiserum 3. To understand role of pneumococcal pneumonia vaccine (PPV23 and PCV) in prevention of ARI
10.	Airborne infection III (Tuberculosis)	1. To explain burden of tuberculosis 2. To discuss epidemiological indices/parameters in tuberculosis 3. To explain agent, host and social factors 4. To know definitions in tuberculosis 5. To know definitions related to treatment outcome for tuberculosis patients 6. To explain use of tuberculin test and its interpretation 7. To discuss control of tuberculosis with respect to RNTCP	1. To discuss collection of sputum samples 2. To know Zeil-Neelson staining and slide reporting 3. To know sputum culture 4. To know about Genxpert test in

		8. To discuss DOTS 9. To discuss DOTS plus treatment for MDR-TB 10. To know regimen for XDR-TB 11. To know childhood tuberculosis- Diagnosis and treatment 12. To explain role of BCG vaccine 13. To discuss chemoprophylaxis 14. To discuss Tuberculosis and HIV co-infection 15. To explain tuberculosis and diabetics.	determining MDR-TB
11.	Epidemiology and prevention of intestinal infections-I (Acute diarrheal diseases, cholera, food poisoning)	1. To define diarrhea and dysentery. 2. To know clinical types of diarrhea diseases 3. To discuss problem statement and epidemiological determinants of diarrheal diseases 4. To understand control of diarrhea diseases 5. To know oral rehydration therapy 6. To discuss epidemiological features and determinants of cholera 7. To discuss epidemiological importance of food poisoning 8. To know types of food poisoning and features of various food poisoning. 9. To understand incubation period in different food poisoning 10. To discuss investigation of food poisoning 11. To explain prevention and control of food poisoning	1. To know rotavirus vaccination 2. To know pathogenesis and clinical features of cholera 3. To discuss control of cholera 4. To know differential diagnosis of cholera and food poisoning
12.	Intestinal infections – II (Viral Hepatitis, Typhoid)	1. To discuss epidemiological determinants and importance of viral hepatitis and typhoid. 2. To know modes of transmission of viral hepatitis 3. To discuss dynamics of typhoid fever transmission 4. To know carriers in typhoid fever 5. To know prevention and control measures for viral hepatitis and typhoid fever 6. To know vaccines and need of vaccination for -Hepatitis A, Hepatitis B and typhoid	1. To discuss anti-typhoid vaccines 2. To know clinical course of hepatitis B in adults
13.	Intestinal infections – III (Polio and pulse polio)	1. To discuss current status of Polio in India 2. To discuss epidemiological determinants of polio. 3. To know strategies for polio eradication in India 4. To discuss prevention of Polio	1. To understand polio surveillance-AFP surveillance and

		5. To understand difference between OPV and IPV. 6. To explain reason for switch from tOPV to bOPV. 7. To know investigation of an epidemic of polio. 8. To know pulse polio immunization	2. To know line listing of cases 3. To understand Mopping Up round
14.	Epidemiology and prevention of Arthropod borne diseases I (Malaria & Filariasis)	1. To discuss problem statement and epidemiological types of malaria in India 2. To understand definitions of – malaria control, elimination and eradication 3. To discuss epidemiological determinants of malaria 4. To know vector of malaria and factors determining the vectoral importance 5. To know clinical features and diagnosis 6. To discuss measurement of malaria and vector indices 7. To know approaches and strategies of malaria control. 8. To discuss integrated vector control approach. 9. To discuss National Vector borne Diseases control programme. 10. To know guidelines for diagnosis and treatment of malaria 11. To understand chemoprophylaxis against malaria 12. To discuss epidemiological determinants of filaria 13. To explain clinical manifestations of filariasis 14. To discuss Filaria survey. 15. To explain current strategy of filarial control.	1. To understand life cycle of malaria 2. To discuss treatment failure and drug resistance in malaria 3. To understand toxic hazards of antimalarial drugs 4. To assess filaria control programme
15.	Arthropod borne diseases – II (Dengue fever, Plague, Japanese Encephalitis)	1. To discuss epidemiological determinants of dengue To understand manifestation of dengue virus infection 2. To understand criteria for clinical diagnosis and laboratory diagnosis of dengue 3. To know clinical management of dengue 4. To discuss control measures for dengue 5. To explain agent, host and environmental factors in Plague 6. To discuss vector of plague 7. To understand importance of blocked flea 8. To discuss transmission cycle in plague 9. To know types of plague in man	1. To know tourniquet test 1. To know flea indices 2. To discuss other arboviral diseases- Yellow fever, Kyasanur forest disease (KFD), Chikungunya fever 3. To know international certificate for

		10. To discuss laboratory investigations in plague 11. To know prevention and control of plague 12. To discuss epidemiological investigation in plague 13. To understand reporting of cases and outbreaks of plague 14. To discuss problem statement of Japanese encephalitis 15. To discuss epidemiological features for Japanese encephalitis (Basic transmission cycle of JE, transmission in man and mosquito vectors) 16. To understand Japanese encephalitis in man 17. To discuss control of Japanese encephalitis	yellow fever vaccination 4. To understand concept of Aedes aegypti index 5. To discuss guidelines for management of acute encephalitis syndrome including JE in India
16.	Zoonotic diseases - I (Rabies)	1. To discuss epidemiological determinants of rabies 2. To know pathogenesis of rabies 3. To know clinical picture, treatment and prevention of human rabies. 4. To discuss categories of contact with suspected rabid animal and recommended post exposure prophylaxis. 5. To know pre-exposure prophylaxis	1. To know control of urban rabies 2. To discuss rabies in dogs 3. To understand role of rabies immunoglobulin in category III exposure
17.	Surface infections – I (Leprosy)	1. Able to enumerate cardinal features of Leprosy 2. To discuss problem statement 3. To define leprosy elimination 4. To discuss epidemiological determinants of leprosy including modes of transmission 5. To know classification of Leprosy 6. To understand clinical classification of Leprosy-PB and MB 7. To know diagnosis- clinical and bacteriological examination 8. To discuss leprosy control 9. To explain Leprosy reaction and treatment 10. To understand difference between Type I (reversal) and Type II (ENL) reaction 11. To describe deformities in leprosy 12. To understand community based rehabilitation	1. To know bacterial index 2. To know morphological index 3. To understand difference between Type I (reversal) and Type II (ENL) reaction 4. To discuss anti leprosy activities in India 5. To know NGOs working in field of leprosy e.g. Anandvan, Hind Kustha

			Nivaran Sangh
18.	Surface infections – II (STD, HIV/AIDS)	1. To discuss Epidemiological determinants of STD and HIV/AIDS 2. To describe social and behavioural factors in spread of STDs and HIV/AIDS 3. To discuss control of STDs with special emphasis to syndromic approach 4. To know prevention of mother to child transmission of HIV 5. To understand opportunistic infections of HIV/AIDS 6. To know laboratory diagnosis 7. To discuss control of HIV/AIDS 8. To know post exposure prophylaxis for HIV	1. To describe clinical manifestation of HIV/AIDS and STDs 2. To know ART recommendations for infants and children
19.	Hospital acquired infections	1. To define hospital- acquired infections/ Nosocomial infections 2. To describe factors behind hospital acquired infections 3. To understand preventive measures for hospital acquired infections 4. To know standard (Routine) precautions for prevention of nosocomial infections	1. To discuss criteria for surveillance of nosocomial infections
20.	Emerging and Re-emerging infections	1. To define emergence and re emergence of infectious diseases. 2. To explain factors responsible for emergence and re emergence of infectious diseases. To understand antimicrobial resistance with examples	

VII Semester (Teaching Hours: 10)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must Know	Desirable to know
1.	Introduction to Non-communicable disease	- To understand six key sets of 'risk factors' for non communicable diseases - To know gaps in natural history of NCD - To explain integrated approach for prevention of NCD - Able to describe WHO STEPS approach for prevention of NCD	
2.	Coronary heart disease	- To discuss coronary heart disease presentation - To explain risk factors for coronary heart diseases - To discuss prevention of Coronary heart diseases	- To understand MONICA project - To know Framingham study
3.	Hypertension	- To discuss classification of hypertension - To know concept of rule of halves - To describe tracking of blood pressure - To discuss modifiable and non-modifiable risk factors in hypertension - To discuss organ damage due to hypertension - To describe levels of prevention with respect to hypertension - To know lifestyle modifications to manage hypertension	To describe natural history of stroke
4.	Obesity	- To define obesity - To discuss epidemiological determinants of obesity - To understand assessment of obesity - To discuss hazards of obesity - To discuss prevention and control of obesity	To discuss relative risk of health problems associated with obesity
5.	Blindness	- To define blindness (WHO definition) - To understand common causes of blindness - To discuss epidemiological determinants of blindness - To explain prevention of blindness	To understand categories of visual impairment

		and discuss Vision 2020	
6.	Accidents	1. To define an accident 2. To describe types of accidents 3. To know risk factors for different accidents 4. To explain primary factors in road traffic accidents	1. To describe Do's and Dont's in burns 2. To know domestic accidents
7.	Cancers	1. To discuss various types of cancers in India 2. To describe epidemiology of common cancers in India (Oral cancer, Cervix cancer, Breast cancer, Lung cancer) 3. To know cancer screening 4. To describe the control of cancer with relation to levels of prevention 5. To know cancer registry 6. To know services given under related national health programme	
8.	Diabetes	1. To discuss classification of diabetes mellitus 2. To describe agent, host and environmental factors in diabetes 3. To know screening in diabetes 4. To know levels of prevention with respect to diabetes 5. To discuss self care in diabetes To describe individual interventions in diabetes with evidence of efficacy	
9.	Revision-paper I exam pattern		
10.	Revision-paper II exam pattern		

Practical Training Programme

I Semester Visits (Teaching Hours: 30)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must Know	Desirable to know
1.	Visit to Primary Health Centre/ Rural Health Training Centre	1. Able to understand staffing pattern at Primary Health Centre/ Rural Health Training Centre 2. To know and understand the job responsibilities of various health care personnel 3. To know and understand functions and services provided by PHC and RHTC	1. To know infrastructure of of PHC and RHTC 2. To understand field practice area of PHC and RHTC
2.	Visit to urban health centre	1. Able to understand staffing pattern at Urban Health Training Centre 2. To know and understand the job responsibilities of various health care personnel at centre 3. To know and understand functions and services provided by urban health centre	
3.	Visit to Bharati Hospital	1. To understand functioning of Bharati hospital(tertiary care hospital) 2. To know locations and functioning of various departments like medicine, surgery, etc. and services provided by them 3. To know the functions and services provided at casualty 4. To observe and understand dressing of wounds and injection technique 5. To know methods of collection, segregation and disposal of health care/ hospital waste 6. To understand maintenance of medical records	
4.	Visit to Family Planning Centre (FPAI)	1. Able to discuss the role of NGO in MCH care 2. To know the functioning of FPAI (Family Planning	

		Association of India) 3. To appreciate the roles & responsibilities of the manpower working at FPAI	
5.	Visit to Mukhtangan De-addiction Centre /Old age home	1. To understand the need and role of de-addiction centre 2. To understand process of counseling 3. To understand efforts taken for de-addiction and process of de-addiction/ rehabilitation 4. To know health problems of elderly 5. To understand role of old age homes in providing healthful environment to elderly 6. To discuss prevention and control of health problems of elderly	
6.	Visit to Cipla Palliative Care Centre	1. To understand concept of palliative care 2. To discuss importance of palliative care 3. To understand process of counseling 4. To appreciate the role of various support system of palliative care in terminally ill patients	
7.	Visit to Ayurvedic and Homeopathic college	2. To understand components of AYUSH 3. To understand principles of ayurveda and homeopathy 4. To know role of ayurveda and homeopathy in Indian system of medicine	
8.	Visit to Child Guidance Clinic	1. To understand concept of Child Guidance Clinic 2. To understand child health problems of various age-groups 3. To discuss role of child psychologist 4. To know importance of child guidance clinic for child health	
9.	Nursing Practices -I	1. To learn administration of parental line (IV/IM) 2. To be able to perform/ administer parental line (IV/IM)	
10.	Nursing Practices –II	1. To learn bandaging technique 2. To be able to bandage wounds 3. To know sterilization of	

		instruments	
11.	Nursing Practices – III	1. To know cold chain equipments and importance of cold chain at immunization clinic 2. To understand National Immunization Schedule and newer vaccines 3. To know route of administration and dose of vaccines 4. To understand techniques to administer different vaccines to child 5. To know precautions to be taken during vaccination 6. To know components of emergency tray	
12.	Nursing Practices – IV	1. To appreciate role of nurses in patient care	
13.	Socio-drama (Role Play)	1. Able to plan, write a script and perform street play on a health problem	
14.	Socio-drama (Role Play)	1. Able to plan, write a script and perform street play on a health problem	
15.	Presentation of work	1. To be able to systematically present all the skills/knowledge learned during various visit	

III Semester Biostatistics (Teaching Hours: 20)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must Know	Desirable to know
1.	Sources and types of Data	1. To introduce with concept of data and statistics. 2. To define biostatistics 3. To identify types of data for given variables 4. To discuss source of data with examples 5. To solve examples of data collection	
2.	Presentation of data – I	1. To know importance of presentation of data. 2. To elaborate types of presentation of data. 3. To demonstrate different types of tabulation of data 4. To practice making of different tables from the collected data.	
3.	Presentation of data – II	1. To elaborate importance of graphs 2. To explain types of graphs for presentation of quantitative data 3. To practice preparation of graphs for quantitative data	
4.	Presentation of data – III	1. To explain types of graphs and charts for presentation of qualitative data 2. To understand methods of preparation of graphs and charts for qualitative data. 3. To prepare graphs and charts for qualitative data.	
5.	Measures of Central Tendency and variation.	1. To explain concept of measures of central tendency and variation. 2. To understand different measures of central tendency and variation 3. To calculate mean, median, mode and variation from given data	
6.	Probability and Normal curve.	1. To understand concept and importance of probability with examples 2. To explain normal distribution 3. To demonstrate normal distribution curve and its uses 4. To calculate probability for a given situation. 5. To solve examples on application of normal distribution.	

7.	Sampling.	1. To explain importance of sampling 2. To discuss sampling methods and sampling techniques. 3. To know sample selection by using simple random sampling and systematic random sampling. 4. To understand importance of sample size and its estimation. 5. To calculate sample size based on given data	
8.	Standard error of means and proportion.	1. To explain sampling distribution and variation 2. To elaborate concept of standard error 3. To understand calculation of standard error for mean and proportion 4. To solve examples for standard error of mean and proportion.	
9.	Test of significance.	1. To explain concept of tests of significance. 2. To understand different tests of significance for qualitative and quantitative data. 3. To elaborate steps in test of significance by using example. 4. To explain level of significance, null hypothesis and alternative hypothesis 5. To formulate null and alternative hypothesis 6. To demonstrate tables of z test, chi square test 7. To calculate degrees of freedom 8. To interpret p value 9. To understand concept of type I error and type II error	1. To understand power of test 2. To demonstrate use of excel sheet with special reference to statistical functions 3. To acquaint with various statistical software - SPSS, SAS, STRATA, Epi Info etc.
10.	Z -Test for difference between Two Means	1. To understand steps in Z - Test for difference between two Means 2. To solve problems on the application of Z - test for mean	1. To acquaint concept of ANOVA test and Fishers exact test
11.	Z -Test for difference between Two Proportion	1. To understand steps in Z - Test for difference between two proportions 2. To solve problems on the application of Z test for proportion	
12.	Paired t-test	1. To explain the situation for the application of paired t-test. 2. To know different assumptions for paired t-test. 3. To solve problems on paired t-test.	
13.	Unpaired t-test	1. To explain the situation for the application of unpaired t-test.	

		2. To understand different assumptions for the use of unpaired t-test. 3. To solve problems on Un-paired t-test.	
14.	Chi-square test	1. To explain the situation for the application of Chi-square t-test. 2. To understand limitations for the use of Chi-square test 3. To solve problems on Chi-square t-test.	1. To acquaint with nonparametric tests
15.	Clinical trials.	1. To explain importance of clinical research and clinical trials 2. To understand the various phases of clinical trials 3. To acquaint different steps involved in randomized clinical trials. 4. To be able to formulate inclusion and exclusion criteria	
16.	Fallacies in Biostatistics	1. To discuss concept of fallacies in biostatistics 2. To explain various types of fallacies with examples 3. To discuss the wrong decision makings in biostatistics. 4. To make student able to point out and discuss statistical fallacy in given example	
17.	Health information system I and II	1. Able to define various rates and ratios of vital events 2. To solve examples of crude death rate, birth rate, infant mortality rate, general fertility rate etc.	
18.	Revision 1		
19.	Revision 2		
20	Journal completion		

IV Semester Research Projects (Teaching Hours: 24)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must know	Desirable to know
1.	Research Projects	1. To understand concept of Research in biomedical sciences 2. To know components of “ Research” 3. To decide title of study 4. To explain how to write introduction 5. To formulate Aim and Objectives 6. To search literature for study 7. To write material and methods 8. To prepare tool for Data collection 9. To do data collection and analysis 10. To interpret results 11. To write discussion, limitations and recommendations 12. To write References 13. To prepare and present project report 14. To report submission	1. To write inclusion exclusion criteria 2. To understand bias 3. To know matching 4. To understand concept of blinding

V – Semester (Scenario based learning) (Teaching Hours: 40)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must Know	Desirable to know
1.	Water-I (Horrock's test, OT test, disinfection of well, hardness of water)	1. To define safe and wholesome water. 2. To discuss water borne and water related diseases 3. To know methods of disinfection of water on small scale and large scale 4. To understand mechanism of action of bleaching powder 5. Able to demonstrate Horrock's test and its interpretation 6. Able to perform and interpret Orthotoludine (OT) test 7. To discuss principles of chlorination, break point chlorination and super chlorination. 8. To know disinfection of well 9. To discuss hardness of water and special treatment to remove hardness of water	1. To know sources of water 2. To understand Double pot method. 3. To know classification of hardness of water 4. To enumerate disadvantages of hard water
2.	Water – II (Assessment of potability of water, sampling technique of water)	1. To discuss collection of samples for physical and chemical and bacteriological examination 2. To understand physical, chemical, biological indicators to assess portability of water and its importance. 3. To discuss importance of coliform organism used as biological indicator for drinking water surveillance. 4. To understand presumptive coliform test and its interpretation (Most probable number of E coli/ 100 ml of sample water from statistical tables)	1. To discuss transport and storage of water samples
3.	Physical Environment – I (Air pollution, noise, light, temperature)	1. To define air pollution 2. To know sources and health hazards of air pollution 3. To discuss prevention and control measures for air pollution 4. To understand concept of thermal discomfort and discuss indices of thermal comfort 5. To demonstrate use of Nomogram 6. To define noise pollution 7. To know sources and hazards of noise pollution	1. To know monitoring of air pollution 2. To discuss properties of noise 3. To understand measurement of daylight 4. To know recommended illumination (lux) 5. To understand

		8. To discuss control of noise pollution. 9. To understand light factors essential for efficient vision 10.To know biological effects of light 11.To discuss effects of temperature/heat on health and measures to prevent it. 12.To identify and be familiar with instruments / equipments and their uses - like dust mask , sound level meter, welders shield, protective goggles, ear plug, ear muff, photometer, simple thermometer, dry and wet thermometer, minimum and maximum thermometer, globe thermometer, Sling psychrometer etc.	methods of artificial illumination
4.	Physical Environment – II (Radiation, ventilation, pressure, housing, vibration)	1. To know source, types and health hazards of radiation 2. To discuss radiation protection measures 3. To understand concept of ventilation and standards of ventilation 4. To discuss types of ventilation 5. To discuss effects of atmospheric pressure on health 6. To know and understand housing standards 7. To discuss overcrowding 8. To understand occupational hazards of vibration 9. To identify and be familiar with instruments / equipments and their uses - dosimeter, lead gown, barometer, smokeless chullah.	1.To know radiation protection 2.To discuss criteria for healthful housing 3.To know indicators of housing 4.To understand Indira Awas Yojana
5.	Methods of Refuse Disposal	1. To understand concept of solid waste 2. To know health hazards of solid waste 3. To discuss sources of refuse. 4. To explain storage, collection and disposal methods of refuse. 5. To discuss Anaerobic (Bangalore) and Aerobic (Mechanical) methods of composting 6. To define sullage 7. To explain difference between sewage and sullage 8. To discuss soakage pit and its applicability.	1. To understand vermin - composting and bioculture 2. To discuss biogas plant and its applicability.
6.	Hospital Waste Management	1. To define biomedical waste. 2. To understand sources of health- care waste. 3. To discuss health hazards of health-	1.To discuss collection, segregation and transport of

		care waste. - To understand categories of biomedical wastes in India - To demonstrate colour coding and the types of container for collection and segregation of biomedical wastes. - To discuss treatment and disposal technologies for health care waste. - To explain safety measures for hazards due to biomedical waste	biomedical waste To understand waste type not to be incinerated
7.	Arthropods of Medical Importance – I (Housefly, Sandfly, Rat flea)	- To introduce arthropods of medical importance - To explain classification of arthropods of medical importance. - To revise terminologies like vector, extrinsic incubation period, host, intermediate host and definitive host. - To enumerate arthropod-borne diseases - To discuss modes of transmission of arthropod-borne diseases - To demonstrate stages in life cycle of housefly, sand fly and rat flea. - To discuss diseases transmitted by – housefly, sand flies and rat flea. - To explain control measures for the same - To be able to identify adult housefly, sand fly and rat flea	- To know habits of housefly - To understand concept of blocked rat flea - To know importance of cracks and crevices in transmission of vector borne diseases
8.	Arthropods of Medical Importance – II (Mosquito, ticks, mites, louse, Cyclops)	- To demonstrate stages in life cycle of mosquito, ticks, mites, louse and cyclops - To discuss disease transmitted by the same - To understand difference between adult anopheles and culex mosquito - To explain control measures for mosquito, ticks, mites, louse and cyclops - To discuss integrated vector control approach. - To be able to identify with reasons: - Larva of anopheles & culex - Adult anopheles & adult culex - Adult Aedes - Hard tick & soft tick - Itch mite - Trombiculid mite - Head louse & public louse - Cyclops	- To know habits of mosquitoes

9.	Insecticides	1. To define insecticides. 2. To classify insecticides. 3. To explain different insecticides, their properties, mode of action and dosage 4. To identify different insecticides on their physical properties 5. To understand insecticide toxicity and treatment 6. To explain diseases transmitted by rodents and discuss anti rodent measures	1. To discuss insecticide resistance. 2. To explain control of zoonoses 3. To understand Insecticide resistance kit.
10.	Occupational Health	1. To explain occupational hazards for industrial workers 2. To classify occupational diseases 3. To discuss prevention of occupational diseases. 4. To identify personal protective devices 5. To be able to mention uses of personal protective devices	1.To discuss lead poisoning
11.	Nutrition-I (Cereals and pulses)	1. To explain classification of foods (By origin, chemical composition, predominant function and by nutritive value) 2. To identify different types of cereals and pulses 3. To demonstrate nutritional significance of cereals and pulses. 4. To explain and discuss use of parboiling 5. To be able to discuss role of cereals and pulses in health and diseases	1. To understand and explain effects of milling, washing and cooking on nutritive value
12.	Nutrition – II (Other food groups- Milk and milk products, fruits and vegetables, fats and oils and meat)	1. To mention dietary sources and understand nutritional significance of the milk and milk products, fruits and vegetables, fats and oils and meat. 2. To be able to discuss role of the same in health and diseases	1. To describe junk food 2. To discuss refined oils and invisible fats
13.	Nutrition-III (Balanced Diet, nutritional requirement of special groups and nutritional assessment and breast feeding)	1. To explain concept of balanced diet 2. To specify Recommended Dietary Allowance (RDA) for male and female (in sedentary, moderate and heavy work 3. To explain nutritional requirement of special groups like: a) Pregnancy b) Lactation c) Under-5 children and d) Adolescent.	

		- To demonstrate nutritional assessment by weighment of raw food and 24 hour recall method. - To discuss importance of breast feeding. - To explain weaning and weaning foods	
14.	Disinfection and sterilization	- To explain difference between disinfection, sterilization and antiseptic - To discuss types of disinfection - To show and explain chemical disinfectants, their advantages and disadvantages - To explain the procedure for disinfection of faeces and urine, sputum and room	- To know properties of ideal disinfectant - To understand factors affecting the efficacy of sterilization
15.	Family Planning	- To define family planning and explain scope of family planning. - To explain contraceptive methods - To demonstrate family planning devices, their advantages and disadvantages - To emphasize importance of Pearl index/ failure rate of contraceptives (HWY)	- To discuss miscellaneous contraceptive methods like safe period, abstinence etc. - To understand MTP Act
16.	Immunization	- To explain and understand concept of cold chain - To orient National Immunization Schedule and new vaccines - To demonstrate various vaccines - To elaborate importance of vaccine vial monitor (VVM) - To understand difference between vaccines and toxoids - To discuss the conditions where combined active and passive immunization is given	- To discuss use of immunoglobulin - To understand adverse events following immunization
17.	Nutritional problems in India (Seminar)	- To discuss important nutritional problems in India - To elaborate prevention and control measures for the same	
Educational Visits			
18.	Visit to Milk Dairy	- To explain objectives and purpose of visit to milk dairy - To explain concept of pasteurization of milk - To discuss methods of pasteurization of milk	To know clean and safe milk

		4. To explain and show process of pasteurization at dairy 5. To demonstrate post- pasteurization tests at laboratory of dairy 6. To discuss and understand milk hygiene	
19.	Visit to Sewage Treatment Plant	1. To explain objectives and purpose of visit to sewage treatment plant 2. To define sewage. 3. To understand difference between sewage and sullage 4. To demonstrate steps in sewage treatment at modern sewage treatment plant	1. To discuss strength of sewage (Biochemical oxygen demand and chemical oxygen demand) 2. To understand process of decomposition of organic matter
20.	Visit to Public Health Laboratory	1. To explain objectives and purpose of visit to public health lab. 2. To show tests carried out on water and food at public health laboratory. 3. To demonstrate adulteration with examples.	1. To understand prevention of Food Adulteration Act 2. To know Food standards

VI Semester (Morning Posting/ Clinical posting) (Teaching Hours: 36)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must Know	Desirable to know
1	Introduction	1. Introduction to posting, 2. Explaining history taking of hospital case 3. Explaining history taking of clinico-social case 4. Explaining socio-economic classification 5. Describing calorie and protein requirement and calculation 6. Explaining nutritional intake by 24 hour recall method	
2	Day-1 Urban health centre and Family planning OPD	1. To understand health care delivery system in urban area including infrastructure services, administrative and staffing pattern 2. To understand implementation of National Family Welfare programme under RCH 3. To understand various registers used under family welfare programme 4. Able to council eligible couple regarding family planning methods 5. To discuss mechanism, advantages, disadvantages, contraindications and failure rate of each family planning method	
3	Day-2 Immunization OPD	1. To discuss National Immunization schedule 2. To observe cold chain equipments (ILR, vaccine carrier and ice packs) 3. To observe route of administration, reconstitution, dose of each vaccine 4. To understand immunization registers and cards	
4	Day-3 Anganwadi	1. To understand functions, infrastructure and staffing pattern 2. To observe growth monitoring and supplementary feeding of anganwadi children 3. To impart health education to mothers and children	

5	Day-4 DOTS centre	1. To understand objectives and service components of RNTCP 2. To observe administrative set up and staffing pattern 3. To observe sputum collection methods, Z-N staining, patient counseling and category wise treatment and sputum disposal 4. To observe record keeping (registers, TB card) 5. To observe category wise distribution of TB patients	
6.	Day-5 Extension activity	1. To plan, design and execution of BCC activity through self prepared charts, video clips, power point presentations, street play, rally etc	
7	Seminars on National Health Programmes		
7.1	a) National Programme for Prevention and Control of Cancer, Diabetes, CVD and Stroke (NPCDCS)	1. To introduce and describe National Health Programme (Demographic profile. Health problems, Health care delivery system, health resources, prioritization and list of NHPs) 2. To describe historical aspects of NHP (If applicable/necessary) 3. To know objectives of NHP 4. To understand components including strategies, initiatives etc 5. To know administrative setup 6. To describe programme implementation 7. To understand programme achievements To explain evaluation of NHP	
7.2	Reproductive and Child Health Programme	1. To describe historical aspects 2. To understand objectives of RCH 3. To know components including strategies, initiatives etc 4. To know administrative setup 5. To describe programme achievements 6. To discuss evaluation of national health programme	

8	Cases (9) {Antenatal Case Postnatal Case Diabetes Hypertension Cancer Diarrhoea Tuberculosis Protein Energy Malnutrition (PEM) ARI}	1. To take adequate history with respect to signs and symptoms. 2. To discuss differential diagnosis 3. To know provisional diagnosis 4. Able to describe necessary investigations 5. To know management of patient 6. Able to give advice to patient and family 7. To describe community level interventions and related NHP	1. To know socio-economic classification
3.1	Antenatal Case	1. To discuss objectives of antenatal care 2. To describe various services given during each antenatal visits 3. To estimate the number of pregnancies in specified area and pregnancy tracking 4. To discuss risk approach 5. To know various components of prenatal advice 6. To understand various health protection measures for anaemia, toxemia of pregnancy, HIV infection, Hepatitis B, etc. 7. To discuss components of RCH with relation to ANC 8. To understand concept of maternal mortality ratio	
3.2	Postnatal case	1. To discuss objectives of postnatal care 2. To know complications of postpartum period 3. Able to give advice for restoration to optimum health 4. Able to discuss about home-based neonatal care 5. To understand the importance of breast feeding 6. Able to advice to mother on family planning, immunization, birth registration and importance of health check up. 7. To discuss the components of RCH with relation to PNC	

3.3	Diabetes	6. To discuss classification of diabetes mellitus 7. To describe agent, host and environmental factors in diabetes 8. To know screening in diabetes 9. To know levels of prevention with respect to diabetes 10. To discuss self care in diabetes 11. To describe individual interventions in diabetes with evidence of efficacy	
3.4	Hypertension	8. To discuss classification of hypertension 9. To know concept of rule of halves 10. To describe tracking of blood pressure 11. To discuss modifiable and non-modifiable risk factors in hypertension 12. To discuss organ damage due to hypertension 13. To describe levels of prevention with respect to hypertension 14. To know lifestyle modifications to manage hypertension	
3.5	Cancer	7. To discuss various types of cancers in India 8. To describe epidemiology of common cancers in India (Oral cancer, Cervix cancer, Breast cancer, Lung cancer) 9. To know cancer screening 10. To describe the control of cancer with relation to levels of prevention 11. To know cancer registry 12. To know services given under related national health programme	
3.6	Diarrhoea	1. To discuss problem of diarrhea in India 2. To describe epidemiological determinants of diarrhea 3. To know the components of diarrhea disease programme 4. To know fluid and electrolyte management, nutritional management and treatment of causative agents 5. To describe the prevention of diarrhea and malnutrition 6. To know services provided under RCH programme	

3.7	Tuberculosis	1. To know burden of tuberculosis 2. To discuss epidemiological indices/parameters in tuberculosis 3. To know definitions in Tuberculosis 4. To discuss definitions related to treatment outcome for tuberculosis patients 5. To know agent ,host and social factors 6. To understand control of tuberculosis with respect to RNTCP 7. To know tuberculin test and its interpretation 8. To discuss DOTS 9. To describe DOTS plus treatment for MDR-TB 10. To understand regimen for XDR-TB 11. To know childhood tuberculosis-diagnosis and treatment 12. To discuss BCG vaccination 13. To know chemoprophylaxis 14. To now stop TB strategy 15. To discuss tuberculosis and HIV 16. To describe tuberculosis and diabetes.	1. To know collection of sputum samples 2. To know Zeihl-Neelson staining and slide reporting 3. To understand sputum culture
3.8	Protein Energy Malnutrition	1. To define PEM 2. To know various classification 3. To discuss factors infusing PEM 4. To know infant and young child feeding practices 5. To understand importance of growth monitoring with road to health chart	
3.9	Acute Respiratory Infections (ARI)	6. To discuss agent, host and risk factors of acute respiratory infections 7. To understand clinical assessment and physical examination in acute respiratory infections 8. To know classification and treatment of acute respiratory infections in children's aged 2 months to 5 years 9. To discuss pneumonia in young infant (infant under 2 months of age) 10. To know prevention of acute respiratory infections 11. To describe immunization for bacterial pneumonia	
4.	Extension Activity (Community Health	1. To plan, design and execution of BCC activity through self prepared charts, video clips, power point presentations, street play, rally etc	

	education, Celebration of public health days)		
Educational Visits			
1.	Urban health centre	1. To understand health care delivery system in urban area including infrastructure services, administrative and staffing pattern	
1.1	Day-1 Family planning OPD	6. To understand implementation of National Family Welfare programme under RCH 7. To understand various registers used under family welfare programme 8. Able to counsel eligible couple regarding family planning methods 9. To discuss mechanism, advantages, disadvantages, contraindications and failure rate of each family planning method	
1.2	Day-2 Immunization OPD	5. To discuss National Immunization schedule 6. To observe cold chain equipments (ILR, vaccine carrier and ice packs) 7. To observe route of administration, reconstitution, dose of each vaccine 8. To understand immunization registers and cards	
1.3	Day-3 Anganwadi	4. To understand functions, infrastructure and staffing pattern 5. To observe growth monitoring and supplementary feeding of anganwadi children 6. To impart health education to mothers and children	
5.	Day-4 DOTS centre	6. To understand objectives and service components of RNTCP 7. To observe administrative set up and staffing pattern 8. To observe sputum collection methods, Z-N staining, patient counseling and category wise treatment and sputum disposal 9. To observe record keeping (registers, TB card) 10. To observe category wise distribution of TB patients	

6.	Day-5 Extension activity	2. To plan, design and execution of BCC activity through self prepared charts, video clips, power point presentations, street play, rally etc	

VII Semester Morning Posting (NHP+ Revision+ Field Visits)

Teaching Hours: 72)

At the end of teaching learning session, students should be able to:

Sr. No.	Topic	Must know	Desirable to know
1.	Nutrition revision (Demonstration) -	- To revise classification of food - To revise and demonstrate all nutrients with their nutritional significance - To revise and discuss limiting amino acids, parboiling, complementary action of proteins - To revise adulteration and fortification of food	To discuss food additives and toxicants
2.	Environment health + occupational health revision (Demonstration) -	- To identify and revise all environmental sanitation spotters and models with their use and public health importance - To identify and revise all occupational health spotters (personal protective devices) and models with their use and public health importance	
3.	Introduction to family health survey + allotment of seminars –	a. Family Health Survey - - To introduce family health survey proforma - To instruct how to fill the proforma - To instruct and explain terminologies used in proforma like education, occupation, marital status type of family etc - To explain socio-economic classification (Modified BG Prasad's Classification) b) To allot seminars with expected content	
4.	Orientation to RHTC, Visit to sub center (Urawade) and visit to village water supply scheme, Grampanchayat	a) Rural Health Training Centre, Lavale - To visit and give orientation of Rural Health Training Centre, Lavale - To understand concept of rural health training centre - To know staffing pattern of rural health training centre - To discuss working pattern of rural health training centre - To explain the role of health care functionaries working at RTHC b) Sub-centre - To visit and understand functioning of	

		(activities, infrastructure and staffing pattern) of Sub Centre 2. To know job responsibilities of health care functionaries working at sub-centre 3. To understand population catered by sub-centre c) Visit to Village Water Supply Scheme 1. To visit and understand village water supply system 2. To explain water purification and distribution of water at rural level	
5.	Family Health Survey at RHTC, Lavale (Visit)	1. To visit allotted families 2. To establish rapport with family and community. 3. To know socio-economic status of family 4. To study housing environment of the family 5. To understand socio-cultural factors in health and disease 6. To know awareness of family members regarding important diseases 7. To know common medico social problems in family 8. To understand problems perceived by the family 9. To advice family regarding prevention and control of diseases 10. To understand concept of community diagnosis	
6.	Family Health Survey at RHTC, Lavale (Visit)	= do =	
7.	Family Health Survey at RHTC, Lavale (Visit)	= do =	
8.	Family Health Survey at RHTC, Lavale(Visit)	= do =	
9.	Visit to Mutha PHC(Visit)	1. To understand concept of Primary health care 2. To know the principles of primary health care 3. To know functioning (activities, infrastructure and staffing pattern) of Primary Health Centre 4. To explain delivery of services by PHC 5. To know population catered by PHC 6. To know number of sub-centers working under PHC 7. To understand role of health care	

		functionaries working at PHC	
10.	Leprosy centre visit, Kondhava (Visit)	1. To know diagnosis and treatment of leprosy patients 2. To discuss various socio-cultural issues in leprosy 3. To explain importance of rehabilitation in leprosy 4. To understand role of leprosy centre in rehabilitation of leprosy patients (Surgical, medical, social and vocational)	1. To list NGOs working in field of leprosy
11.	National Vector Borne Disease Control Programme (NVBDCP) - Seminar	1. To explain evolution of the program. 2. To know the disease covered under the programme 3. To describe objectives of the program 4. To know three pronged strategy for prevention and control of VBDs. 5. To understand organizational setup. 6. To explain activities of the programme 7. To orient about active and passive malaria surveillance 8. To know functions of grass root level functionaries involved in implementation of the programme	1. To discuss National Drug Policy on Malaria 2013 2. To know anti malaria month campaign
12.	National Health Mission (NHM) - Seminar	1. To know objectives of the National Health Mission. 2. To understand organizational setup. 3. To explain the activities of the programme 4. To know functions of grass root level functionaries involved in implementation of the programme.	
13.	Family planning & immunization revision (Demonstration)	a) Family planning 1. To revise various family planning methods, their advantages and disadvantages 2. To discuss and revise cafeteria approach and failure rate of contraceptives b) Immunization 1. To revise cold chain equipments 2. To revise National Immunization Schedule 3. To revise all vaccines – Type, storage, route of administration, dose, adverse reactions etc	
14.	Vital stat revision, case study & health problem	a) Vital statistics 1. To revise definitions in vital statistics 2. To practice calculations of vital indicators b) Case studies and health problems 1. To orient with and revise case studies and health problems with discussion	

15.	Tutorial 1 (Oral)	To discuss viva questions and answers with respective topics	
16.	Tutorial 2 & 3 (Oral)	To discuss viva questions and answers with respective topics	
17.	Tutorial 4 (Oral)	To discuss viva questions and answers with respective topics	
18.	Tutorial 5 (Oral)	To discuss viva questions and answers with respective topics	
19.	Tutorial 6 (Oral)	To discuss viva questions and answers with respective topics	
20.	Tutorial 7 (Oral)	To discuss viva questions and answers with respective topics	
21.	Tutorial 8 (Oral)	To discuss viva questions and answers with respective topics	
22.	Tutorial 9 & 10 (Oral)	To discuss viva questions and answers with respective topics	
23.	Biostatistics Revision	1. To revise terminologies used in biostatistics 2. To understand and revise types of data, presentation of data 3. To explain and revise measures of central tendency and variability with examples 4. To demonstrate and revise standard error of mean and proportion 5. To revise and explain tests of significance, hypothesis, p value 6. To discuss statistical fallacies	
24.	Biostatistics Revision	1. To revise terminologies used in biostatistics 2. To understand and revise types of data, presentation of data 3. To explain and revise measures of central tendency and variability with examples 4. To demonstrate and revise standard error of mean and proportion 5. To revise and explain tests of significance, hypothesis, p value 6. To discuss statistical fallacies	

VII Semester Tutorial

Teaching Hours: 20

Sr. No.	Topic	Must know	Desirable to know
1.	Tutorial	1. To apply knowledge gained through teaching learning sessions from first semester till seventh semester and write answers to the questions asked in tutorial question papers	

(V) Method of Assessment

A. Internal assessment

Theory

Maximum marks 20, computed from maximum 400 marks, obtained in four written examinations and viva – voce examinations as shown below

Distribution of marks of Internal Assessment

Semester	Examination	Theory marks	Viva marks
III	Semester Term End	80	15
IV	Semester Term End	60	15
VI	Semester Term End	60	20
VII	Semester Tutorial Evaluation	----	10
VII	Semester Preliminary	120	20
	TOTAL	320	80

These 400 marks will be converted into 20 marks of internal assessment of theory.

Practical

Distribution of marks of Internal Assessment

Semester	Examination	Current Marks
III	Semester Term End	20
IV	Semester Term End	20
V	----	----
VI	Semester Term End	20
VII	Tutorial Evaluation	10
VII	Semester Preliminary	30
	Journal Evaluation (prelim exam)	--
	TOTAL	100

These 100 marks will be converted into 20 marks of internal assessment of practical.
The student must secure at least **35** percent marks (7 marks) in theory and practical internal assessment to be eligible to appear for university examination.

University Theory Examination

There will be two papers of 60 marks each and of 2 hours duration. Each paper will have two sections of 30 marks. In each section the candidate has to attempt a long answer question, two short notes out of three and five short answer questions out of seven of as given in following table.

Paper – I & Paper – II

Total Marks: 60

Section I			
Q. No.	Type of question	Option	Marks
Q. 1	One Long Answer Question (LAQ) of 10 marks	Compulsory	10
Q. 2	Two short notes (SN) of five marks each	Two out of three	10
Q. 3	Five short answer questions (SAQ) of two marks each	Five out of seven	10
Section II			
Q. 4	One Long Answer Question (LAQ) of 10 marks	Compulsory	10
Q. 5	Two short notes (SN) of five marks each	Two out of three	10
Q. 6	Five short answer questions (SAQ) of two marks each	Five out of seven	10

SYLLABUS:

PAPER – I

1. Concept of health and disease
2. Sociology/humanities
3. Epidemiology
4. Screening
5. Bio-statistics
6. Communicable and non-communicable diseases
7. Genetics
8. Environmental health
9. Health Information System (HIS)

PAPER – II

1. Demography and family planning
2. Maternal and child health
3. Nutrition
4. Occupational health
5. Mental health
6. Health education for communication
7. Health planning and management
8. Hospital waste management
9. Health care delivery system
10. National health programmes
11. International health
12. Disaster management

NOTE: THESE ARE BROAD DIVISIONS. OVERLAPPING IS POSSIBLE

University Practical Examination

Practical examination will consist of Maximum 30 marks. Pattern of examination will be as follows.

	Marks
Spots 5, of 2 marks each	10
Health Problems(1)of 5 marks	5
Case studies(1)of 5 marks	5
Exercises – Biostat (1)of 3marks, Vital statistics(1)of 2 marks each	5
Journal	5
TOTAL	30

Viva – Voce: 10 marks (Viva – Voce marks shall be added to theory marks)

Distribution of marks in university examination (200 marks)

	Theory (150)	Practical (50)
Paper I	60	30
Paper II	60	
Internal assessment	20	20
Viva	10	-
Total	150	50

The candidate will be declared pass in the subject only when at least 50 % marks are obtained separately in theory and practical examination

(VI) Recommended books:

a) Text books

1. Park's Text Book of Preventive and Social Medicine by K. Park
2. Text book of Community Medicine by Dr. A.P. Kulkarni and Dr. J. P. Baride
3. Text book of Community Medicine by K. Sundarlal
4. Methods in Biostatistics by B.K. Mahajan

b) Reference books

1. Epidemiology and Management for Health Care by Dr. P. V. Sathe & Dr. P. P. Doke
2. National Health Programmes and Policies of India by J. Kishore

(VII) Useful E-links

1. www.mohfw.nic.in
2. www.nihfw.org
3. www.unicef.org
4. censusindia.gov.in
5. <http://nrhm.gov.in/>
6. <http://www.searo.who.int/en>

DEPARTMENT OF DERMATOLOGY, VENEREOLOGY & LEPROSY

B.V.U. MEDICAL COLLEGE, PUNE

UNDERGRADUATE CURRICULUM

DERMATOLOGY / STD/ LEPROSY

Goals:

The aim of teaching the under graduate students in Dermatology, S.T.D. and Leprosy is to impart such knowledge and skills that may enable him to diagnose and treat common ailments and to refer rare diseases or complications and unusual manifestations of common diseases to the specialist.

Objectives:

Knowledge:

At the end of the course of Dermatology, Sexually Transmitted Diseases & Leprosy the student shall be able to:

1. Demonstrate sound knowledge of common diseases, their clinical manifestations including emergent situations and of investigative procedures to confirm their diagnosis.
2. Demonstrate comparative knowledge of various modes of topical therapy.
3. Demonstrate the mode of action of commonly used drugs, their doses, side effects / toxicity, indications and contraindication & interactions.
4. Describe commonly used modes of management including the medical & surgical procedures available for the treatment of various diseases and to offer a comparative plan of management for a given disorder.

Skills:

The student shall be able to

1. Interview the patient, elicit relevant and correct information and describe the history in a chronological order
2. Conduct clinical examination, elicit and interpret physical findings and diagnose common disorders and emergencies
3. Perform simple, routine investigative and laboratory procedures required for making the bed-side diagnosis, especially the examination of scrapings for fungus, preparation of slit smears and staining for AFB for leprosy patients and for STD cases
4. Take a skin biopsy for diagnostic purposes
5. Manage common diseases recognizing the need for referral for specialized care, in case of inappropriateness of therapeutic response.

Teaching pattern:

III SEMESTER	BASICS, INFECTIONS, INFESTATIONS - CLINICAL POSTING – I 1. Skin structure and functions 2. Skin lesions 3. Pyodermas 4. Fungal infections 5. Viral infections 6. Infestations
V SEMESTER	DERMATOLOGY – CLINICAL POSTING – II 1. Papulosquamous disorders 2. Eczemas 3. Appendageal disorders 4. Pigmentary disorders 5. Vesiculobullous disorders 6. Hypersensitivity disorders
VII SEMESTER	LEPROSY – CLINICAL POSTING - III SEXUALLY TRANSMITTED DISEASES – CLINICAL POSTING – III 1. Leprosy 2. Syphilis 3. Chancroid 4. Lymphogranuloma Venerum 5. Granuloma Inguinale 6. Gonococcal infection 7. Herpes genitalis 8. HIV
VIII SEMESTER	DIDACTIC LECTURES ON ALL THE TOPICS - 6

DERMATOLOGY – CLINICAL POSTINGS

BASICS, INFECTIONS, INFESTATIONS - CLINICAL POSTING – I

Sr No.	Topic	SLOs			T-L Methodology	Desired change (mention addition/deletion/change)
		Must know	Desirable to know	Nice to know	Lecture/Tutorial/ clinic/practical	
1	Skin structure and functions	Anatomy of skin Layers of skin – epidermis, dermis Appendages of skin Functions			Clinic Lecture	
2	Skin lesions	Primary and secondary skin lesions Arrangement and distribution of lesions History taking in skin conditions Investigations – KOH mount, slit skin smear Woods lamp	Investigations – Gram stain, Tzanck smear		Clinic Lecture	
3	Pyodermas	Definition, classification, common bacteria causing pyodermas Clinical features,	Erythrasma Pyonychia Staphylococcal Scalded Skin	Toxin mediated skin conditions Skin infections due to gram negative	Clinic Lecture	

		diagnosis and treatment of - Impetigo Ecthyma Erysipelas & Cellulitis Folliculitis Furuncle Carbuncle	Syndrome (SSSS)	organisms		
4	Fungal infections	Classification Dermatophytosis – Classification, clinical features, diagnosis and management Tinea Versicolor - clinical features, diagnosis and management Mycetoma - Classification, clinical features, diagnosis and management Candidiasis - Classification, clinical features, diagnosis and management			Clinic Lecture	

5	Viral infections	Classification Warts - Classification, clinical features, diagnosis and management Herpes simplex - Classification, clinical features, diagnosis and management Varicella and Herpes Zoster - Clinical features, diagnosis and management Molluscum Contagiosum - Clinical features, diagnosis and management			Clinic Lecture	
6	Infestations	Scabies - Classification, clinical features, diagnosis and management Pediculosis - Classification, clinical features, diagnosis and management			Clinic Lecture	

DERMATOLOGY – CLINICAL POSTING - II

Sr No.	Topic	SLOs			T-L Methodology Lecture/Tutorial/ clinic/practical	Desired change (mention addition/deletion/change)
		Must know	Desirable to know	Nice to know		
1	Psoriasis	Types Aetiopathogenesis Aggravating factors Clinical features Histopathology Differential diagnosis Management	Methotrexate Retinoids Phototherapy	Biologicals TNF alfa blockers	Clinic Lecture	
2	Lichen planus	Types Clinical features 5 P's of lichen planus Oral lichen planus Histopathology	Associations of lichen planus		Clinic Lecture	

	Pityriasis rosea	Treatment Clinical features Management				
3	Eczemas	Definition Exogenous & Endogenous Clinical features, management of - Contact dermatitis Atopic dermatitis Seborrheic dermatitis Stasis dermatitis Discoid eczema Pompholyx Diaper dermatitis			Clinic Lecture	
4	Vesicobullous disorders	Etiopathogenesis Epidermal and subepidermal disorders Clinical features, diagnosis and management of -		Biologicals Rituximab	Clinic Lecture	

		Pemphigus Vulgaris Bullous Pemphigoid				
		Erythema multiforme				
5	Acne	Etiopathogenesis	Surgical procedures		Clinic Lecture	
		Clinical features	CROSS			
		Grades of acne vulgaris	Subscission			
		Other types of acne	microneedling			
		Treatment	CO 2 lasers			
	Alopecias	Classification				
		Clinical features				
		Treatment				
6	Urticaria	Clinical features	Omalizumab		Clinic Lecture	
		Types of urticaria				
		Management				
7	Vitiligo	Clinical features	Surgical treatment modalities		Clinic Lecture	
		Types	Punch grafting & Suction blister			
		Medical Treatment	Melanocyte non culture transplant			

LEPROSY – CLINICAL POSTING - III

Sr No.	Topic	SLOs			T-L Methodology	Desired change (mention addition/deletion/change)
		Must know	Desirable to know	Nice to know		
1	Leprosy – Introduction & History	Ridley Jopling & WHO Classification Importance of native place, occupation, family history and treatment history with outcome	Unique features of Leprosy Endemicity of Leprosy in India	Leprosy control program	Clinic Lecture	
2	Leprosy – General examination	Importance of pallor, icterus and weight of the patient	Importance of edema and lymphadenopathy		Clinic Lecture	
3	Leprosy – Local examination	Examination of skin, nerves, sensations and complications (Claw hand, Foot ulcer, Lepra reactions)	Complications (Eye, Foot drop)	Systemic examination	Clinic Lecture	
4	Leprosy – Investigations	Routine and Slit skin smear and biopsy	Lepromin test	Pilocarpine and Histamine test	Clinic Lecture	
5	Leprosy – Treatment & Rehabilitation	Primary drugs for leprosy – doses, side effects, various regimens,	Newer drugs for leprosy Treatment of		Clinic Lecture	

		availability Treatment of lepra reactions and complications like claw hand and foot ulcer MCR footwear	complications like eye complications and foot drop Rehabilitation measures			

SEXUALLY TRANSMITTED DISEASES – CLINICAL POSTING - III

Sr No.	Topic	SLOs			T-L Methodology	Desired change (mention addition/deletion/change)
		Must know	Desirable to know	Nice to know	Lecture/Tutorial/ clinic/practical	
1	Introduction to STD	Classification – bacterial, viral, fungal, protozoan and parasitic STDs Importance of history, high risk group, contact tracing	Terminologies – V. D. (Venereal Diseases), STD and STI Syndromic approach to STD management	STD control program, NACO	Clinic Lecture	
2	Syphilis - Early	Classification of syphilis Incubation period Clinical features, diagnosis and treatment of Primary Stage & Secondary Stage Serological Tests for Syphilis	Treponema pallidum – microbiology Dark ground examination	Course of untreated syphilis History of syphilis Unique features of syphilis	Clinic Lecture	
3	Syphilis - Late	Clinical features, diagnosis and treatment of	Cardiovascular Syphilis – syphilis of great vessels		Clinic Lecture	

		Tertiary Stage (gumma) Jarisch Herxheimer reaction	(aorta) Neurosyphilis – Generalized Paresis of Insane & Tabes dorsalis			
4	Chancroid	Incubation period Clinical features, diagnosis and treatment Types			Clinic Lecture	
5	Lymphogranuloma Venerum	Incubation period Clinical features, diagnosis and treatment Syndromes D.D. of inguinal bubo			Clinic Lecture	
6	Granuloma Inguinale	Incubation period Clinical features, diagnosis and treatment			Clinic Lecture	
7	Gonorrhoea	Incubation period Clinical features, diagnosis and treatment	Acute and Chronic infection Disseminated infection	Ophthalmia neonatorum Lab diagnosis of gonorrhoea	Clinic Lecture	
8	Viral STD s	Clinical features, diagnosis and treatment of –	HPV vaccine		Clinic Lecture	

		Herpes genitalis, Venereal warts and Molluscum contagiosum				
9	Candidiasis	Clinical features, diagnosis and treatment			Clinic Lecture	
10	H.I.V. & A.I.D.S.	Classification Investigations Dermatological manifestations of HIV H.A.A.R.T. – classification of drugs, combinations, important side effects	Systemic manifestations specially opportunistic infections I.R.I.S. H.A.A.R.T. – doses, other side effects	Systemic manifestations specially malignancies Newer ART drugs	Clinic Lecture	

ASSESSMENT

III SEMESTER	END OF CLINICAL POSTING – I – 10 M.C.O.Q.- 10 MARKS
V SEMESTER	END OF CLINICAL POSTING – II – 2 SHORT NOTES – 10 MARKS
VII SEMESTER	END OF CLINICAL POSTING – III – VIVA – 20 MARKS

RECOMMENDED BOOKS

- 1) Illustrated Synopsis of Dermatology & Sexually Transmitted Diseases – Neena Khanna
- 2) Skin & S.T.D. – Uday Khopkar
- 3) Handbook of Leprosy – Jopling

Reference book:

- 1) IADVL Textbook & Atlas of Dermatology

BHARATI VIDYAPEETH UNIVERSITY MEDICAL COLLEGE, PUNE
DEPARTMENT OF OTOLARYNGOLOGY
REVISION OF CURRICULUM 2016

These guidelines are based on MCI recommendations.

The curriculum has been designed keeping in mind the goals and objectives to be achieved by the medical student

(I) GOAL

To create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness in the field of ENT, so that he or she may function appropriately and effectively as a general physician or surgeons

(II) OBJECTIVES

(a) KNOWLEDGE

At the end of the course, student shall have the knowledge of:

1. Common Oto-rhino laryngological (ENT) problems and emergencies.
2. Ability to recognize, diagnose and
3. Ability to recognize hearing impairment and refer to the appropriate Hearing Impairment Rehabilitation Programme

(b) SKILLS

At the end of the course, the student shall be able to:

1. Perform simple ENT procedures
2. Manage common ENT emergencies and problems as applicable in a primary care setting.

(c) INTEGRATION

The teaching will be aligned and integrated horizontally and vertically in order to allow the student to understand the structural basis of ENT problems, their management and correlation with function, rehabilitation and quality of life.

(III) COMPETENCIES

At the end of the course, the student must demonstrate:

1. Knowledge of the common Oto-rhino laryngological (ENT) emergencies and problems,
2. Ability to recognize, diagnose and manage common ENT emergencies and problems in primary care setting.
3. Ability to perform simple ENT procedures as applicable in a primary care setting.
4. Ability to recognize hearing impairment and refer to the appropriate hearing impairment rehabilitation programme

(IV) TEACHING SCHEDULE:

Total Teaching Hours : 232 Hrs

Theory : 70 Hrs

Clinical Posting : 162 Hrs

Theory

Total teaching - 70 hours

Didactic Lectures	52 hours
Tutorials/ Seminars/Integrated teaching	18 hours

Clinical training schedule

The clinical training programme will be conducted in 2 phases

Clinics will be conducted for 6 days per week. Each clinic will be a 3 hour session

Phase	Term	No of weeks
1	VI	04
2	VII	04

(V)SYLLABUS

A. Theory

Didactic Lecture Topics (OTO – Otology, RH –Rhinology, LY – Laryngology)

TERM		SIXTH
Sr No	Topic	Subtopic
1	Introduction to ENT	
2	Anatomy (External & Middle Ear)	➤ Anatomy of External Ear ➤ Tympanic membrane ➤ Parts of Middle ear ➤ Contents of Middle Ear
3	Anatomy Of Inner Ear And Facial Nerve	➤ Diagram of inner ear ➤ Anatomy of cochlea ➤ Pathway of facial nerve ➤ Branches of facial nerve
4	Physiology Of Hearing	➤ Middle ear transformer mechanism ➤ Role of TM and Ossicles
5	Physiology of Hearing II	➤ Sound travel from cochlea to brain
6	Physiology of Balance	➤ Semicircular canals & Vestibule ➤ The receptors for balance ➤ Physiology
7	Diseases of External Ear	➤ Impacted wax ➤ Otomycosis ➤ Otitis externa ➤ Foreign body ➤ Furunculosis ➤ Trauma to pinna & external auditory canal
8	Otalgia	➤ Local causes ➤ Referred causes ➤ Management
9	Secretory Otitis Media	➤ Introduction ➤ Etiology & Clinical features ➤ Management
10	ASOM	➤ Introduction ➤ Etiology & Clinical features ➤ Management
11	CSOM I Mucosal	➤ Introduction ➤ Etiology & Clinical features ➤ Management ➤ Complications of CSOM
12	CSOM II Squamosal	➤ Introduction ➤ Etiology & Clinical features ➤ Management ➤ Complications of CSOM
13	Extra cranial complications of CSOM	➤ Mastoiditis ➤ Petrositis ➤ Labyrinthitis
14	Extra cranial complications of CSOM	➤ Facial Palsy ➤ Lateral sinus thrombophlebitis
15	Intracranial	➤ Extradural Abscess

	complications of CSOM	➤ Subdural Abscess ➤ Meningitis
16	Intracranial complications of CSOM	➤ Brain Abscess ➤ Ototic Hydrocephalus
17	Otosclerosis I	➤ Introduction ➤ Etiology & Clinical features ➤ Management ➤ Tympanosclerosis ➤ Congenital fixation of ossicles
18	Vertigo	➤ Causes ➤ BPPV ➤ Vestibular Neuritis ➤ Other cause
19	Meniere's Disease	➤ Etiopathogenesis of Meniere's disease ➤ Predisposing factors ➤ Symptoms & Signs ➤ Audiometry ➤ Medical and surgical management
20	Facial Nerve	➤ Part (segments) of facial nerve ➤ Infra Nuclear Facial Nerve paralysis and Supra Nuclear Facial Nerve paralysis ➤ topographic evaluation of facial nerve paralysis ➤ investigations for facial nerve paralysis ➤ medical and surgical management
21	Acoustic And CPA Tumours	➤ origin of tumours ➤ stages and classification of CPA tumours ➤ clinical features of Acoustic tumours ➤ investigations of Acoustic tumours ➤ Surgical management of Acoustic tumours
22	Deaf Child	➤ Causes ➤ Evaluation ➤ Management Plan ➤ Principle of Cochlear Implant
23	Revision	
24	Revision	
	TERM	SEVENTH
25	Anatomy of Nasal Septum	➤ Parts of Septum ➤ Blood supply ➤ Applied
26	Anatomy and applied of Lateral Nasal wall	➤ Structures on lateral wall ➤ Osteomeatal complex ➤ Applied
27	Physiology of Nose	➤ Functions of Nose ➤ Nasal Cycle
28	Allergic Rhinitis	➤ Clinical features ➤ Investigations ➤ Treatment
29	Atrophic Rhinitis	➤ Etiology , Types ➤ Clinical features ➤ Investigations ➤ Treatment
30	Rhinosinusitis	➤ Acute and chronic sinusitis

		➤ Management : medical and surgical of acute and chronic rhinosinusitis ➤ Detailed etiopathogenesis, clinical features and management of atrophic rhinitis ➤ Rhinitis Medicamentosa ➤ Rhinitis Sicca, Rhinitis Caseosa ➤ Hypertrophic rhinitis ➤ Fungal rhinosinusitis
31	Complications of Rhinosinusitis I	➤ Orbital complications of rhinosinusitis ➤ Orbital apex syndrome
32	Complications of Rhinosinusitis II	➤ Intracranial complications ➤ Cavernous sinus thrombosis ➤ Mucocele and pyocele
33	Epistaxis	➤ Anatomy and blood supply of lateral and medial walls of nose ➤ Etiopathogenesis for epistaxis : Systemic and Nasal causes ➤ Emergency management of epistaxis and nasal packing ➤ Different surgical options to manage intractable epistaxis
34	Nasal Polyposis	➤ Etiopathogenesis, types, investigations and management of nasal polyposis ➤ Surgical management – FESS ➤ Students must be able to ➤ Principles and basic steps of FESS ➤ Complications of FESS
35	Chronic Granulomatous diseases of Nose	➤ Rhinoscleroma ➤ Rhinosporidiosis ➤ Lupus Vulgaris ➤ Syphilis ➤ Tuberculosis ➤ Midline lethal granuloma of nose
36	Ca Maxilla	➤ Etiology, clinical presentation, spread ➤ Types of staging : Ohngren's, Ledermann's, TNM / AJCC ➤ Investigations ➤ Management options and multimodality treatment ➤ Differential diagnosis
37	Fractures of nose and PNS	➤ Le Forte ➤ Fracture of Nasal Bone ➤ Management in general
38	Revision	➤
39	Anatomy of Pharynx & Oral cavity	➤ Parts of oral cavity ➤ Line diagram ➤ Tonsil ➤ Soft palate
40	Tonsillitis	➤ Etiology and clinical features of Acute Tonsillitis ➤ Chronic tonsillitis ➤ Management of Tonsillitis ➤ Indication of Adeno-tonsillectomy ➤ Complications of Tonsillectomy
41	Deep Neck Space Infection I	➤ Quinsy ➤ Ludwig's Angina
42	Deep Neck Space	➤ Parapharyngeal abscess

	Infection II	➤ Retropharyngeal abscess
43	Larynx	➤ Anatomy ➤ Nerve supply of larynx
44	Physiology of phonation	➤ Theories of phonation ➤ Investigations for voice
45	Vocal cord palsy	➤ Unilateral Recurrent laryngeal nerve Palsy ➤ BL RLN never palsy ➤ All four Nerve palsy
46	Benign lesions of Larynx	➤ Vocal nodule ➤ Vocal polyp ➤ Reinkes edema ➤ Papilloma
47	Ca Larynx	➤ Etiology ➤ Clinical features ➤ Management
48	Congenital Stridor	➤ Causes and management of pediatric stridor ➤ Management of acute patients
49	Acquired Stridor	➤ Febrile causes ➤ Afebrile causes ➤ Management of acquired stridor
50	Dysphagia	➤ Anatomy of esophagus ➤ Physiology of deglutition ➤ common causes and management of dysphagia
51	Revision	
52	Revision	

Tutorials

Tutorials will be conducted in the form of different types of activities (as appropriate) such as Quiz / Panel discussions / Seminars / Case scenarios/ Short projects

Tutorial topics

TERM		SIXTH
Sr No	Topic	Subtopic
1	Anatomy Of External And Middle Ear	➤ Otology surgical anatomy. ➤ Anatomy & function of Eustachian tube. ➤ Path of air conduction
2	Minor Procedure For External Ear	➤ Syringing ➤ Anterior rhinoscopy ➤ IDL ➤ Posterior Rhinoscopy ➤ Ear mopping
3	Tuning Fork Test	➤ Types ➤ Performance ➤ Interpretation
4	Impedance Audiometry	➤ Tympanometry ➤ Acoustic reflex
5	Evaluation And Management Of Hearing Impairment	➤ Causes of Conductive hearing loss and Sensorineural hearing loss ➤ tuning fork tests, PTA and impedance audiometry

		➤ treatment modalities for Sensorineural hearing loss
6	Ototoxicity	➤ List various causes
7	Anatomy and applied of PNS	➤ Basic anatomy of all paranasal sinuses and their drainage pathways ➤ Anatomy of osteomeatal complex and its functional importance
8	Olfaction	➤ Olfactory pathway ➤ Clinical testing of olfaction ➤ Clinical condition for olfaction disorder
9	Surgeries for Rhinosinusitis	➤ Caldwell Luc's ➤ Antral puncture ➤ FESS ➤ External frontal Ethmoidectomy
10	Septoplasty and SMR	➤ Etiopathogenesis ➤ Types ➤ Diagnosis ➤ Management
11	FESS-	➤ Indication ➤ Steps ➤ Differences ➤ Complication
12	Anatomy of Deep Neck Space	➤ Parts ➤ boundaries of Parapharyngeal space ➤ boundaries of Retropharyngeal space ➤ boundaries of Submandibular space ➤ Peritonsillar area
13	Tracheostomy	➤ Etiology ➤ Types ➤ Basic Steps ➤ Tubes ➤ Complications
14	Foreign Body in aerodigestive tract	➤ Types ➤ Common site ➤ Clinical presentation ➤ Investigation ➤ Management
15	Common disorders of oral cavity	➤ Oral ulcers ➤ Aphthous ulcers ➤ Submucous fibrosis
16	Recent advances in ENT	➤ New Disease ➤ Recent investigations ➤ Newer treatment modality
17	Revision I	➤
18	Revision II	➤

(VI) SLOs

TERM		SIXTH
Sr No	Topic	Subtopic
1	Introduction to ENT	➤ UG student by the end of three years will discuss successfully interlinked ENT surgical anatomy. ➤ Describe satisfactorily various ENT diseases and their management by end of the term. ➤ Be sensitised about assessment pattern.
2	Anatomy (External & Middle Ear)	• UG student by the end of three years will discuss successfully ➤ Parts of External Ear ➤ Draw Tympanic membrane ➤ Discuss Parts of Middle ear ➤ Describe contents of Middle Ear ➤ Describe satisfactorily function of Eustachian tube. ➤ Enumerate path of air conduction
3	Anatomy Of Inner Ear And Facial Nerve	Describe and Discuss ➤ Diagram of inner ear ➤ Anatomy of cochlea ➤ Pathway of facial nerve ➤ Branches of facial nerve
4	Physiology Of Hearing	UG student must be able to discuss ➤ Middle ear transformer mechanism ➤ Role of TM and Ossicles
5	Physiology of Hearing II	UG student must be able to discuss ➤ Sound travel from cochlea to brain ➤ Draw line diagram of pathway
6	Physiology of Balance	UG student must be able to discuss about ➤ Semicircular canals & Vestibule ➤ The receptors for balance ➤ Vestibulo ocular reflex
7	Diseases of External Ear	UG student must enumerate – ➤ important differences between bony and cartilaginous EAC ➤ important diseases of EAC ➤ important etiology of Otitis Extrena ➤ symptoms of Otitis Externa ➤ differentiating signs of Otitis Externavs Acute Mastoiditis ➤ important treatment methods UG student must • Describe important signs and symptoms of Otomycosis • Plan treatment of Otomycosis satisfactorily • Describe important features of Malignant Otitis Externa • Explain treatment of Malignant Otitis externa • Describe classification of Foreign Body ear with ➤ Methods of Foreign Body removal
8	Otalgia	➤ Local causes ➤ Referred causes

		➤ Management
9	Secretory Otitis Media	➤ Describe common etiological factors ➤ Cite age group of patients ➤ Describe important symptoms of SOM ➤ List important features of tympanic membrane ➤ Describe important surgical management
10	ASOM	Students must : ➤ Cite common predisposing factors for ASOM ➤ Describe important symptoms ➤ Enlist all stages of ASOM ➤ Describe important signs of tympanic membrane ➤ Describe broad principles of management
11	CSOM I Mucosal	Students must ➤ Define CSOM ➤ Differentiate between safe and unsafe CSOM ➤ Describe etiopathogenesis of safe CSOM ➤ List important clinical features of safe CSOM ➤ List important investigations for safe CSOM ➤ Enumerate types of Tympanoplasties
12	CSOM II Squamosal	➤ Define Cholesteatoma ➤ Define etiopathogenesis of unsafe CSOM ➤ List important clinical features of unsafe CSOM ➤ List complications of unsafe CSOM ➤ List most important investigations for unsafe CSOM ➤ Enumerate types of mastoidectomies
13	Extra cranial complications of CSOM	Students must – • List important predisposing factors • Describe spread of infection to different areas • List all extracranial complications • List important clinical features of various extracranial complications • Enumerate surgical methods for extracranial complications
14	Extra cranial complications of CSOM	• Enlist important investigations for intracranial complications • Explain important features on CT / MRI • Enlist medical management - Enlist surgical management
15	Intracranial complications of CSOM	• List all intracranial complications • Enumerate important alarming signs for intracranial complications • Enlist important investigations for intracranial complications
16	Intracranial complications of CSOM	• Differentiate various temperature chart for intracranial complications • Explain important features on CT / MRI • Enlist medical management - Enlist surgical management
17	Otosclerosis	➤ Describe etiopathogenesis of otosclerosis ➤ List types of otosclerosis ➤ Describe important aspects of hearing loss ➤ Describe important diagnostic signs

		➤ Describe important diagnostic points in PTA ➤ Explain aim and purpose of surgical management ➤ List important / serious / dreaded complications of stapedectomy
18	Vertigo	Must be able to Describe common causes of vertigo Take proper history of vertigo ➤ Evaluate patient with vertigo ➤ Causes ➤ BPPV ➤ Vestibular Neuritis ➤ Other cause
19	Meniere's Disease	Students must ➤ Discuss etiopathogenesis of Meniere's disease ➤ List various predisposing factors ➤ Describe symptoms ➤ Explain audiometry findings ➤ Describe medical and surgical management
20	Facial Nerve	Students must • Describe all part (segments) of facial nerve • Differentiate between Infra Nuclear Facial Nerve paralysis and Supra Nuclear Facial Nerve paralysis • Describe topographic evaluation of facial nerve paralysis • Discuss various investigations for facial nerve paralysis
21	Acoustic And CPA Tumours	Students must be able to – • Explain origin of tumours • Explain stages and classification of CPA tumours • Describe clinical features of Acoustic tumours • Explain investigations of Acoustic tumours • Describe surgical management of Acoustic tumours
22	Deaf Child	Must be able to Give causes of Deaf mutism Principles of Management of congenital Deaf child Basics of cochlear Implant
23	Revision	
24	Revision	
	TERM	SEVENTH
25	Anatomy of Nasal Septum	Student must be able to discuss ➤ Parts of Septum ➤ Blood supply ➤ Applied
26	Anatomy and applied of Lateral Nasal wall	Students must know – • Anatomy of lateral and medial walls of nose • Blood supply of lateral and medial walls of nose • Anatomy of osteomeatal complex and its functional importance

27	Physiology of Nose	Students must be able to describe the ➤ Functions of Nose ➤ Nasal Cycle
28	Allergic Rhinitis	Students must be able to describe the ➤ Clinical features ➤ Investigations ➤ Treatment
29	Atrophic Rhinitis	Must know: Etiopathogenesis Type: 1) primary, 2) secondary clinical features Medical and surgical management
30	Rhinosinusitis	Students must know details of • Allergic rhinitis : clinical features and treatment • Acute and chronic sinusitis • Management : medical and surgical of acute and chronic rhinosinusitis • Detailed etiopathogenesis, clinical features and management of atrophic rhinitis Students must know notes on • Rhinitis Medicamentosa • Rhinitis Sicca, Rhinitis Caseosa • Hypertrophic rhinitis • Fungal rhinosinusitis
31	Complications of Rhinosinusitis I	Students must know – • Note on Orbital complications of rhinosinusitis
32	Complications of Rhinosinusitis II	• Note on intracranial complications • Cavernous sinus thrombosis • Note on : 1) Orbital apex syndrome 2) Mucocoele 3) Pyocoele of frontal sinus
33	Epistaxis	Students must know • Anatomy and blood supply of lateral and medial walls of nose • Etiopathogenesis for epistaxis : Systemic and Nasal causes • Emergency management of epistaxis and nasal packing • Different surgical options to manage intractable epistaxis
34	Nasal Polyposis	Students must know • Etiopathogenesis, types, investigations and management of nasal polyposis • Surgical management – FESS Desirable to Know • Describe principles and basic steps of FESS • Enumerate complications of FESS
35	Chronic Granulomatous diseases of Nose	Students must know notes on • Rhinoscleroma • Rhinosporidiosis • Lupus Vulgaris

		• Syphilis • Tuberculosis • Midline lethal granuloma of nose
36	Ca Maxilla	Students must know long answer • Etiology, clinical presentation, spread • Types of staging : Ohngren's, Ledermann's, TNM / AJCC • Investigations • Management options and multimodality treatment • Differential diagnosis
37	Fractures of nose and PNS	Students must be able to describe ➤ Le Forte ➤ Fracture of Nasal Bone ➤ Management in general
38	Revision	➤
39	Anatomy of Pharynx & Oral cavity	Must Know List Parts of Pharynx ☐ Explain the Location of Adenoids ☐ Discuss the Waldeyers Ring ☐ Describe the Adenoid faces Good to know ☐ Describe Boundaries of various part ☐ Explain Fossa of Rosenmuller ☐ Differentiate between Adenoid & Tonsil ☐ Specify Parts of Hypo pharynx Nice to know Write about Killian Dehiscence Describe Fascia of pharynx Discuss Muscles of Pharynx Explain the Nerve supply of pharynx
40	Tonsillitis	Must Know: • Describe types of acute tonsillitis • Identify clinical features of Acute tonsillitis • Enlist D/D of Membrane on tonsil • Outline the management of Tonsillitis • Discuss absolute & Relative indications of tonsillectomy Desirable to know • Describe Types of chronic tonsillitis • Enumerate Blood supply of Tonsils • Tell signs of chronic tonsillitis • Describe Contraindications of Tonsillectomy • Discuss Complications of Tonsillectomy Nice to Know • Differentiate Diphtheria membrane from membranous tonsillitis • List various methods of tonsillectomy • Debate hot and cold tonsillectomy ➤ Write doses of medication used for acute tonsillitis
41	Deep Neck Space Infection I	Must Know • Define boundaries of Peritonsillar space, Parapharyngeal space, retropharyngeal space • Submandibular space • Identify symptoms and sign of Quinsy,

		Parapharyngeal abscess, Retropharyngeal abscess, Ludwigs Angina • Summarize the management of Quinsy, Parapharyngeal abscess, Retropharyngeal abscess, Ludwigs Angina • Explain the incision for quinsy drainage • Specify the need of early management of deep neck space infection Desirable to Know • Differentiate quinsy from parapharyngeal abscess • Describe contents of parapharyngeal space • Tell the etiology of Quinsy, Parapharyngeal abscess, Retropharyngeal abscess, Ludwigs Angina • Explain the incision for ludwigs angina Nice to Know • Tell the microorganisms causing deep neck space infection • Explain the incisions for parapharyngeal and retropharyngeal abscess • Describe problems of airway management in deep neck space infection
42	Deep Neck Space Infection II	
43	Larynx	Must Know • Enumerate unpaired cartilages of larynx • Discuss the motor nerve supply of larynx • Tell the abductor of Vocal fold Good to know • Enumerate paired cartilages of larynx • Discuss the sensory nerve supply of larynx • Tell the adductors & Tensors of Larynx Nice to know • Describe the Layers of Vocal folds • Underline the principle of stroboscopy • Describe the boundaries of supraglottis, glottis & Subglottis
44	Physiology of phonation	Student must be able to discuss ➤ Theories of phonation ➤ Investigations for voice
45	Vocal cord palsy	Student must enumerate causes of Vocal cord palsy of all types ➤ Describe the clinical features and treatment of Unilateral Recurrent laryngeal nerve Palsy ➤ Describe the clinical features and treatment of Bilateral Recurrent Laryngeal Nerve palsy ➤ Describe the clinical features and treatment of All four Nerve palsy
46	Benign lesions of	Must Know

	Larynx	- Enumerate the benign lesion of vocal fold - Describe the etiology of Vocal nodule and polyp - Summarize the management of Vocal Nodule Summarize the management of Vocal Polyp Desirable to Know - Describe the difference between vocal nodule and vocal polyp - Discuss the importance of leukoplakia Nice to Know - Explain the complications of Microlaryngoscopy
47	Ca Larynx	Must Know - Describe the clinical presentation of Ca larynx - Summarize the management plan of Ca Larynx - Indication of Total laryngectomy Desirable to Know - Describe the etiology of Ca Larynx - Difference between Ca supraglottis & Ca Glottis Nice to Know - Describe the epidemiology of Ca Larynx - Staging of Ca Larynx ➤ Voice rehabilitation after Total laryngectomy
48	Congenital Stridor	Must know - Specify the narrowest part pediatric larynx - Describe types of stridor - Enumerate causes of congenital stridor - Discuss Laryngomalacia - Summarize management plan for pediatric stridor Good to know Discuss differences between pediatric and adult larynx Nice to know Explain subglottic stenosis Discuss the surgical management of Laryngomalacia
49	Acquired Stridor	Student must be able to discuss the Febrile causes ➤ Afebrile causes of stridor Discuss management of acquired stridor
50	Dysphagia	Must Know - State the Length of esophagus - Describe the Constrictions of esophagus - Enumerate the stages of deglutition - Differentiate between Odynophagia and dysphagia Desirable to Know - Classify the causes of dysphagia - Summarize the management plan of Dysphagia Nice to Know - Describe Manometry - Describe FEES
51	Revision	
52	Revision	

Tutorial topics

TERM		SIXTH
Sr No	Topic	Subtopic
1	Anatomy Of External And Middle Ear	UG student by the end of three years will discuss successfully interlinked ENT surgical anatomy. Describe satisfactorily function of Eustachian tube. Enumerate path of air conduction
2	Minor Procedure For External Ear	Must know Syringing Ear mopping Good to know Ear foreign body removal Nice to know Ear lobe repair
3	Tuning Fork Test	Must know Rinnes test, weber test, ABC Performance of these tests Interpretation Good to know False positive test Nice to know Other tuning fork tests
4	Impedance Audiometry	UG student must Describe A, B C curves in Tympanometry Good to know Ac Ad curves, Eustachian tube function Nice to know Acoustic reflex
5	Evaluation And Management Of Hearing Impairment	Students must Enumerate causes of Conductive hearing loss and Sensorineural hearing loss Describe tuning fork tests, PTA and impedance audiometry List various treatment modalities for Sensorineural hearing loss
6	Ototoxicity	List various causes
7	Anatomy and applied of PNS	Basic anatomy of all paranasal sinuses and their drainage pathways Anatomy of osteomeatal complex and its functional importance
8	Olfaction	Must know Olfactory pathway Clinical testing of olfaction Good to know Clinical condition for olfaction disorder
9	Surgeries for Rhinosinusitis	Must be able to describe principles and basic steps of Caldwel lucs Antral puncture FESS External frontal ethmoidectomy
10	Septoplasty and SMR	Must know: Etiopathogenesis

		Types Diagnosis Management
11	FESS-	Must know Principles Indication Good to know Steps Complication
12	Anatomy of Deep Neck Space	Must know Define boundaries of Peritonsillar space, Parapharyngeal space, retropharyngeal space Submandibular space Good to know Differentiate quinsy from parapharyngeal abscess Describe contents of parapharyngeal space Nice to know Tell the microorganisms causing deep neck space infection
13	Tracheostomy	Must know Enumerate the indications of tracheostomy Give examples of various types of tracheostomy tube Good to know Enumerate other methods to secure airway in emergency Summarize steps of tracheostomy Explain advantages and disadvantages of Cuffed and non cuffed tube Nice to know Discuss Decannulation of tracheostomy tube Explain the difference between adult and pediatric tracheostomy
14	Foreign Body in aerodigestive tract	Must know Enumerate Common sites of foreign body lodgement Give Symptoms of foreign body food passage Good to know Describe the Investigation to diagnose foreign body Nice to know Explain the management of foreign body Complications of esophageal foreign body
15	Common disorders of oral cavity	Must know Enumerate 5 causes of ulcers of oral cavity Describe sub mucus fibrosis Good to know Describe apthous ulcers Nice to know Explain etiology of submucus fibrosis Explain geographical tongue
16	Recent advances in ENT	Students must able to discuss about New Diseases Recent investigations Newer treatment modality
17	Revision I	
18	Revision II	

Lectures 1 Hour session X 52 = 52 Hrs

Tutorials - 1 hour sessions x 18= 18hours

Tutorials will be conducted in the form of different types of activities (as appropriate) such as Quiz / Panel discussions / Seminars / Case scenarios

CLINICAL TRAINING PROGRAMME

Practical/clinical Competencies to be attained are:

VI Term end

- 1) Able to take history in a patient with ear complaints
- 2) Able to take history in patient with Nasal complaints
- 3) Able to take history in a patient with Throat symptoms
- 4) Able to do examine Ear, Nose & Throat

VII Term

- 1) Able to reiterate things learnt in VII term
- 2) Able to explain the plan of management of common ENT conditions
- 3) Must be able to counsel the patient with basic ENT diseases
- 4) Must be able to perform common ENT Procedures
- 5) Must be able to provide first aid in ENT Emergencies
- 6) Must be able to understand basic ENT X-rays, Audiograms and Specimens

Structured clinical programme will be as under:

VI TERM		
Sr No	Topic	Must Know
1	Ear History taking	Able to evaluate History for Otalgia Hearing loss Ear discharge
2	Nose History taking	Able to evaluate history of Nasal obstruction Nasal discharge Epistaxis Headache

		Other Nose symptoms
3	Throat history taking	Able to evaluate history of Hoarse voice Difficulty in breathing Stridor Neck swelling Dysphagia Other throat symptoms
4	Ear examination	Able to examine Pinna, external ear, tympanic membrane TFT
5	Nose examination	Able to perform Anterior rhinoscopy, posterior rhinoscopy, spatula test, sinus tenderness
6	Throat examination	Able to perform IDL, Oral cavity examination, Neck examination
7	ASOM	Able to take history, examine patient
8	CSOM Safe	Able to take history, examine patient
9	Tonsillitis	Able to take history, examine patient
10	Otalgia	Able to take history, examine patient
11	OPD Instruments	Able to identify and give uses of common ENT OPD instruments
12	Sinusitis	Able to take history, examine patient
13	Hoarseness D/D	Able to take history, examine patient
14	Revision	
15	Revision	
16	Exam OSCE Pattern	
	VII...TERM	
1	Ear History taking & Examination	Able to take detailed history of all ear symptoms and perform through Ear examination
2	Nose history taking & Examination	Able to take detailed history of all nose symptoms and perform through nose examinations
3	Throat history taking & Examination	Able to take detailed history of all throat 2hrs symptoms and perform through throat examinations
4	CSOM Safe	Able to take history evaluate the patient and discuss the management

5	CSOM Unsafe	Able to take history evaluate the patient and discuss the management
6	Otosclerosis	Able to take history evaluate the patient and discuss the management
7	Otitis externa	Able to take history evaluate the patient and discuss the management
8	Allergic Rhinitis	Able to take history evaluate the patient and discuss the management
9	Atrophic Rhinitis	Able to take history evaluate the patient and discuss the management
10	Sinusitis	Able to take history evaluate the patient and discuss the management
11	Nasal Polyps	Able to take history evaluate the patient and discuss the management
12	Ca Larynx	Able to take history evaluate the patient and discuss the management
13	Adeno-Tonsillitis	Able to take history evaluate the patient and discuss the management
14	Neck swelling	Able to take history evaluate the patient and discuss the management
15	X-rays	Identify x-rays and give diagnosis • PNS waters view • Temporal bone Schulers vies • X-ray neck lateral view for • Adenoid, retropharyngeal abscess • X-ray for foreign body aerodigestive tract • X-ray Barium swallow
16	Pure tone audiometry	Identify PTAs and give diagnosis Conductive hearing loss Sensory neural hearing loss Mixed hearing loss
17	Specimens	Identify ENT specimens and elaborate anatomy • Sagittal section of head neck lateral wall of nose • Sagittal section of

		head neck medial wall of nose • Total Laryngectomy
18	OT Instruments	Identify ENT instruments used for following surgeries • Mastoidectomy • Septoplasty and FESS • Tonsillectomy • Tracheostomy
19	OT surgeries	To understand basic steps in ENT surgeries Tonsillectomy Septoplasty FESS Tympanoplasty Stapedectomy Thyroidectomy
20	Revision	
21	Exam	

(VII) ASSESSMENT

The performance in essential components of training is to be assessed based on attendance **and** Internal assessments.

At the end of the course, the student shall appear for the summative examination conducted by the university provided he/she fulfils the eligibility criteria for appearing at the Final examination

Attendance

(Example) Attendance requirements are 75% attendance in theory and 75% in clinics in each of the terms separately i.e., 6th and 7th terms

INTERNAL ASSESSMENT

Internal Assessment: Internal assessment shall be based on day-to-day assessment. It shall relate to different ways in which students participate in learning process including assignments, preparation for seminar, clinical case presentation, preparation of clinical case for discussion, clinical case study/problem solving exercise, participation in project for health care in the community, proficiency in carrying out a practical or a skill in small research project, a written test etc.

- i. Regular periodic examinations shall be conducted throughout the course. There shall be two theory exams, one at 6th term end and other will be the prelims exam. There will be 3 practical exams. At the end of 6th term, 7 term and prelims.
- ii. Day to day records should be given importance during internal assessment.
- iii. Students must secure at least 35% marks of the total marks (separately in theory and practical clinical) fixed for internal assessment in order to be eligible to appear in final university examination .
- iv. Internal assessment marks will determine eligibility for appearing for university examination.

INTERNAL ASSESSMENT PLAN

Sr .NO	TOPIC	THEORY	Practical
1	VI	40(20 from clinical)	20 +20(Theory)
2	VII		40
3	Pre university	40 + 20 (from practical)	40 + 20 (Goes to theory)
TOTAL		100	100

Eligibility criteria for appearing at the Final university examination in ENT

(Example) Attendance and Internal assessment marks will determine eligibility for appearing for university examination.

Attendance requirements are 75% attendance in theory and 75% in clinics in each of the terms separately i.e. 6th and 7th terms

Internal assessment requirements

(Example) Students must secure at least 35% marks (**separately in theory and clinical**) in **each term** in order to be eligible to appear in final university examination

Internals will be of 10 marks each in theory and practicals, derived from 100 marks of above exams

UNIVERSITY EXAMINATIONS

Eligibility criteria to appear for the Professional examinations have been laid out in the previous section

Theory examination

Total marks 40

Examination will consist of one written paper of two hour duration carrying maximum 40 marks. The pattern of theory paper shall be as follows

Two sections (20 marks each)

Each section of 20 marks each will consist of
1 long question of 8 marks and

3 out of 4 short notes of 4 marks each.

40 + 10 Marks from Practical exam + 10 marks Internal = 60 marks.

CLINICAL & ORAL(VIVA) EXAMINATION IN ENT

Total marks 40

Long case - 1 of 20 marks

Viva -20 marks out of which 10 marks added to theory

Table viva (20)–Audiograms (5), X rays (5), Specimens(5),Instruments(5),

To 30 marks Clinical + 10 marks of Internals = 40

Criteria for Passing in a Subject

A candidate shall obtain 50% marks in University conducted examination separately in Theory and Clinics (includes viva voce) in order to be declared as passed in that subject.

Suggested Reading

Logan Turner's Diseases of the Nose, Throat and Ear Head and Neck Surgery by S. Musheer Hussain

Diseases of Ear, Nose and Throat, Author(s): PLDhingra & Shruti Dhingra :Elsevier India

A Short Textbook of ENT Diseases with CD Author(s): K B Bhargava, S K Bhargava

Clinical Methods in ENT by PT Wakode

Ear Nose Throat Simplified, Bachi T Hathiram

Scott Brown Textbook of Otolaryngology

Useful E-links

<http://emedicine.medscape.com/otolaryngology>

<http://www.fauquierent.net/education>

<http://www.utmb.edu>

II M. B. B. S.

FORENSIC MEDICINE AND TOXICOLOGY

SYLLABUS: Revised- October 2015

Goal

To create a physician who has knowledge about medico-legal responsibility during his/her practice of medicine. He/ she acquires knowledge of law in relation to Medical Practice, Medical Negligence and respect for codes of Medical Ethics.

Objectives

A- Knowledge

At the end of the course in Forensic Medicine, the M.B.B.S. student will be able to

1. Understand the basic concept, scope and importance of this subject.
2. Understand the medico-legal responsibilities of a physician while rendering community service in rural or urban health centre.
3. Appreciate the physician's responsibilities in criminal matters and respect for codes of Medical Ethics.
4. Diagnose, manage and identify the legal aspects of common acute and chronic poisoning cases.
5. Observe medico-legally important findings and their interpretation in medico-legal autopsies.
6. Preserve and dispatch relevant viscera, articles and trace evidence to Forensic science laboratory and interpret the FSL report.
7. Detect occupational and environmental poisoning, their legal aspects, particularly pertaining to Workman's Compensation Act.
8. Identify the basic medico-legal aspects of hospital and general practice.

B- Skills

At the end of the course, the student shall be able to

1. Make observations and logical inferences to initiate enquiries in medico-legal problems and criminal matters.
2. Conduct medico-legal examination and proper documentation/ reporting of cases of injuries and age estimation.
3. Conduct examination in cases of sexual offences and alcohol intoxication.
4. Preserve relevant ancillary materials for further medico-legal examination.
5. Understand the process of diagnosis and management of poisoning cases.

6. Identify important post-mortem findings in common unnatural deaths.
7. Understand the importance of preparations of certificates eg. Birth and Death, Dying declaration, etc.
8. Observe ten medico-legal autopsies and prepare the records in practical journal.
9. Understand the proper drafting of consent forms.

C- Competencies

The ideal way to observe some competencies is to conduct examination and assessment in casualty, wards or mortuary.

Skill	Module	Observable in students
External examination of patient/ dead body	Photographs/A-V media	Interpretation by student
Injuries/Pattern of injuries	Photographs, Actual cases (not feasible)	Identification and interpretation
Asphyxia signs	Photographs of various types	Identification and interpretation
Medico-legal/ Pathological conditions	Gross specimens	Identification and interpretation
MCCD	Case reports	Preparation of report
Sexual assault reporting	Case reports	Report preparation
Sickness certificate	Case reports	Report preparation
Evidence collection in admitted cases	Poisoning cases	Preparation of list of samples to be preserved
Reporting to appropriate authorities	Notifiable diseases/ correspondence with police	Report preparation
Determining natural/unnatural deaths	Case reports	Report preparation
Signs of death	Photos/ e-modules	Interpretation and inference
Consent	Hypothetical operations/case scenarios	Forming of consent
Communication skills	Hypothetical cases	How student communicates to fellow student/ teacher
Collection of trace evidence	Hypothetical cases of assault/alcohol/drugs/sexual offences	List to be prepared by the student

Medical Records	Hypothetical cases	Method and duration of preservation

The above competencies should be designed in such a manner that the student at the end of the course becomes a physician delivering holistic care to the patient community, a good communicator and leader and remains to be a life-long learner.

D- Integration

The department shall provide an integrated approach towards allied disciplines like Pathology, Pharmacology, Medicine, Psychiatry, Radiology, Forensic Sciences, Hospital administration, etc. to impart thorough and comprehensive training regarding medico-legal duties and responsibilities of physician at all levels of health care.

LIST OF TOPICS

- 1) **Definition.** Introduction. Aims and objectives of the study of this subject.
- 2) **Legal procedure:**
 - a) Inquest
 - b) Criminal courts and their powers.
 - c) Types of witnesses and procedure of recording evidence in court of law.
 - d) Medical evidence.
- 3) **Personal Identity :**
 - a) Definition. Medico-legal aspects.
 - b) Data required for identification in living and dead including DNA Fingerprinting.
 - c) Medico-legal aspects of age and sex.
- 4) **Death :**
 - a) Definition, concept of somatic and molecular death.
 - b) Brain death and Brain stem death and Human organ Transplantation.
 - c) Signs of death and their medico-legal aspects.
 - d) Time since death.
- 5) **Medico-legal Autopsy:**
 - a) Aims and pre-requisites
 - b) Procedure of autopsy including collection, Preservation and forwarding of viscera for chemical analysis.
 - c) Negative autopsy
 - d) Obscure autopsy
 - e) Examination of decomposed and mutilated bodies and skeletal remains.
 - f) Exhumation.
- 6) **Asphyxia :**
 - a) Definition, pathophysiology and post-mortem features in general, in asphyxial death.
 - b) Definition and classification of mechanical/violent asphyxia.
 - c) Mechanism, Postmortem features and medico-legal aspects of following types of mechanical asphyxia.
 - i) Hanging
 - ii) Strangulation
 - iii) Suffocation
 - iv) Drowning
 - v) Sexual asphyxia
- 7) **Injuries:**
 - a) Definition, classification
 - b) Mechanical injuries – classification, mechanism of causation and features of mechanical injury. Abrasion, Contusion, Laceration, Incised Wound, Stab Wound, Firearm injuries and Bomb explosion injuries, Mass Disaster

- c) Thermal injuries – Burns, Scalds and Electrical injuries, Lightning, Injuries due to cold
- d) Medico-legal aspects of injuries in general –
 - i. Legal definitions of Injury, Hurt, Grievous Hurt, Homicide, Murder, Assault, Battery, Dangerous weapon.
 - ii. Causes of death due to injuries.
 - iii. Ante mortem and postmortem injuries.
 - iv. Estimation of age of the injuries.
 - v. Suicidal, Homicidal, Fabricated and Defence injuries
 - vi. Dowry death
 - vii. Head injury, RTA injuries, Spine injury
 - viii. Duties of Medical officer in case of injuries including preparing an injury report.

8) Medico-legal aspects of Sex, Marriage and family Planning :

- a) Impotence and Infertility – Definition, causes and medico-legal aspects.
- b) Artificial Insemination, Assisted Reproduction, Test tube baby (IVF), Surrogate mother – Medico-legal aspects, Semen Banking.
- c) Virginity, Defloration – Signs and Medico-legal aspects.
- d) Pregnancy and Delivery – Signs and Medico-legal aspects.
- e) Abortion- Definition, Classification and Medico-legal aspects, Criminal abortion (Methods, causes of death and Postmortem features), MTP Act 1971 – Indications and Rules, PCPNDT Act 1994
- f) Infanticide – Definition, Viability, Dead born, Still born, Live born- child, Methods of estimation of intra-uterine age, Post-mortem examination of an infant. Hydrostatic test, Acts of commission and omission, Sudden Infant Death Syndrome, Battered Baby Syndrome – Medico-legal aspects.
- g) Sexual Offences – Classification – Natural, Unnatural offences and perversions, Definition, Procedure of medical examination and interpretation. Laboratory tests- collection preservation and dispatch of specimens.

9) Medical Jurisprudence:

- a. Definition and scope
- b. Medical Ethics and Laws in relation to medical practice
- c. Indian Medical Council and State Medical Council – composition and functions.
- d. Duties of a Registered Medical Practitioner.
- e. Professional Misconduct – Definition, Examples, procedure of investigation and punishment.
- f. Professional Negligence – Definition types, examples, legal proof, precautions.
- g. Professional Secrecy and Privileged communication
- h. Consent in relation to medical practice.
- i. Consumer protection Act 1986, 2002 and medical practice.
- j. Human experimentation
- k. Euthanasia

10) Psychiatry :

- a) Common features of Mental Illness – Hallucination, Delusion, Illusion, Impulse – definitions and examples
- b) Civil and Criminal responsibilities of mentally ill person.
- c) Restraint of insane (principles-outline)
- d) Feigned insanity, MHA 1987

11) General Toxicology :

- a) Definitions and classification of poisons.
- b) Action of poisons and factors modifying it.
- c) Diagnosis of poisoning in living and dead.
- d) General Principles of treatment in poisoning.
- e) Antidotes – Definition, Classification, Mechanism of action with examples.
- f) Medico-legal Aspects of Poisoning.
- g) Duties of Medical practitioner in a case of poisoning.

12) Study of Individual Poisons – Toxicological aspects, including physical properties, mechanisms of action, signs, symptoms, treatment, fatal dose, fatal period, post-mortem features and medico-legal aspects of following poisons :

- a. Corrosives – Mineral Acids -Sulphuric Acid, Hydrochloric Acid, Nitric Acid
Organic Acid- Carbolic Acid, Oxalic acid
- b. Irritants-
Inorganic – Metals – Arsenic, Lead, Copper, Mercury
Non metals – Phosphorous
Organic - Animals- Snake bite, Scorpion bite.
Vegetable- Castor, Croton, Marking Nut, Abrus, Calotropis,
chilli
- c. Insecticides- OPC, Carbamates, Organochloro, Aluminium Phosphide, Pyrethrum derivatives, Paraquat.
- d. CNS poisons – Somniferous- Opium
Inebriant- Alcohol, Barbiturates,
Deliriant- Datura, Cannabis, Cocaine.
Spinal- Strychnine.
- e. Cardiac poisons – Aconite, Oleander, Tobacco
- f. Asphyxiant poisons- Carbon monoxide, Hydrocyanic Acid.
War gases
- g. Drug Dependence- Drug Abuse
- h. Food poisoning

PRACTICAL

- 1) Medico-legal Post-mortems – every student is required to attend 10 medico-legal autopsies of which detailed post-mortem report of 6 autopsies is to be recorded and remaining 4 autopsies are listed in the index as witness cases. This record is incorporated in the journal of Forensic Medicine & Toxicology & is required to be produced at the time of practical examination.
- 2) Procedures of examination and issuing of certificates in following medico-legal cases :
 - i) Age Estimation.
 - ii) Alcohol Intoxication
 - iii) Injuries
 - iv) Illness/ Fitness
 - v) Death.

Proforma of the certificate will be provided during exam. Student is expected to know the procedure of documentation, consent, medico-legal importance and implications.
- 3) Identification and Description of morbid specimens, photographs, documents, radiographs and appliances of medico-legal importance.
- 4) Description of common weapons and injuries caused by them.
- 5) Examination of Bones.
- 6) Identification and Medico-legal aspects of poisons.

TOTAL TEACHING HOURS: 150

Lectures- 70 hours

Practical, Demonstration, Tutorials, Seminars- 80 hours

SLOs

At the end of teaching-learning session, the student will be able to write/ answer:

Lec t. No	Topic	SLOs	
		Must Know	Desirable to know
Court Procedure			
1	Inquest	• Definition & Types • Police inquest • Magistrate’s inquest	• Medical Examiner’s system
	Courts of law in India	• Criminal courts types • Juvenile court	• Powers of courts
2	Punishments	• Sentences authorized by law of India • Capital punishment	-
	Witness	• Types & examples • Hostile witness definition	-
	Evidence	• Definition • Types- Oral & Documentary • Documentary medical evidence- Medical certificates, Medico-legal reports, Dying declaration, Dying deposition	• Types (Direct, Indirect & Hearsay)
3	Procedure of recording of evidence	• Summons • Conduct money (Definition) • Oath • Perjury • Direct examination • Cross-examination • Re-direct examination • Doctor in witness box } Objectives	• Questions by judge

Identity			
1	Introduction	• Definition of identity • MLAs of identity • Data required for identification	• Complete & Partial identity • Corpus Delicti
	Race	• Indian skull	• Cephalic index & types of skull
	Sex	• Medico-legal aspects	• Differences between

		Differences between Male & Female skulls, pelvises & mandibles	Male & Female long bones (Femur)
2	Age	- Definition - Procedure of determination of age in living - MLAs of age 7 yrs, 12 yrs & 18 yrs	MLAs of age 14 yrs, 15 yrs & 21 yrs.
3	Dactylography	- Definition - Synonyms - Types - Characteristics - MLAs	History
	Tattoo marks	- Definition - Types - Methods of removal - MLAs	Dyes
4	Scars	- Definition - MLAs	Other aspects
	Other data	-	Principles of - Cheiloscopy - Rugoscopy - Superimposition technique - DNA finger printing
Death, PM changes & MLAs of death			
1	Introduction	- Definition of death & thanatology - Somatic & molecular death - Suspended animation - Modes of death	Bichat's triad
	Brain death	Types	-
	Brain-stem death	- Criteria - Beating heart donor	Team of doctors
	Organ Transplantation Act	Law	- Types of organ for donation - Punishments
2	Post-mortem changes I	- Immediate changes - Early changes- Algor mortis, Livor mortis	Early changes- Changes in eye, changes in skin
3	Post-mortem changes II	- Early changes- Changes in muscle (Primary flaccidity, Rigor mortis), Cadaveric spasm, - Late changes- Putrefaction	Early changes- Changes in muscle (Secondary flaccidity), Heat stiffening, Cold stiffening
4	Post-mortem changes III	- Late changes- Mummification, Adipocere - Time since Death	Postmortem chemistry

5	MLAs of death I	- Definitions- Cause of death, Sudden death - MCCD - ML Autopsy- Objectives, Incisions,	- Definition- Natural & unnatural causes of death - ML Autopsy- Pre-requisites, Procedure
6	MLAs of death II	Preservation of viscera, Negative autopsy, Exhumation	Obscure autopsy
Asphyxia			
1	Introduction	- Definition - Classification - PM findings in general	-
2	Hanging	- Definition - Classification - Causes of death- Asphyxia, Venous congestion, Combination of Asphyxia & venous congestion - PM findings (Local, Systemic) - MLAs- AM/PM hanging, S/H/A hanging, Judicial hanging	- Causes of death- Reflex vagal inhibition, Cerebral anaemia, Fracture/ dislocation of cervical vertebrae - MLAs- Lynching
	Strangulation I	- Definition - Varieties- Ligature strangulation , Throttling (Manual strangulation) - Causes of death- Asphyxia - Ligature strangulation- Definition, PM findings (Ligature mark, Neck findings), MLAs- AM/PM, Homicidal/Suicidal/Accidental	-
3	Strangulation II	Manual strangulation- Definition, PM findings (Neck findings), MLAs- AM/PM, Homicidal/Suicidal/Accidental	Varieties- Garroting, Mugging, Bansdola, Palmer, Pseudo-strangulation
4	Suffocation	- Definition & varieties of suffocation - Post-mortem findings in each variety - M.L. Aspects- AM/PM	Causes of death- Asphyxia, Vagal inhibition
5	Drowning I	- Definition - Types- Enumerate all types - Wet drowning, Dry Drowning - Immersion syndrome, Secondary drowning - Pathophysiology - Cause of death and its mechanism- Asphyxia, Laryngospasm - Post-mortem findings suggestive of Ante mortem drowning- External (Froth, Cadaveric spasm),	- Cause of death and its mechanism- Ventricular fibrillation, Vagal inhibition, Injuries, Electrolyte imbalance. - Post-mortem findings- External (Cyanosis, P.M.L., Goose skin, Washerwoman's

			hand
6	Drowning II	• Post-mortem findings suggestive of Ante mortem drowning - Internal (Water in lungs, Water in GIT, Aquatic vegetables in respiratory tract) • M. L. Aspects- Suicidal, Homicidal, Accidental	• Post-mortem findings- Internal (Indentation on ribs, Gettler's test, Diatoms) • ML Aspects- Hyperventilation, Scuba
	Sexual asphyxia	• Autoerotic Hanging • Plastic Bag Suffocation	•
Injury			
1	General Aspects	• Definitions- Injury, Hurt, Grievous hurt, Dangerous weapon • Classification of injuries- Mechanical, Legal	• Classification of injuries- Other (AM/PM, Intention)
2	Abrasion	• Definition • Types • Features • Medico-legal aspects- Cause, Age of Injury, AM/PM	• Medico-legal aspects- Manner, Mechanism
	Contusion	• Definition • Characteristics • Factors modifying the appearance • AM/PM • ML Aspects	• Delayed bruise • Absence of bruise • Contusion/ Post-mortem lividity
3	Laceration	• Definition • Types • Characteristics • M L Aspects	• Age of injury
4	Incised wound & Stab wound	• Definition • Characteristics • Causes/ Mechanism • Differences- Lacerated/Incised/Stab wounds	• Age of injury
5	Firearm injury I	• Definition- Firearm, Ballistics • Classification • Difference between smooth bore & rifled weapon • Diagram of cartridges - rifled & shot gun • Details of contents of cartridges • Definitions- caliber, bore, muzzle velocity, choking • Types of bullet	• Injuries according to range of firing
6	Firearm injury II	• Differences between entry wound and	• MLA- S/A/H

		- exit wound - Ricochet bullet, Tandem bullet	
	Burns I	- Definition - Types/classification - Factors - Cause of death	-
7	Burns II	- P.M. findings – A.M. - M.L.A. – AM/PM	- P.M. findings – Other - M.L.A. – H/S/A - Scalds & Chemical injuries
8	Electrocution & Lightning	- Joule Burn - Filigree burns	- Crocodile tears - Judicial electrocution - Cause of death
9	Head injury	- Definition - Hemorrhages- Types, Causes - Fractures- Types, Causes, M.L.A.	- Open & close - M.L.A. - Concussion - Punch-drunk - Diffuse axonal injury
10	Regional	- Bumper fracture - Whiplash	- Definition – Primary impact - Secondary impact - Secondary injury - Railway spine
	M.L.A. of Injuries	- Definition – hurt, simple hurt, grievous hurt - Criteria – Grievous-IPC 320 - Sec 304B IPC	- Dangerous weapon - Suicide - Homicide – Justifiable, Excusable, IPC. - Assault, Battery,
Toxicology- General			
1	General Toxicology I	- Definitions- Toxicology, Poison, Drug - NDPS Act - Classification - Mech. of action - Intention/manner - Site - Routes of administration of poison oral and parenteral	Related acts
2	General Toxicology II	- The factors modifying the action of poison - Treatment in general	Diagnosis of poisoning in living and dead
3	General Toxicology III	- Gastric Lavage - Emetics	-

		• Symptomatic management • Specific treatment Antidotes- Define, Classify, Household, mechanical (at least charcoal), chemical (KMnO₄), chelating agents	
4	General Toxicology IV	• Chelating agents in detail- BAL, EDTA, Penicillamine	• Chelating agents in detail- Desferrioxime, Succimer, Kelocyanor
5	General Toxicology V	• Duties of RMP in poisoning • Preservation of samples and viscera	-
Poisons			
1	Corrosives I	Sulphuric Acid • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects-Vitriolage	Sulphuric Acid • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
2	Corrosives II	Hydrochloric acid, Nitric Acid • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects • Difference between Acid and alkali burns	Hydrochloric acid, Nitric Acid • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis Alkalis
3	Corrosives III	Carbolic acid • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	Carbolic acid • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
4	Insecticides I	OPC • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	OPC • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
5	Insecticides II	• Organochlorine, Carbamates, Aluminium Phosphide	Carbamates, Aluminium

		• Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	Phosphide • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis Pyrethrin, Pyrethrum
6	Vegetable irritants I	Castor, Croton, Abrus Precatorius • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	Castor, Croton, Abrus Precatorius • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis Marking nut, Chili seeds, Calotropis
7	Inorganic irritants (Heavy metals) I	Arsenic • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	Arsenic • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
8	Inorganic irritants (Heavy metals) II	Lead • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	Lead • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
9	Inorganic irritants (Heavy metals) III	Mercury, Copper • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	Mercury, Copper • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
10	Animal irritants I	Snakes (Common Cobra, Saw-scaled viper, Russell's viper, Common Krait)- • Identification • Classification • Snake venom • Clinical features	Snakes (Common Cobra, Saw-scaled viper, Russell's viper, Common Krait)- • Physical properties • Metabolism and elimination-Toxicokinetics

11	Animal irritants II	Snakes (Common Cobra, Saw-scaled viper, Russell's viper, Common Krait)- • Clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects Scorpion- • Scorpion venom • Clinical features • Management	Snakes (Common Cobra, Saw-scaled viper, Russell's viper, Common Krait)- • Diagnosis
12	Opium, Barbiturates	• Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	• Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
13	Ethyl Alcohol I	• Identification • M.O.A. • Route of absorption & clinical features • Treatment	• Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
14	Ethyl alcohol II	• P.M. findings & Viscera preservation • M.L. aspects	-
	Methyl alcohol	• Identification • M.O.A. • Route of absorption & clinical features • Treatment	• Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
15	Methyl alcohol	• P.M. findings & Viscera preservation • M.L. aspects	-
	Aconite	• Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	• Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
16	Cocaine, Cannabis	• Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	• Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
17	Datura, Strychnine	• Identification • M.O.A. • Route of absorption & clinical features	• Physical properties • Metabolism and elimination-

		• Treatment • P.M. findings & Viscera preservation • M.L. aspects	Toxicokinetics • Diagnosis
18	Asphyxiant I	Cyanide • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	Cyanide • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis
19	Asphyxiant II	Carbon Monoxide • Identification • M.O.A. • Route of absorption & clinical features • Treatment • P.M. findings & Viscera preservation • M.L. aspects	Carbon Monoxide • Physical properties • Metabolism and elimination-Toxicokinetics • Diagnosis War gases Kerosene
20	Drug Abuse	• Definition-Drug, Drug abuse, Drug Dependence • Methods • Autopsy findings • MLA	• Classification • Clinical features • Management
Sexual jurisprudence			
1	Abortion I	• Definition • Types- Justifiable & Criminal • MTP- Rules and regulations, Indications, Complications, Methods • Criminal abortion- Various methods (Ecboolics, Emmemagogus, Abortion stick –Trauma, Cupping)	-
2	Abortion II	• Criminal Abortion- ✓ Complications ✓ Causes of death (Immediate, Delayed & Remote) ✓ Postmortem Findings & MLAs	• Criminal abortion- Various methods (Laminaria tent, Utus paste, Electric current) • PCPNDT Act
	Infanticide I	• Definition- Infanticide, Live born, dead born, Still born, Viability • Objectives & procedure of autopsy • Signs of dead born- Maceration • Signs of live born- Hydrostatic test,	• Signs of dead born- Mummification, Rigor mortis • Wredin's Test • Caput succedaneum • Cephal haematoma
3	Infanticide II	• Causes of death Acts of commissions and omission in relation to infanticide.	-

		• SIDS & battered baby syndrome • Child Abuse	
4	Impotence, Sterility I	• Definition – Impotence, Frigidity, Infertility • Causes of impotency – Common • Artificial Insemination- Rules and regulation, Procedure, Various laws, Surrogacy, IVF	• Causes of impotency – Uncommon • Artificial Insemination- Various laws, Surrogacy, IVF
5	Virginity	• Definition – Virgin, Defloration • Causes of rupture of hymen other than intercourse • Hymenoplasty • M L Aspects	• Carunculae hymenale • True/pseudo virgin
	Pregnancy	• M.L.Aspects • Signs of pregnancy- Positive • Quickening & MLA • USG & early determination • Legitimacy • Definition – legitimate child, Posthumous, Suppositious, Atavism	• Signs of pregnancy- Presumptive, Probable • Phantom pregnancy • Definition – Super fecundation, Superfetation
	Delivery	• Colostrum, Lochia • M.L. Aspects	• Signs of delivery- Living & Dead, Recent & remote
State Medicine			
1	State Medicine I	• Definitions- Medical Ethics and Medical Etiquettes • State Medical Council- Function • MCI- Function	• State Medical Council- Composition • MCI- Composition • Rights and privileges
2	State Medicine II	• Professional misconduct • Professional secrecy • Privileged communication	• Euthanasia
3	State Medicine III	• Medical / Professional negligence • Definition • Elements/ components • Types of negligence & Examples	• Corporate negligence
4	State Medicine IV	• Criminal negligence- Definition and examples • Contributory negligence • Precautions against negligence	• Calculated risk, Product liability
5	State Medicine V	• Defence against negligence • Res ipsa loquitur • Therapeutic misadventure • Vicarious responsibility	• Novus actus Interveniens
6	State Medicine VI	• Consent- Definition, types, examples	• CPA
Sexual offences			

1	Sexual offences I	Sexual assault Definition- IPC 375, Punishment IPC 376	Sexual assault Custodial rape, Marital rape, Opinion
2	Sexual offences II	Procedure of examination of victim & accused, Preservation of material/lab investigations in a victim, Rape trauma syndrome	Definitions of Adultery & Incest
3	Sexual offences III	- Unnatural- Sodomy (definition), Examination in non-habitual/ habitual, Examination in active, - Lesbianism/Tribadism (Definition),	- Bestiality - Buccal coitus
4	Sexual offences IV	Sexual Paraphilias- Sadism, Masochism, Transvestism, Vouyerism, Fetichism, Exhibitionism	- Necrophilia - Necrophagia - Lust Murder
Forensic Psychiatry			
1	Forensic Psychiatry I	- Features of mental illness (Definition & examples)- Illusion, Hallucination, Delusion, Lucid interval, Impulse - Diagnosis- Difference between true and feigned mental illness	- Features of mental illness (Definition & examples)- Delirium, Psychosis, Neurosis - Causes
2	Forensic Psychiatry II	- Restraint of mentally ill - Civil responsibility - Criminal responsibility- Mc'Naughten's rule, IPC 84	- MHA 1987/ Mental Health Care bill 2013 - Durham's test, ALI test

Same topics are covered in tutorial sessions to ensure the understanding. The total number of lectures, tutorials and practical/demonstrations as per the semesters is as follows-

Pra ct.	Topic	SLOs

Semester	Lecture	Practical	Tutorial	Total
III	23	2	-	25
IV	22	5	16	43
V	26	2	10	38
Total	71	10	26	106

Semester	Chapters	No. of lectures
III	Court Procedure, Identity, Death & ML Aspects, Injury	23
IV	Asphyxia, General Toxicology, Corrosives, Insecticides, Veg. Irritants, Sexual jurisprudence	22
V	Inorganic irritants, Animal irritants, Opium, Barbiturates, Alcohol, Aconite, Cocaine, Cannabis, Datura, Strychnine, Asphyxiant, Drug abuse, State Medicine, Sexual offences, Forensic Psychiatry	26

SLOs- Practicals

No		Must Know	Desirable to know
1	Examination of Bone	- Identify- Skull, Pelvis, Mandible - Estimate the age – give 2 reasons - Identify the sex – give 2 reasons	Long bone – stature, Sex
2	Photographs - Injury - Asphyxia - Death & its changes - Identification - Infanticide	- Identify - Give your comments from medico-legal aspects - Opinion	-
3	Radiographs	- Identify - Give your comments - Injuries – Type, Cause/weapon - Estimate age - Foreign body –identify - Medico-legal aspects/ opinion	CT / MRI/ USG
4	Weapon	- Identity - Sharp/blunt/heavy/pointed/dangerous/ simple - Injuries possible - Cartridge –shotgun and Rifled – labeled diagram with its contents	
	Injury Report	- Define – injury, Hurt, Grievous. Hurt, Dangerous weapon - History taking - Write proper consent - Write at least 2 I.M. - Write injuries in prescribed Proforma - Identify the injury - Determine the causative weapon - Opine about type of injury - Cause of death due to injuries	- Opine about age of injury - Mention the relevant remarks - Mention the other medico-legal formalities
5	Documents	Definition- Death, Sudden death, Suspended animation brain stem death, Evidence	-
	Summons	- Identify - Definition - Rules - Conduct money - Perjury - Witness	Courts

	MCCD	- Identify - Form 4 , 4A - ML Importance - Antecedent / contributory cause of death	
	Preservation of viscera(viscera form)	- Indication - Objectives of medico-legal autopsy - Routinely preserved viscera - Specially preserved viscera - Preservatives	FSL
	Autopsy report	- Evidence - Objectives - Incisions	- Negative autopsy - Obscure autopsy - Embalming
	Preservation of blood/ other material	- Preservative for blood - Preservative for urine	
	Sickness certificate	- Given exercise to be written in standard format - Identification marks - Diagnosis of condition from given symptoms - Difference between symptoms, sign & disease - Advice about leave & fitness - Precautions while issuing certificate	
6	Age Report	Given exercise to be written in prescribed Proforma - History taking - Write proper consent - Write at least 2 I.M. - Secondary sexual characters - Dentition - Radiographs- For fusion of epiphyses - Opinion about age - M.L.I. ages – 7, 12, 18, 21.	- Miscellaneous data for estimation of age - M.L.I. ages – 14, 15
7	Alcohol certificate	- Given exercise to be written in a prescribed Proforma - Consent- ML issues - Procedure of examination - Preservation of samples - Opinion as to under/not under the influence of alcohol.	- Bombay Prohibition Act - Widmark's formula
8	Gastric Lavage	Describe - appliance	Discuss M.L.

		• Draw and label the parts • Mention indications • Describe the procedure • Mention contra – indications - Absolute - Relative • Duration of procedure	Aspects
9	Specimens List of specimens • Routinely preserved viscera • Brain- Subarachnoid haemorrhage • Spleen- Stab injury • Heart- Ventricular hypertrophy • Foetus • Uterus- Criminal abortion	• Identify • Describe • Possible causes of death • Medico-legal importance	-
10-13	Poisons	• Identify • Classify, Mention active principles, if any • Salient clinical findings • Principles of management • Specific antidote • Mention M.L.Aspects	• Uses • Metabolism • Usual fatal dose
	Snake-Common cobra, King cobra, Russell's viper,	• Identification • Characteristics • Clinical features • Principles of management • Medico-legal aspects	• Snake venom • Other varieties of snake

EXAMINATION RULES

I. INTERNAL ASSESSMENT :

THEORY – Maximum 10 marks computed from maximum 250 marks obtained in the 5 written examinations and 3 viva voce conducted as below:

Semester	Examination	Maximum marks	
		Written	Viva
III	Mid-term	30- MCQ & SAQ	--
	Term- ending	40	20
IV	Mid-term	30 MCQ & SAQ	--
	Term-ending	40	20
V	Preliminary	40 (2 sections of 20 marks)	30
	Total	180	70

The marks obtained out of 250 will be converted into out of 10 marks.

PRACTICAL: Maximum 10 marks computed from maximum 100 marks obtained in all practical examinations conducted as below:

Semester	Examination	Maximum marks
III	Term-ending	10
IV	3 internal exams of 10 marks each	30
	Term ending	10
V	Internal exam	10
	Preliminary	30
All 3 terms	Journal work	10

Marks obtained out of 100 will be converted into out of 10 marks.

A student must secure at-least 35% separately in theory and practicals in internal assessment to be eligible to appear for the University Examination.

II UNIVERSITY EXAMINATION:

THEORY

Theory examination will consist of 1 written paper (2 sections of 20 marks each) of 2 hours duration carrying maximum 40 marks.

The distribution of topics and marks will be as follows:

Q. N o .	Topics	Marks
Section -I		
1	Injuries- Long question	8
2	State medicine, Court procedures, Identity- Short notes	6
3	Death & Medico legal Autopsy, Asphyxia- Short notes	6
Section-II		
4	Toxicology- Long question	8
5	Toxicology- Short notes	6
6	Sexual Jurisprudence & Psychiatry- Short notes	6

PRACTICAL

Maximum marks – 30

Practical examination will consist of following exercises.

Exercise	Maximum marks
Spots	20
Certificate writing with viva on it	10
Viva voce	10 (to be added to theory marks)

The candidate will be declared pass in the subject only when at least fifty percent marks are obtained separately in theory and practical Examination.

Reference books

1. Modi's Medical Jurisprudence & Toxicology, 22nd edition, Edited by B V Subrahmanyam
2. The Essentials Of Forensic Medicine & Toxicology - Dr.K.S.Narayan Reddy.
3. Textbook of Forensic Medicine & Toxicology- V V Pillay
4. Textbook of Forensic Medicine and Toxicology- Principles & Practice- Krishnan Vij



Department Of Medicine
Bharati Vidyapeeth University
Medical College, Pune
Syllabus and Scheme of Examination
MBBS

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Goals

- Goal of medical graduate course is aligned with National Goal and Bharati Vidyapeeth Deemed University Goal as 'Efficient first contact physician' and 'Social transformation through Dynamic education' respectively.
- The undergraduate medical education programme is designed with a **goal** to create an **"Indian Medical Graduate" (IMG)** possessing requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively **as a physician of first contact of the community** while being globally relevant.

In order to fulfil this goal, the IMG must be able to function in the following **ROLES**

Appropriately and effectively and these are viz. a Clinician, a Leader and member of the health care team and system, a Communicator, a Professional and a Lifelong learner

Objectives

A. Knowledge Based –

At the end of the course, Student should be able to-

1. Diagnose common clinical disorders in various system such as respiratory, gastrointestinal, neurological, endocrinological, nutritional, hematological, renal & rheumatological & geriatrics.
2. Order appropriate 1st line investigations & able to interpret the results of the same to make a diagnosis.
3. Provide basic treatment for the above conditions.
4. Outline various modes of management including but not limited to drug therapeutics especially dosage, side effects, toxicity, interactions, indications, & contraindications.
5. Provide prompt 1st level management of various medical emergencies in a competent & efficient manner.
6. Decide the level & timing of referral independently according to patient's condition.
7. Understand the basic concept of triage in cases of natural /artificial calamities.
8. Know about basic life support system.

B. Skill Based –

At the end of the course, Student should be able to-

1. Develop basic clinical skills & appropriate bedside manners & etiquettes e.g History taking
2. Competently & independently perform general as well as various systemic examinations.
3. Be familiar to instruments needed for examination & properly use them as & when needed.
4. Perform simple investigations like Blood, urine, stool, sputum examinations.

5. Assist in common bedside procedures, like Pleural tapping, Ascitic tapping, Lumbar puncture, Bone marrow aspiration, Liver & Kidney biopsy, CVP line insertion, intubation.
6. Secure airway protection & perform CPR
7. Give intramuscular injection, Intravenous injection, Subcutaneous injection, Intradermal injection
8. Perform simple procedures like Intracath insertion ,Foley's catheter, Ryle's tube insertion

C. Attitudinal & Communication based

At the end of the course, Student should be able to-

1. Do counselling of patients & relatives regarding the illness.
2. Communicate with the patient and relatives about the severity of the disease and help them making informed decisions and consent for the same.
3. Communicate regarding investigation and treatment plans especially if any interventional management is needed.
4. Show empathy in cases of general patient problems & in case of terminal illness eg. Malignancies.

D. Integration

1. With community medicine to have adequate knowledge about basic prevention of disease and about the national health programmes.
2. With physical medicine & rehabilitation to be able to view patient in his/her total physical, social, & Economic milieu & accordingly suggest rehabilitation programme best suited to individual patient.
3. With other relevant departments which provide to form scientific basis of clinical medicine eg. Anatomy, Physiology, Biochemistry, Microbiology, Pathology, & Pharmacology.

Competencies

The undergraduate student must demonstrate:

- Understanding of the structural and functional basis, principles of diagnosis and management of common Medical problems in adults.
- Ability to choose, calculate and administer appropriately intravenous fluids, electrolytes, blood and blood products based on the clinical condition.
- Ability to apply the principles of asepsis, sterilization, disinfection, rational use of prophylaxis, therapeutic utilities of antibiotics and universal precautions in Medical practice.
- Knowledge of common diseases in India e.g. Malaria, TB, Dengue, HIV and their prevention, early detection and therapy.
- Ability to perform common medical procedures at the primary care level.
- Ability to recognize, resuscitate, stabilize and provide basic life support to patients.
- Ability to take informed consent and counsel patient prior to Medical procedures,
- Commitment to advancement of quality and patient safety in Medical practice.

Teaching and Learning Activities

Within the framework of MCI all teaching learning sessions are planned. A list of teaching and learning activities designed to facilitate students acquire essential knowledge and skills outlined is given below

Total Teaching Hours – 776

Theory Hours (Lectures + Tutorials) - 308

Clinical Posting Hours- 468

Lectures

Didactic lectures start from 3rd semester

III	Semester	Once a week lecture – 22 hours
IV	Semester	Once a week lecture – 22 hours
VI	Semester	Twice a week lect. – 44 hours
VII	Semester	Twice a week lect. – 44 hours
VIII	Semester	Twice a week lect. – 44 hours
IX	Semester	Once a week lecture. – 22 hours

Didactic lectures are focused on ‘must know’ knowledge of that particular organ/system and exposure to ‘desirable to know’ & ‘nice to know’ topics.

Aim of didactic lectures is to facilitate learning.

II Clinical posting

III	Semester	1 st post.	6 wks - 108 hours
IV	Semester	2 nd post	4 wks 72 hours
V	Semester	3 rd post	4 wks - 72 hours
VI	Semester	4 th post	4 wks - 72 hours
VIII	Semester	5 th post	4 wks - 72 hours
IX	Semester	6 th post	4 wks- 72 hours

III Tutorials

Tutorial classes start from VI semester. Each class is once a week & for two hours.

VI	semester	once a week – 44 hours
VIII	Semester	once a week - 22 hours
IX	semester	once a week – 44 hours

List of topics to be covered and the learning objectives in each semester is described later in the document. The topics covered in tutorial are more of clinical application like reading X-ray, performing procedures etc. in view of things, a graduate MBBS doctor is expected to perform.

LIST OF LECTURE TOPICS SEMESTER WISE

3rd Semester

1. Basics of Nutrition – I
2. Basics of Nutrition – II
3. Water soluble Vitamins
4. Fat soluble vitamins + Minerals
5. Enteral & parenteral Nutrition.
6. Obesity
7. Malnutrition in adults.
8. Introduction to Infections
9. Malaria
10. Seminar on Malaria
11. Enteric Fever
12. Seminar on Enteric Fever
13. Dengue
14. Seminar on Dengue fever
15. Acute Infective Diarrhoea (E.Coli/ Shigella)
16. Cholera
17. Amoebiasis & Giardiasis with Amoebic Liver Abscess
18. Helminthic Infections- I
19. Helminthic Infections- II
20. Tetanus & Gas Gangrene

4th Semester

1. Acute Respiratory Failure -1
2. Acute Respiratory Failure -2
3. Pleural Effusion -1
4. Pleural Effusion -2
5. Pneumothorax
6. Pulmonary Embolism-1
7. Pulmonary Embolism-2
8. Procedures In Pulmonary Diseases-1
9. Procedures In Pulmonary Diseases-2
10. Empyema & Lung Abscess
11. Bronchiectasis
12. Lung cancer
13. COPD-1
14. COPD-2
15. Bronchial Asthma-1
16. Bronchial Asthma-2
17. Tropical Pulmonary Eosinophilia
18. Pneumonia-1
19. Pneumonia-2
20. Pneumonia-3

6th Semester

1. Introduction to CVS & clinical examination
2. Approach to patients with CVS disorders
3. Acute Rheumatic Fever
4. Valvular Heart Disease -1- MS
5. Valvular Heart Disease -2 - MR+MVP/AS/AR
6. Infective Endocarditis
7. Ischaemic Heart Disease – 1(Atherosclerosis & Circulation)Anatomy of Coronary
8. Ischaemic Heart Disease – 2 (Angina & MI)
9. Ischaemic Heart Disease – 3 (Mechanical complications & their treatment : cardiogenic shock)
10. Ischaemic Heart Disease – 4(Electrical complications including ECG's & their Rx)
11. Seminar on AMI
12. Congenital Heart Disease -1 (A cyanotic)
13. Congenital Heart Disease -2 (Cyanotic)
14. Heart Failure
15. Cor –Pulmonale
16. HTN -1
17. HTN-2
18. Pericardial Diseases
19. Cardio Myopathy
20. Investigations in cardiac disorders (Stress test,2 D Echo ,CAG)
21. Tetanus & Gas Gangrene
22. Diphtheria & Pertussis
23. Plague, Anthrax ,Brucellosis
24. Syphilis
25. Leptospirosis
26. Filariasis & Leishmaniasis (Kala Azar)
27. Herpes simplex & Zoster, Chicken Pox
28. Measles, mumps, Rubella
29. Rabies
30. Polio & Japanese B encephalitis
31. Rickettsial Disease.
32. PUO
33. Hospital Acquired Infections
34. Adult Immunization
35. Common fungal infections– I
36. Common fungal infections - II
37. H1N1 & Ebola
38. HIV – 1
39. HIV – 2
40. Seminar on HIV

7th Semester

1. Introduction Applied Anatomy and Physiology of Brain and Spinal Cord
2. Approach to Patient with CNS disorders
3. Headache

4. Epilepsy Part – I
5. Epilepsy Part – II
6. Seminar on Epilepsy
7. Coma Part – I
8. Coma Part –II
9. Cerebrovascular Accident Part -I
10. Cerebrovascular Accident Part -II
11. CVA Part III
12. Case Scenario's on CVA
13. CNS Infection Part I (Pyogenic Meningitis)
14. CNS Infections Part –II (Tubercular meningitis)
15. CNS Infection Part –III (Viral Encephalitis)
16. Revision Quiz on CSF & Lab Data
17. Seminar on Meningitis
18. ICSOL –I – Infection- brain abscess, neurocysticercosis
19. ICSOL-II –Noninfectious causes like tumours
20. Extraparamidal Syndromes –Parkinson's disease
21. Cerebellar Syndromes
22. Diseases of Oral cavity & Oesophagus(Apthous ulcer, GERD, Achalasia cardia, Ca- Oesophagus)
23. Diseases of Stomach (A.P.D, Gastritis)
24. Upper GI tract bleeding(Hematemesis,& Malena it's causes and management)
25. Abdominal Tuberculosis
26. Case scenario with lab data
27. Malabsorption syndrome
28. Irritable Bowel syndrome
29. Inflammatory Bowel Disease
30. Seminar on I.B.D
31. Liver function tests & Jaundice .D/D of Hepatomegaly & clinical methods including surface anatomy
32. Acute Hepatitis
33. Chronic Hepatitis
34. Quiz on Hepatitis
35. Liver cirrhosis part -1 (Aetiopathogenesis clinical features)
36. Liver cirrhosis part -2(complications- portal hypertension, H.R.Syndrome , SBP,varices)
37. Ascites
38. Quiz on cirrhosis& Ascites with lab data
39. Fulminant Hepatic Failure and Hepatic Encephalopathy
40. Acute and chronic pancreatitis

8th Semester

- 1 Spinal Cord Disorder - I
- 2 Spinal Cord Disorder - II
- 3 Spinal Cord Disorder - III
- 4 Seminar on Spinal Cord Disorder
- 5 Peripheral Neuropathies –
- 6 GBS
- 7 Disorders of Cranial Nerves (1-6)

- 8 Disorders of Cranial Nerves (7)
- 9 Disorders of Cranial Nerves (8-12) + Quiz
- 10 Myasthenia Gravis
- 11 Muscle Disorders(Myopathies)
- 12 Multiple Sclerosis
- 13 Motor neuron disease
- 14 Localization of CNS lesions
- 15 Approach to Endocrinological disorders.
- 16 Disorders of Hypothalamus & Pituitary Gland
- 17 Thyroid Disorders Part – I(Hypothyroidism & Thyroiditis)
- 18 Thyroid Disorders Part – II (Hyperthyroidism & Carcinoma of Thyroid)
- 19 Quiz on Thyroid disorders
- 20 Calcium Metabolism and disorders of Parathyroid
- 21 Approach to Rheumatic Disorders
- 22 Rheumatoid Arthritis – I
- 23 Systemic Lupus Erythematosus
- 24 Quiz /Case scenario on R.A & SLE
- 25 Spondyloarthropathies & Reactive Arthritis
- 26 Scleroderma and MCTD
- 27 Gout and Pseudogout + Dermatomyositis & Polymyositis
- 28 Diabetes Mellitus Part –I (Classification/Etiopathogenesis)
- 29 Diabetes Mellitus Part –II (Clinical Features)
- 30 Diabetes Mellitus Part –III (Complications and their Management)
- 31 Seminar on Diabetes Mellitus +Quiz and case Scenarios
- 32 Diseases of Adrenals Part – I (Cushing's Disease)
- 33 Diseases of Adrenals Part – II (Addison's and Pheochromocytoma)
- 34 Metabolic Syndrome
- 35 Glomerulonephritis
- 36 Nephrotic Syndrome
- 37 Acute Kidney Injury – I(Causes & Etiopathogenesis)
- 38 Acute Kidney Injury – II (Investigations, Complications and Management)
- 39 Infection of Urinary Tract
- 40 Chronic Kidney Disease –I (Causes & Investigation)
- 41 Chronic Kidney Disease –II (Management including Haemodialysis)
- 42 Seminar on Chronic Kidney Disease

9th semester

1. Iron Deficiency Anemia
2. Seminar on Iron Deficiency Anemia
3. Megaloblastic Anemia
4. Seminar on Megaloblastic Anemia
5. Aplastic Anemia & Anemia of chronic Disease
6. Hemolytic Anemia
7. Thalassemia
8. Pictorial Quiz with case scenario
9. Overview of Anemias

10. Approach to patient with leucocytosis & Leucopenia
11. Leukemia Part -1 (Acute Leukemias)
12. Leukemia Part -2 (Chronic Leukemias)
13. Lymphoma
14. Multiple Myeloma
15. Case scenario's Hematologic Malignancies
16. Disorders of Haemostasis Part -1
17. Disorders of Haemostasis Part -2
18. Disorders of Haemostasis Part -3
19. Case Scenarios on Hemostatic Disorders

Details of Tutorials topics

VI semester once a week – 44 hours

VIII Semester once a week - 22 hours

IX semester once a week – 44 hours

- UG students will have Medicine tutorials in VI th, VIII th and IX th semester.
- The tutorials will be essentially a small group teaching format.
- The teaching – learning methodology will vary according to the requirement of the topic.
- Opportunity is taken to teach the students in a Module format, which will include Demonstration, videos, information about the instruments required, steps of procedures in relation to the topic, so also the x-rays if any.
- Few of the common soft skills and emergency care skills will be taught in tutorials in an integrated manner, in collaboration with various departments.

6th semester tutorial topics

1. ECG Part – I
2. ECG Part – II
3. ECG Part – III + Quiz on ECG
4. Pleural Tapping & Biopsy
5. Ascitic Tapping
6. Various Lab data of Ascitic and pleural fluid
7. Lumbar puncture
8. Liver & Kidney biopsy
9. Bone Marrow aspiration & Biopsy
10. CVP line insertion & I.V Fluids
11. Tubes & Catheters
12. Pictorial Quiz
13. Blood Transfusion & its complications
14. Heat stroke and Drowning
15. Acute alcohol Intoxication & withdrawal syndromes.
16. Urine Examination
17. Anaphylaxis & Acute Urticaria

18. Various Lab data of urine examination (Clinical Quiz)
19. CPR
20. Snake Bite.

8th Sem tutorial topic

- 1 Physiology of Renal Function
- 2 Investigations in Renal Diseases
- 3 Water & Electrolyte Imbalance Part – I(Hyponatremia –Hypernatremia)
- 4 Water & Electrolyte Imbalance Part – II (Hypokalemia & Hyperkalemia)
- 5 Acid-Base Disturbances –I
- 6 Acid-Base Disturbances –II (Including ABG analysis)
- 7 Lab Data on Dyselectrolytemia and Acid Base Disturbances
- 8 Asthma /COPD Inhalation Techniques
- 9 Pulmonary Function tests and their significance
- 10 Approach to case of AFI with Rash with Thrombocytopenia
- 11 Mx of DKA and HONK
- 12 Mx of Hypoglycemia
- 13 Mx of Acutely Breathless Patient
- 14 Approach to comatose patient presenting in Casualty
- 15 Mx of Hemoptysis
- 16 Bio ethics, attitude and communication skills
- 17 Bio ethics, attitude and communication skills
- 18 Bio ethics, attitude and communication skills
- 19 Bio ethics, attitude and communication skills
- 20 Bio ethics, attitude and communication skills

9th semester tutorials topics

1. Organophosphorus Poisoning
2. Case scenarios of snake bite & OPP
3. Medical Problems in old Age
4. Cardiac Drugs – 1
5. Cardiac Drugs -2
6. OHA's & Insulins
7. Dyslipidemia
8. Approach to a case of Anasarca
9. Approach to case of Severe Jaundice
10. Management of Acute Severe LVF
11. Management of Acute Severe Asthma
12. Wilson's Disease ,Haemochromatosis and Porphyrias
13. ECG Quiz
14. Revision of Ascitic tapping ,Pleural tapping & Lumbar puncture

15. Revision of Tubes ,Catheter & Biopsy
16. Bio ethics, attitude and communication skills
17. Bio ethics, attitude and communication skills
18. Bio ethics, attitude and communication skills
19. Bio ethics, attitude and communication skills
20. Bio ethics, attitude and communication skills

Details of clinical postings

3rd sem- 4 weeks- Basics of History taking, Basics of General examination, General overview of Symptomatology pertaining to various major systems, Generalised scheme of examinations of various major systems like GIT, Respiratory System, Cardiovascular system & Miscellaneous

2 weeks – Basic case taking, General examination findings, interesting findings in various patients

4th sem– 1 week – Revision of 3rd sem

1 week –General examination in miscellaneous case eg. Goiter, CKD, Jaundice, Anemia etc.

2 week –G.I.T (Abdomen)

5th sem- 1 week –P/A revision cases

2 weeks-RS

1 week –CVS

6th sem – 2 week –CVS

2 week CNS

8th Sem – 3 weeks –CNS

1 week – Revision of other system

9th Sem – Revision of all system & Miscellaneous cases.

Student will apply their knowledge, what they have gained in their tutorial teaching classes, during their clinical posting.

Student will enter the ‘case record’ in his/her journal time to time during clinical posting.

Batch will be divided in groups of three & each group will be allotted three beds. Students are supposed to daily interact with the patients on the bed number allotted to them.

Note:-

The approximate distribution for bedside teaching will be as follows-

30minutes –History

1 hour- Physical examination, Investigation & Management

30minutes – Clinical case discussion on various topics related to the system being taken

1 hour - Interaction with the patients allotted to students bed wise

SLOs

Sr. No	Name Of Topic	Must Know	Desirable to know	Nice to Know
	3rd Semester			
1	Basics of Nutrition Part 1	1. Physiology of Nutrition 2. Regulation of energy balance 3. Energy yielding nutrients(macronutrients i.e proteins, carbohydrates, fats, water) 4. Overview of above Essential nutrient requirements. 5. Clinical assessment & investigations of nutritional status, anthropometric measurements (by Indian Standards /ICMR criteria).	Kwashiorkor & Marasmus	
2	Basics of Nutrition Part 2	1. Dietary Assessment screening by History & examination. 2. Recommended dietary allowances (RDA) of each of the macronutrients i.e proteins, carbohydrates, fats, water(ICMR, Indian guidelines). 3. Recommended dietary allowances (RDA) of micronutrients i.e vitamin & trace elements (Minerals)	Overview of Vitamins & Minerals	Diseases due to Vitamins & Minerals Deficiency
3	Water soluble vitamins.	1. Major Types of water soluble vitamins –Know RDA of WSV 2. Subtypes of vitamin B complex especially B1, B6, B12, Folic Acid 3. Clinical features of deficiency of each vitamin especially Beri-Beri Pellagra, B12 deficiency	Clinical features of toxicity of each vitamin	
4	Fat soluble vitamins	1. To know 4 different types of fat soluble vitamins. 2. To know the sources of each of A D E K vitamins- Know RDA of FSV 3. To know the deficiency symptoms, serum levels especially of ULPD treatment of each of the 4 fat soluble vitamins.		
5	Enteral & Parenteral Nutrition	1. Indications for specialized nutritional support 2. Daily fluid requirement 3. Daily energy requirement 4. Daily Protein, fat, carbohydrate requirement 5. Daily Minerals & Vitamin requirement 6. Parenteral nutrition techniques and patient monitoring. 7. Complication of parenteral nutrition (Mechanical, Metabolic Infections) 8. Enteral nutrition-Tube placement and patient monitoring 9. Complication of Enteral nutrition(Aspiration and diarrhoea)	1 Types of parenteral fluids 2 Types of Enteral nutrition	

6	Obesity	1. Etiology and pathogenesis. 2. Assessment & Quantification of Obesity 3. Obesity Syndromes -Mention Names only 4. Complications 5. Management - Lifestyle / Diet therapy/ Drugs	Bariatric procedures	
7	Malnutrition in Adults	1. PEM -2 major types –Marasmus & kwashiorkor. 2. Macronutrients & Micronutrient deficiency. 3. Nutritional Assessment by history, Physical exam, anthropometry, laboratory studies. 4. Management of MN especially PEM	Criteria for malnutrition	
8	Introduction to Infections	1. Epidemiology-definition of infection, reservoir, agent, epidemic, endemic, pandemic etc. 2. Infectious /contagious agents. 3. To know the various types of infections in medicine. 4. Common bacterial infections like infectious diarrhoea, infective endocarditis, pneumococcal & staphylococcal, Meningococcal, tuberculosis, Rickettsial disease, tetanus, chlamydia etc. 5. Common viral infections like herpes CMV, EBV, Influenza, Swine flu , HIV, Rubella ,Mumps & Measles 6. Common parasitic diseases like Malaria, Leishmaniasis, Amoebiasis, ectoparasite 7. Common fungal- aspergillus, candidiasis & helminthic infections-Taenia, hookworm, Tapeworm ,Roundworm, Echinococcus etc	Other parasites & fungal infections	
9	Malaria I	1. Definition/Epidemiology 2. Types of plasmodia 3. Life cycle/clinical features. 4. Complications-cerebral malaria, blackwater fever, algid malaria syndrome,		
10	Malaria II	1. Laboratory evaluation and diagnosis. 2. Management-Treatment –chloroquine sensitive and chloroquine resistant oral and IV drugs, ACT drugs, radical cure Prevention-chemoprophylaxis during travel ,other physical	new antimalarial agents	Malaria ongoing research NMCP/NMEP
11	Enteric Fever	1. Etiopathogenesis of Enteric Fever like salmonella typhi, paratyphi and faeco-oral route 2. Clinical features. 3. Diagnosis – Different investigations to send in different weeks like Blood Culture, Widal test, Stool and urine culture. 4. Value of Widal test 5. Complications –gastrointestinal haemorrhage , perforation,encephalopathy,carrier state) 6. Traditional and recent treatment options.	Prevention/ Vaccination for Typhoid Fever	

12	Dengue fever	1. Know about dengue virus. 2. Describe clinical spectrum and laboratory tests of Dengue fever 3. Describe dengue hemorrhagic fever 4. Know about complications of dengue fever 5. Discuss management of dengue fever and dengue hemorrhagic shock.	WHO Criteria for dengue classification	
13	Diarrhoea	1. Etiopathogenesis, define acute and chronic Diarrhoea. 2. Types - Infectious, noninfectious, 3. Mechanisms including secretory /invasive types 4. Laboratory evaluation and diagnosis 5. Complications of diarrhoea 6. Management	Prevention of diarrhoea	
14	Cholera	1. Etiopathogenesis Cholera toxin & mechanism of action 2. Clinical Features & Complications Diarrhoea, Hypovolemic shock etc 3. Rx Dehydration –Oral & IV Antibiotics – Doxy/Tetra/ ciproflox/ Azithro single dose 4. ORS –content details 5. IV hydration with crystalloid, Management of hypovolemic shock.	Investigations – culture , Transport media, hanging drop	Prevention – Hygienic Water supply etc. Notification.
15	Communication Skills – 1	What does it mean to be family member of a sick patient? 1. Interview family members of a sick patient 2. Understand their experience, reaction & emotions 3. Aware of the outlook & expectations of the family regarding the patients illness		
16	Amoebiasis and Giardiasis	1 Etiopathogenesis 2 Life cycle and transmission 3 Clinical features-intestinal and extra intestinal, complications. 4 Diagnosis 5 Treatment	Prevention	
17	Helminths	Taenia saginata & solium 1 Etiopathogenesis and life cycle (stages with respective host) 2 Clinical features & Complications Parasite in stools abdomen pain, decrease appetite, weight loss Investigation – Stool eggs, Ig E, Eosinophilia 3 Rx –Praziquantel 10mg/kg 4 Prevention –adequate cooking of pork/beef 56° c X 5 min Others –Neurocysticercosis- CNS complications with clinical features and treatment	Other complication	

		Echinococcus 1. Etiopathogenesis E.glanulosus eggs –humans- investigations – portal organs –liver & lung – Hydratid cyst formation 2. Clinical Features & Complication 3. Cholelithiasis, Jaundice, Fever, Urticaria Anaphylaxis with H. cyst rupture (bone ,CNS, Heart, Pelvis, H cyst) 4. Investigations Imaging – X-ray ,USG, MRI, CT, Aspiration of Protoscolices 5. Rx – Medicine- Albendazole	Prevention praziquantel to infected dogs.	Surgery - PAIR
		Schistosoma 1 Etiopathogenesis Penetration of skin ,migration in various lymphatic vessels –lungs & liver Investigation veins-S.mansoni, japonica Vesical veins – S. haematobium ova - 50% retained & 50% released for new cycle Immunomodulation – Portal block & HTN , Fibrosis, Cirrhosis 2 Clinical Features & Complications Cercarial dermatitis Abdominal pain, Diarrhoea, Anemia Hepatosplenomegaly Hematuria, UTI with cellular metaplasia Pulmonary HTN with cor pulmonale. 3 Investigations - FAST – ELISA,EITB - Stool Kato thick smear - Rectal Biopsies. 4.Rx-Praziquantel – 60 mg/kg 1 day 2.3 divided doses	Prevention- Topical agents to avoid skin penetration	
		Filaria 1 EtiopathogenesisW.bancrofti, brugia malayi, onchocerca volvulus lymphedema - chronic static changes – brawny edema of skin 2 Clinical Features & Complications Adenolymphangitis & chronic lymphatic disease 3 Investigations Microfilariae detection in blood & Hydrocele fluid, PCR, USG for Lymph node detection, Lymphoscintigraphy. 4 Treatment – DEC 6mg/kg for 12 days combination with Albendazole / Ivermectin	Prevention of secondary bacterial infection of skin Prevention- avoid Mosquitoes & single annual dose of DEC & Albendazole	
		Ascaris a. Etiopathogenesis Ascaris lumbricoides Adult worm human int- eggs – feces-infective eggs by humans- larvae- hatch int mucosa-circulation- lungs,- swallow –return to int- adult worm b. Clinical Features & Complications Fever, cough (during pulmonary phase) Loeffler syndrome – seasonal pneumonitis Abdominal pain small bowel obstruction ,perforation, Intussusception, Volvulus Cholangitis, Pancreatitis c. Investigations	Other complication	

		Stool eggs Eosinophilia X ray abdomen USG, ERCP d. Treatment Albendazole 400mg/ once e. Others Iron deficiency anemia		
		Enterobius (Pinworm) a. Etiopathogenesis Gravid female caecum – perianal region , -eggs- hatch –faeco-oral –adults b. Clinical Features & Complications Perianal pruritus Weight loss Vulvovaginitis c. Investigation – eggs in stools d. Treatment – albendazole 400 mg once	Prevention	
		Trichinella a. Etiopathogenesis Trichinella spiralis. Consumption of trichinous meat- encysted larvae liberated by acid –small bowel –adult newborn larvae –circulation –striated muscles b. Clinical Features & Complications Local & systemic hypersensitivity reaction Eosinophilia Hemorrhages Rash (Maculopapular). Myocarditis – tachyarrhythmia c. Investigations Blood eosinophilia CPK Parasite specific Ab Surgical biopsy of muscles. d. Rx- steroids ,Albendazole e. Prevention -Adequate cooking	Other complication	
18	Tetanus & Gas Gangrene	1. Etiopathogenesis of tetanus. 2. Clinical features of tetanus. 3. Complications of tetanus. 4. Special types of tetanus. 5. Treatment and prevention of tetanus. 6. Etiological Agent of gas gangrene– C perfringens , C septicum 7. Pathogenesis 8. Clinical Manifestation 9. Severity features & complication 10. Treatment and prevention of gas gangrene.	Hyperbaric oxygen –some role/ therapy	
	4th Sem			

1	Acute Respiratory Failure	1. Definition 2. Types 3. Clinical Presentation	Respiratory Monitoring ABG Oxygen Therapy	Basic Respiratory Physiology Pathophysiology NIV Mechanical Ventilation
2	Pleural Effusion	1. Definition 2. Mechanics of pleural fluid formation 3. Causes of pleural effusion 4. Clinical and Radiological features 5. Tests on pleural fluid 6. Management	Normal pleural space Recurrent pleural effusion	Pathophysiology Pleurodesis Chylothorax
3	Pneumothorax	1. Definition 2. Types 3. Etiology 4. Clinical presentation 5. Tension pneumothorax 6. Management	Management of recurrent pneumothorax	Pathophysiology Quantification Catamenial pneumothorax
4	Pulmonary Embolism	1. Definition 2. Risk factors 3. Clinical presentation	Prevention of DVT Management	Diagnosis ECG changes Radiological Features
5	Procedures in Pulmonary diseases	1. Precautions and Protocol for invasive procedures Pleural tapping 2. Intercostal drainage 3. Endotracheal intubation 4. Tracheostomy	Pleural biopsy Pleurodesis	Bronchoscopy Thoracoscopy
6	Empyema & Lung Abscess	1. Define empyema & lung abscess 2. Causes 3. Complications	Investigations Medical and surgical management	Radiological features Pathophysiology
7	Bronchiectasis	1. Definition 2. Classification 3. Medical management	Etiology Investigations	Surgical management Pathogenesis
8	Lung cancer	1. Classify Ca lung Epidemiology 2. Risk factors pathology clinical features	Staging investigations & treatment	
9	COPD	1. Definition 2. Etiology and Risk factors 3. Exacerbation 4. Investigations- 5. Spirometry 6. Chest X-ray 7. Management	ABG Comorbidities Grading of COPD GOLD guidelines Complications	Management of complications Pathogenesis
10	Bronchial Asthma	1. Definition 2. Clinical Features 3. Triggering Factors 4. Management in exacerbation and stable asthma	Spirometry Associated conditions Step up therapy	Steroid dependent Steroid resistant asthma

11	Tropical Pulmonary Eosinophilia	1. Causative organism 2. Clinical Features 3. Diagnosis- Blood investigations 4. Treatment		
12	Pneumonia	CAP 1. Definition 2. Classification 3. Etiology and Risk factors 4. Severity assessment 5. Investigations & treatment	Recurrent pneumonia	Indian guidelines
		HAP/VAP 1. Definition 2. Etiology and Risk factors 3. PSI 4. Investigations & treatment	Preventive measures	Ventilator bundles
	6th Sem Wednesday Topics			
1	Introduction To Cardiovascular System And Clinical Examination	1. Know five cardinal cardiac symptoms: Chest pain, breathlessness, palpitations syncope, edema 2. NYHA classification 3. General examination: Pulse, Blood pressure, JVP and pulse waveform, Pedal odema, cyanosis, clubbing, skin eg xanthelesma. 4. Systemic Examination: a) Inspection: - Chest deformities, Apex impulse (position and character), scars, visible pulsations etc. b) Palpation: – Apex, P2, Parasternal heave, thrill etc. c) Percussion:- Heart borders to define cardiac size d) Auscultation: - Areas (mitral ,aortic tricuspid, pulmonary, neo aortic) - Normal heart sounds character , intensity - Adventitious sounds: opening snaps clicks. - Murmurs :Intensity, character, propagation, systolic /diastolic		
2	Approach To Patients With CVS Disorders -	1 Know various types of Heart disease like RVHD /CHD/IHD etc. 2. Know various structural abnormalities of heart – Chamber enlargement/Valvular abnormalities/Pericardial disease etc. 3. Know various Electrical abnormalities e.g Arrhythmias/Infarct/Ischemia etc. 4. Based on History & clinical examinations be able to formulate relevant differential diagnosis 5. Know routine investigation like CXR, ECG, 2D Ech & various special investigations 6. Know about various Rx options –Medical , surgical etc.		
3	Acute Rheumatic	1. Organism (Group A Streptococci) 2. Epidemiology –(Which Age Is Affected)	Primary, Secondary	

	Fever	3. Clinical Presentation – Involvement Of Heart (Pancarditis), Joint (Migratory Polyarthritits) Skin (Erythema Marginatum), Chorea & Subcutaneous Nodules. 4. Revised Jones Criteria To Diagnose Acute Rheumatic Fever 5. Importance Of ASO And CRP Titers In Diagnosing ARF 6. Management – Salicylates, NSAIDs and Antibiotic (Dose, Duration)	Prevention ,Duration Of Secondary Prophylaxis In Different Situations	
4	Valvular Heart Disease -Part I	Mitral Stenosis – 1. Etiology Of MS 2. Pathophysiology Of MS 3. Clinical Features a) Symptoms b) Physical Findings c) Auscultatory Findings Including D/D Of MDM 4. Rx- Medical ,Surgical (Indication & Names)	Know The Factors Determining The Severity Of MS:- S2-Os Gap, Duration Of MDM Etc.	
5	Valvular Heart Disease Part II	Mitral Regurgitation 1. Etiology Of Acute & Chronic MR 2. Pathophysiology Of Acute & Chronic MR 3. Clinical Features a) Symptoms b) Physical Findings c) Auscultatory Findings 4. Relevant Investigations For MR • Rx For MR – Medical, Surgical –(Indication & Names)	Complications of MR	
		MVP 1. Know Various Names Of MVP 2. Etiopathogenesis For MVP 3. Clinical Features a. Symptoms b. Auscultatory Findings 4. Investigations For MVP	Rx of MVP	
6	Valvular Heart Disease -Part III	Aortic Stenosis- 1. Etiology Of AS 2. Pathophysiology Of AS 3. Clinical Features a. Symptoms (Syncope ,Angina , Dyspnoea) b. Physical Findings c. Auscultatory Findings 4. Investigations For AS	.Rx For AS – Medical Surgical – (Indication And Names)	
		Aortic Regurgitation- 1. Causes Of AR 2. Pathophysiology Of AR 3. Clinical Features a. Physical Findings –Especially Various Signs - Peripheral b. Auscultatory Findings c. Criteria To Determine Severity Of AR 4. Investigations For AR –Rule Of 55 5. Rx For AR – Medical	Complications of AR	

		• Surgical –(Indication And Names)		
7	Infective Endocarditis	1. Causative Organism For Infective Endocarditis In Different Situation(Native Valve, Prosthetic Valve ,Drug Users) 2. Clinical Presentation(Cardiac & Non Cardiac Manifestation) 3. Dukes Criteria, Blood Culture(Timing; how Many Samples) & Echocardiography In Empirical Diagnosis Of Infective Endocarditis 4. Management According To Organism (Streptococci , Enterococci, Staphylococci & Hacek)	Prophylaxis For IE	
8	Ischaemic Heart Disease 1 - Atherosclerosis & Anatomy Of Coronary Circulation	Coronary Atherosclerosis- 1. Anatomy Of Coronary Circulation 2. Etio-Pathogenesis Of Coronary Atherosclerosis 3. Clinical Features Of Coronary Atherosclerosis 4. Complications Of Coronary Atherosclerosis 5. Investigations In Coronary Atherosclerosis 6. Prevention & Treatment Of Coronary Atherosclerosis		
9	Ischaemic Heart Disease -Part 2- Acute Coronary Syndromes	Angina 1. Chest Pain Of Short Duration (<30 Min) 2. 5 Important Risk Factors 3. ECG findings in Stable, Unstable angina 4. Clinical Presentation: Chest Pain, Sweating, Nausea, Breathlessness. 5. Diagnosis: Clinical ,ECG,Cardiac Enzymes 6. Treatment-For Stable and Unstable Angina.	Prinzmetal angina	
		Myocardial Infarction 1. Definition and Distinguishing Features From Ischemia. 2. Risk Factors: Modifiable and Non Modifiable. 3. Clinical Presentation And Types: Silent, Chest Pain, Sweating, Nausea, Breathlessness... 4. STEMI ,NSTEMI 5. Diagnosis: ECG, Cardiac Enzymes, Troponin, 2Dechocardiography. 6. Complication:, Arrhythmias (Bradyarrhythmias,& Tachyarrhythmias), Pump Failure, Cardiogenic Shock Etc. 6. Treatment: Thrombolysis, Heparin Beta - Blockers, Nitrates, Statins, Antiplatelets, ACEI, Angioplasty CABG.	Prehospital thrombolysis Management of Complications of MI	Concept of Golden Hour in management
10	Ischaemic Heart Disease 3(Mechanical Complications & Their Treatment ;	Cardiogenic Shock 1 Definition Of Cardiogenic Shock 2 Etiopathogenesis Of Cardiogenic Shock 3.Clinical Features & Differential Diagnosis Of Cardiogenic Shock 4.Investigation In A Case Of Cardiogenic Shock 5. Treatment Modalities In Cardiogenic Shock – Pharmacologic & Interventional. A) Acute Decompensated Heart Failure- Signs & Symptoms, Rx	Surgical management of Mechanical Complications Of Myocardial Infarction	

	Cardiogenic Shock	B) Mechanical Complications Of Myocardial Infarction And Their Treatment. - Rupture Of The Left Ventricular Free Wall; - Rupture Of The Interventricular Septum; - Papillary Muscle Rupture With Acute Mitral Regurgitation Can Occur		
11	Ischaemic Heart Disease 4	Electrical Complications Of IHD And Their Treatment- - Explain Conduction System and Electrophysiology Of Heart. - Explain Tachyarrhythmias And bradyarrhythmias And Their Mechanisms. - Know And Identify Arrhythmias, Ectopics, Ventricular Tachycardia And Fibrillation, AIVR, SVT, Sinus Bradycardia And Heart Blocks In Ischemic Heart Diseases And Their Management. - Discuss Anti Arrhythmic Drugs, CPR And Defibrillations And Their Indications.		
12	Congenital Heart Disease—I - Acyanotic And Obstructive	- Understand Normal Structure And Development Of Heart - ASD: Types, Clinical Features, ECG& 2d Echo Findings, Treatment - VSD :Types, Clinical Features, Complications, Treatment - PDA: Clinical Features, Complications, Treatment Know About Aortic Valve Stenosis, Coarctation Of Aorta, Pulmonary Stenosis.	Understand Eisenmenger Physiology	
13	Congenital Heart Disease II-Cyanotic	- Tetralogy Of Fallot: Pathophysiology, Clinical Features, ECG & 2d Echo Findings, Treatment - Eisenmengers Syndrome. - Ebstein's Anomaly: Pathophysiology, Clinical Features, Treatment - Know About Transposition Of Great Arteries, Tricuspid Atresia - Complications Of Congenital Heart Disease		

14	Cardiac Failure	1) Definition- Abnormality Of Cardiac Pumping Or Filling. 2) Etiology: 4 Main Causes Of CCF -Congenital Or Acquired, Idiopathic, Valvular Heart Disease, Coronary Artery Disease. 3) Classification:NYHA (New York Heart Association). 4) 10 Precipitating Factors E.G., Arrhythmias High Output Status Etc. 5) Risk Factors: Myopathy, Previous Myocardial Infarction, Alcohol. 6) Clinical Presentation: Chest Pain, Breathlessness, Fatigue, Cerebral Symptoms. 7) Types of Cardiac failure 8) Clinical Features- Symptoms, Fatigue, Orthopnoea, Signs, S₃ Gallop, Basal Crepitations 9) Diagnosis: Labs, Chest X-ray, ECG, 2dechocardiography. 10) Treatment : Non Pharmacologic Like Diet And Pharmacologic Like Diuretics, Angiotensin Converting Enzyme Inhibitors, B Blockers, Digoxin	Interventions- ICD, SCT,CABG Etc	
15	Cor Pulmonale	1. Types –Acute – Secondary To Pulmonary Embolism...And Chronic – Sec To Lung Diseases 2. Conditions Which Increases The Chances Of DVT (Thrombophilic States) 3. Clinical Features Suggestive Of Pulmonary Embolism 4. Differential Diagnosis 5. What Are The Investigations 6. Treatment For Acute Pulmonary Embolism	Treatment For Chronic Cor Pulmonale	
16	Hypertension Part I	1. Definition Of Hypertension By JNC 7 & 8 , 2. Different Types Of Hypertension And Classification: Primary, Second Staging According To JNC 7 + 8 Classification./ White Coat, Masked , Secondary Etc . 3. Clinical Features: Headache, Giddiness, Chest Pain, Breathlessness . 4. Complications: Neurologic, Cardiovascular, Renal, And Ophthalmologic.		

17	Hypertension Part II	1. Investigations Routine And Specific-,: Lab Data , Electrocardiography, Echocardiography, Renal Doppler Chest X-ray ,Fundoscopy, Urine Albumin Etc. 2. Treatment: - Various Classes Of Medications Available I.E Angiotensin Receptor Blockade /Ace Inhibitors, Beta Blockers, Ca Channel Blockers/ Vasodilators, Diuretics, Centrally Acting ,Etc. 3. Definition Of Hypertensive Urgencies And Emergencies And Their Management 4. Specific Conditions In Hypertension Like Pregnancy Induced Hypertension Etc And Their Specific Treatment.		
18	Pericarditis	1) Types Of Pericardial Layers 2) Causes Of Pericarditis Or Effusion 3) Clinical Features Of Pericarditis Including Pericardial Rub, Tachycardia Etc. 4) ECG Findings Of Pericarditis: Sinus Tachycardia, St Segment Elevation With Concavity Upwards & PR Segment Depression. 5) Diagnostic Tests for Pericarditis- Pericardiocentesis And Fluid Biochemistry. 6) Treatment Of Pericarditis- Akt, Renal Rx, Steroids Etc.	Complication of pericarditis	
19	Cardiomyopathy-	1) Know Definition Of Cardiomyopathy 2) 3 Types Of Cardiomyopathies & Specific Clinical Features If Any 3) Lab Evaluation Of CMP By CXR, ECG, Echo, Cardiac Catheterization. 4) Rx Of Each Of CMP Including Digoxin Etc. 5) Follow Up & Prognosis Evaluations.	complication	
20	In Investigations In Cardiac Disorders –	1. What Are The Cardiac Enzymes? Describe Importance Of Cardiac Enzymes In CVS. 2. CXR-- How To Interpret Enlargement Of Various Chambers • How The Pulmonary Vascular Changes Should Be Interpreted. 3. ECG- - • Should Know Ecg Leads, Genesis Of The Normal Ecg And Ecg Waveforms & Intervals, • Should Able To Identify Cardiac Enlargement And Hypertrophy On Ecg, • Should Able To Identify Bundle Branch Blocks, Myocardial Ischemia And Infarction, Cardiac Arrhythmias On Ecg. • Ecg Manifestation Of Different Chamber Enlargement • Atrial Fibrillation • Role Of Ecg In Diagnosis Of Coronary Artery Disease 4. Stress Test- - • How It Is Performed		

		• What Precautions Before & During The Rest Should Be Taken • What Complications Can Arise 5. 2d Echo Examination • How It Is Done • What Information It Gives • Utility In Which Conditions 6. Coronary Angiography Indications • Approaches & Procedures • Pre & Post Procedure Care • What Is Svd, Dvd, Tvd 7. Coronary Catheterization- • Should Know Basic Principles And Clinical Uses Or Indications. 8. Thallium Scan. 9. Mri Of Heart 10. Pet (Positron Emission Tomography) Scan.		
	6th Semester Friday Topics			
1	Tetanus & Gas Gangrene	1. Etiopathogenesis of tetanus. 2. Clinical features of tetanus. 3. Complications of tetanus. 4. Special types of tetanus. 5. Treatment and prevention of tetanus. 6. Etiological Agent of gas gangrene– C perfringens , C septicum 7. Pathogenesis 8. Clinical Manifestation 9. Severity features & complication 10. Treatment and prevention of gas gangrene.	Role of Hyperbaric oxygen	
2	Diphtheria	1. Etiology 2. Pathogenesis 3. Immunology 4. Clinical manifestations • Respiratory Diphtheria • Cutaneous Diphtheria 5. Complications 6. Diagnosis 7. Treatment 8. Prognosis 9. Prevention • Vaccination • Prophylaxis of contacts		
3	Pertussis	1. Causative organism 2. Microbiology 3. Pathogenesis 4. Immunity 5. Clinical Manifestations 6. Diagnosis 7. Differential Diagnosis 8. Treatment	Complications	

		9. Prevention • Chemoprophylaxis • Immunization		
4	Plague	1. Definition 2. Etiology 3. Clinical Manifestations • Bubonic Plague • Primary septicemia plague • Pneumonic plague • Meningitis • Pharyngitis 4. Diagnosis 5. Treatment 6. Prevention • Antimicrobial prophylaxis • Immunization	complication	
5	Anthrax	1. Causative organism 2. Microbiology 3. Clinical features 4. Treatment 5. Vaccination 6. Prevention	Role in bioterrorism	
6	Brucella	1. Etiopathogenesis of brucellosis. 2. Signs and symptoms of skeletal, cardiac pulmonary brucellosis and neurobrucellosis. 3. Diagnostic approach and gold standard for diagnosis 4. Treatment of brucellosis.	How to differentiate b/w tuberculosis and brucellosis	
7	Syphilis	1. Etiology 2. Epidemiology 3. Transmission 4. Natural course and pathogenesis of untreated syphilis 5. Clinical features 1. Primary syphilis 2. Secondary syphilis 3. Latent syphilis 4. Congenital syphilis 6. Laboratory examinations 1. Demonstration of organism 2. Serological tests for syphilis 3. False positive serological tests 4. Evaluation of neurosyphilis 5. Evaluation of HIV- infected patients 7. Treatment 8. Immunity 9. Prevention	Complications	Jarisch-Herxheimer reaction
8		1. Etiological agent of leptospirosis-3 R's of leptospirosis-Rats, Rains and Rice fields 2. Epidemiology and transmission-contaminated animal urine usually by rodents, as epidemic, endemic, or sporadic.	DD of leptospirosis	

	Leptospirosis	3. Describe main clinical features of leptospirosis including fever, rash, systemic symptoms, jaundice, reduced urine output, shock etc 4. Weil's disease (severe icteric form of leptospirosis). 5. Diagnosis –MAT (microscopic agglutination test), Blood and CSF cultures treatment and prophylaxis of mild and moderate, severe leptospirosis (ceftriaxone, doxycycline).		
9	Filariasis	1. Nematodes 2. Species A. Lymphatic Filariasis 1. Causative organism 2. Pathology 3. Clinical features 4. Diagnosis 5. Treatment 6. Prevention and control B. Tropical Pulmonary Eosinophilia 1. Clinical features 2. Pathology 3. Differential diagnosis 4. Treatment C. Onchocerciasis 1. Etiology 2. Pathology 3. Clinical features • Onchocercomata • Ocular tissue • Lymph nodes • Systemic manifestations 4. Diagnosis 5. Treatment 6. Prevention D. Loiasis 1 Etiology 2 Clinical features 3 Pathology 4 Diagnosis 5 Treatment	Complications of filariasis	

10	Leishmaniasis	1. Definition 2. Etiology 3. Life cycle 4. Diagnosis 5. Treatment A. Visceral Leishmaniasis 1. Immunopathogenesis 2. Clinical features 3. Laboratory diagnosis 4. Differential diagnosis 5. Treatment B. Post Kala-Azar Leishmaniasis C. Cutaneous Leishmaniasis 1. Immunopathogenesis 2. Clinical features 3. Laboratory diagnosis 4. Differential diagnosis 5. Treatment 6. Diffuse cutaneous Leishmaniasis D. Mucosal Leishmaniasis 1. Immunopathogenesis 2. Clinical features 3. Laboratory diagnosis 4. Treatment	Complications of Leishmaniasis	Anti Leishmania - Drug toxicity
11	Herpes Simplex	1. Types of herpes infection- i.e. genital and oral 2. Causative agent of herpes - double-stranded DNA virus 3. Pathophysiology of the herpes infection and spread – HSV-1 acquired by contact with oral secretions, HSV-2 sexual spread 4. Clinical feature of herpes infection. - Acute herpetic gingivostomatitis, Acute herpetic pharyngotonsillitis, Herpes labialis, genital herpes 5. Diagnosis using clinical and laboratory parameters like typical location and appearance of lesions, 6. Treatment options - antivirals like acyclovir, valacyclovir, famcyclovir. and duration of treatment.	most common differentials like Candidiasis, Chancroid, Herpes Zoster, Syphilis	Tzank smear, viral PCR

12	Herpes Zoster	1. Similarity between the herpes zoster and chicken pox i.e. reactivation of varicella virus. 2. Causative agent of the herpes zoster - DNA virus 3. Pathology of infection - virus remains dormant in dorsal root or other sensory ganglia to activate later. 4. Most common organ systems involved: CNS, optical system. 5. Ramsay hunt syndrome, auditory system. 6. Risk factors.:immuno-compromised states e.g. HIV 7. Different clinical phases of illness :i.e. pre-eruptive, acute eruptive, chronic phase 8. Diagnosis using clinical and laboratory parameters: painful skin lesions and direct fluorescent antibody testing (DFA), PCR assay. 9. Treatment of the infection : symptomatic and specific which depends upon hosts immune status	Complications of herpes zoster Vaccination and prevention	
13	Chicken Pox	1. Pathophysiology of chicken pox: acquired by airborne respiratory droplets, highly contagious- leads to epidemics in schools. 2. Common presentation of the infection: characteristic rash and successive crops of lesions. 3. Infective period of the lesions: ie 4-5 days after the rash develops, by which time the last crop of vesicles has usually crusted over. 4. Common differentials: e.g. disseminated herpes simplex virus infection, atypical herpes zoster, Rickettsial disease, and neonatal syphilis. 5. diagnosis by clinical and laboratory parameters :i.e. typical skin lesions and Tzank smear, serology , culture, PCR etc 6. treatment according to immune status : healthy child - benign disease, 7. Immunocompromised host - antivirals -acyclovir.	Complications of chickenpox	Varicella-zoster immune globulin (VariZIG)
14	Measles	1. Epidemiology-age group, infectivity, incubation period, spread etc. 2. Clinical features including maculopapular rash & Koplik's spots. 3. Complications ,CNS, SSPE 4. Investigations – including serology 5. Diagnosis- clinical picture of rash and Kopliks spots, serology 6. Treatment - Supportive care 7. Prevention including MMR vaccine.	Treatment of complications	
15		1. Causative agent of Mumps i.e. Rubella virus. RNA virus 2. Pathophysiology of the illness: portal of entry : respiratory tract . viremic dissemination to target organs like salivary glands . 3. Presentation: fever, headache, malaise. Parotid	complications in male and females differentials: Suppurative or recurrent parotitis, Parotid	

	Mumps	gland enlargement, thyroiditis, pancreatitis, orchitis, few develop aseptic meningitis. - diagnosis clinically and by laboratory parameters : PCR, IgG antibody titres - treatment of disease: supportive care. Adequate hydration - imunisation schedule	calculus, Parotitis	
16	Rabies :	- Causative agent for rabies: rabies virus - Lyssavirus, bullet shaped, RNA. - Pathology of rabies infection : incubation period/spread of the virus/site of attachment in the CNS - Important clinical features of Rabies: e.g. convulsions/coma/ hydro and aerophobia - Diagnosis using clinical and laboratory parameters: e.g. history and lab diagnosis like viral culture and polymerase chain reaction, serology. classical Negri bodies - Treatment and prevention of disease: severity and classification of the bites and wound care. - various anti-rabies vaccines - pre and post exposure prophylaxis and schedules	differentials: encephalitis, seizure disorder, ADEM .	
17	Polio	- World scenario. India is now polio free, yet to be declared eradicated. - Causative agent :Polio virus , a single stranded RNA virus(three antigenically distinct strains ,type 1 causes most of the paralytic illness - Pathophysiology: spread by the fecal-oral route and by aerosol droplets. Poliovirus destroys the anterior horn cells in the spinal cord. - Common clinical features :Fever, neck stiffness (nuchal rigidity), and a pleocytosis in the CSF And Profound asymmetrical muscle weakness - To know about different aspects of treatment: i.e medical therapy,. - To know about different types of polio vaccine their schedules	Complications of polio	surgical therapy of polio deformities
18	Japenese B Encephalitis	- Causative agent Japanese encephalitis virus, a flavivirus - Clinical features: Altered mental status ,seizures - To arrive at diagnosis by relevant clinical history and laboratory studies like CSF-Routine & specific e.g viral isolation, Immunoassays (ELISA) of Serum/CSF. - Management –Airway Management, Anticonvulsants	vaccination for Japanese Encephalitis	
19	Rickettsial Disease	- Etiopathogenesis of Rickettsial fever - Vectors associated with transmission - Explain RMSF (Rocky Mountain Spotted Fever), Scrub typhus, Murine typhus and their mode of transmission and their signs and symptoms. - Evaluation of patient of suspected Rickettsial fever and investigations for diagnosis- indirect	Differential diagnosis	

		immunofluorescence and PCR., importance and interpretation of Weil Felix test 5. Treatment of rickettsia- doxycycline, tetracycline and chloramphenicol.		
20	Puo (Pyrexia Of Unknown Origin)	1. Definition & criteria of PUO 2. Types of PUO 3. Etiology 4. To understand (PDC's) potentially diagnostic clues through proper history taking, examination & investigations about possible etiology. 5. diagnostic approach 6. Management of PUO- supportive Rx, cooling measures, antipyretics and specific treatment as per cause	Role of empirical steroids, empirical anti-tubercular treatment	New diagnostic modalities: PET scan, Gallium scan
21	Hospital Acquired Infections.	1. Etiopathogenesis common causative organism & modes of transmission of hospital acquired infections. 2. Understanding factors that increase host susceptibility 3. Different nosocomial infections & device related infections 4. To know preventive & control measures- Stress about hand hygiene		
22	Adult Immunization	1. Types of Immunization – Active, Passive 2. Different routes of vaccine administration 3. Recommended immunization schedule 4. Vaccination for health care workers and before splenectomy 5. Post exposure immunization	Vaccination for travelers.	
23	Common Fungal Infections I & II	1. Common fungal infections 2. Etiopathogenesis of fungal infections 3. Risk factors: immunocompromised, glucocorticoids, diabetes mellitus 4. Clinical manifestations 5. Diagnosis – Periodic acid –Schiff and Gomori methenamine silver stain – India ink preparation of CSF for cryptococcosis. 6. Treatment of fungal infections- Amphotericin B, Fluconazole, Capsosungin etc.	Complicated fungal infections	
24	H1n1 (Swine Flu)-	1. Etiopathogenesis- H1N1 virus 2. Transmission – droplet infection, fomites 3. Clinical manifestations-rapid progression to ARDS 4. Diagnosis- H1N1 swab culture at NIV by PCR/ ELISA 5. Treatment – Oseltamivir, ventilatory support	Prophylaxis – oral Rx with oseltamivir, H1N1 vaccine	
25	Ebola Infection	1. Etiopathogenesis –Ebola –(RNA virus) 2. Transmission ,incubation period-7 to 10 days 3. Clinical features –fever, diarrhoea, chest pain, pancreatitis, shock 4. Lab findings-leucopenia, thrombocytopenia, DIC ,high amylase ,proteinuria 5. Diagnosis- Viral culture by PCR/ ELISA	complications	

		6. Treatment – symptomatic and supportive.		
26	HIV 1	1. Epidemiology Etiopathogenesis of HIV infection 2. Transmission of HIV infection- Sexual, Parenteral, Vertical 3. Diagnosis of HIV- Tridot, ELISA, Western Blot, p24 Antigen assay 4. Initial Evaluation of HIV patient- general physical examination and investigations CD4 count CHEST X RAY, viral load, viral resistance test etc.	Treatment of complications of HIV	
27	HIV 2	1. Complication of HIV infection and discuss opportunistic infections and malignancies 2. What is AIDS and AIDS defining conditions? 3. Treatment of HIV patient- discuss HAART and treatment complications . 4. Prophylaxis from HIV infections	Prevention of HIV	Newer drugs in ART
	7th Semester Wednesday Topics			
1	Anatomy of Brain & Spinal Cord	1. Anatomy of cerebrum its different lobes & their important functions 2. Pyramidal tracts & extrapyramidal tracts & their functions & significance 3. Functions of cerebellum & name of important cerebellar tracts 4. Anatomy of Spinal cord & Know the specific important functions of various tracts like STT, Posterior column 5. Circle of Willis & its clinical significance		
2	Approach to CNS Disease	1. To elicit detailed neurological history from the patient /relative 2. complete neurological examination 3. localize the lesion based on history & clinical examination whether in CNS /PNS 4. difference between UMN & LMN lesions 5. neurologically assessment of unconscious patient and GCS scale		
3	Headache	1. 2 major types of headache-primary and secondary. 2. Common causes of headache . 3. Emergency medical causes of headache usually (secondary) mainly meningitis, Intracranial bleed, brain tumor, temporal arteritis, and glaucoma. 4. Evaluation of headache-brain imaging, CSF studies, etc. 5. Diagnostic criteria of migraine, Diagnosis of other headaches. 6. Treatment - non pharmacological and pharmacological therapy.	Uncommon types of headache	
4		1. Definition of seizures and epilepsy.		

	Epilepsy-Part I	2. Classification of seizures-main 2 types focal and generalized with further subtypes of tonic, clonic, atonic, myoclonic etc. 3. Causes according to age. 4. Overview of epilepsy syndromes including juvenile myoclonic epilepsy. 5. Approach to epilepsy patient by history, general and systemic examination.		
5	Epilepsy-Part II	1. Investigations in various types of epilepsy-laboratory studies ,EEG, brain imaging 2. Differential diagnosis of epilepsy –differentiate between syncope and seizure, psychogenic seizure etc. 3. Treatment modes with –Rx of underlying disorders, various antiepileptic-traditional drugs and newer antiepileptics, the first line and alternative agents for each type. 4. Treatment of status epilepticus incl Phenobarbital anaesthesia.	Psychosocial issues-employment, driving, epilepsy in pregnancy rehabilitation of epileptics etc.	Newer imaging modalities, functional brain scan Resistant epilepsy-surgical management
6	Coma	1. Introduction to Coma a) Definition b) Know meaning of various other terminologies used for states of reduced alertness e.g Drowsiness, stupor, vegetative state, locked in etc 2. Know pathophysiology of coma -Role of Reticular activating system(RAS) 3. Know causes of Coma 4.Approach to a patient with coma a) History b) General Physical examination c) CNS examination (GCS scale & others) 5. Investigations to be done in a case of coma e.g CT/MRI/EEG/CSF/Blood Investigations etc. 6. Differential diagnosis of coma 7. Treatment of coma ABC approach ,General measures, Specific measures	prognosis e.g Metabolic better than traumatic	
7	Cerebrovascular Accidents/Diseases –I (Stroke)	1 Definition of Transient ischemic attacks (TIA) 2 Risk of stroke following TIA-The ABCD² Score 3 Primary and secondary prevention of TIA 4 Definition of stroke 5 Risk factors for stroke 6 Discuss Etiology & pathophysiology of ischemic stroke 7 Treatment of ischemic stroke • Medical support • Intravenous thrombolysis - To identify the indication and contraindication for the administration of Intravenous Recombinant Tissue Plasminogen Activator (rTPA) • Endovascular techniques • Antithrombotic treatment	Surgical treatment	

		• Neuroprotection • Stroke centres and rehabilitation		
8	Cerebrovascular Accidents/Diseases –II (Stroke)	1 Discuss Cardioembolic stroke 2 Discuss artery-to-artery embolic stroke 3 Discuss carotid atherosclerosis and its treatment 4 Discuss pathophysiology and clinical manifestation of Small –vessel stroke 5 Enumerate less common causes of stroke 6 Stroke syndromes • Stroke within the anterior circulation 7 Stroke within the posterior circulation		
9	Cerebrovascular Accidents/Diseases –III (Intracranial hemorrhage)	1 Enumerate most common types of intracranial hemorrhage – Intraparenchymal, SAH/SDH/EDH 2 Discuss the pathophysiology and clinical manifestation hypertensive intraparenchymal hemorrhage 3 Diagnosis of intracranial hemorrhage – Imaging, coagulation profile 4 Management of intracranial hemorrhage 5 Prognosis and clinical outcomes in intracranial hemorrhage	complications	
10	CNS infection Part 1 Pyogenic Meningitis	1 Etiology of pyogenic meningitis 2 Approach to a case of pyogenic meningitis – 3 important signs symptoms Neck stiffness (Kernig, Brudzinski sign) 3 CSF picture of pyogenic meningitis – Increase cells (neutrophils), high proteins, very low sugar, gram stain 4 Treatment of acute bacterial meningitis - Ceftriaxone	Complications of pyogenic meningitis	
11	CNS infection Part 2 Tuberculous Meningitis	1 Etiopathogenesis of TBM 2 Clinical features of TBM 3 CSF analysis of TB Meningitis – cobweb appearance, lymphocytosis in CSF, raised ADA levels. 4 Treatment of TB meningitis & Complications – ATT, Steroid, (duration)	Complications of tuberculosis like vasculitis, infarctions, tuberculoma	surgery- hydrocephalus
12	CNS infection Part 3 encephalitis and other encephalitis	1. Definition of encephalitis and meningoencephalitis 2. Causative organism 3. Clinical features. 4. CSF picture in viral encephalitis 5. Investigations - CT, MRI and measurement of intracranial pressure. 6. Treatment discuss antiviral drugs, steroids, therapeutic lumbar puncture	Discuss Encephalitis sequelae	

13	ICSOL-I	1 Discuss infective etiology of SOL like brain abscess, Tuberculoma, Neurocysticercosis etc. 2 Clinical features in brief 3 Investigations in ICSOL-CT, MRI. 4 D/D of Ring enhancing lesion 5 Treatment- According to cause	MRI findings specific to different ICSOL	
14	ICSOL –II	1 Discuss non infective causes- Brain tumours etc 2 Discuss primary Malignancies of brain -gliomas, meningiomas, pituitary adenomas, and acoustic neuromas. 3 Discuss metastatic tumour of brain. 4 Discuss clinical features according to parts of brain affected like temporal lobe, frontal lobe, parietal lobe, occipital lobe, cerebello-pontine angle. 5 Other modes of presentations- Headache, convulsions, raised ICT etc. 6 Discuss focal neurological and localizing signs.	Radiological findings of brain tumors	
15	Extrapyramidal Syndromes- Parkinson's Disease	1. Definition- neurodegenerative disorder due to degeneration of dopaminergic neurons in substantia nigra 2. Causes- Primary :- Idiopathic Secondary :- drug induced: metoclopramide, lithium, vascular, infections etc 3. Clinical features- Parkinsonism (bradykinesia , rigidity , tremor) 4. Other extrapyramidal syndromes- dystonia, chorea, tardive dyskinesia 5. Treatment – 1 Pharmacological (levodopa, dopamine agonists, MAO-B inhibitors, COMT inhibitors etc) and supportive and rehabilitative	Atypical parkinsonism- multiple system atrophy, progressive supranuclear palsy	
16	Cerebellar Syndromes	1. Diseases involving cerebellum give rise to ataxia 2. Causes of cerebellar ataxia- a. Symmetrical- 1. acute: acute viral infection 2. Subacute: alcoholic 3. Chronic: inherited diseases- Friedreich's ataxia b. Focal – 1. acute: vascular 2. Subacute: neoplastic, demyelinating - Chronic: Dandy- Walker malformation 3. Other cerebellar signs- nystagmus, dysdiadochokinesia, positive finger nose test, pendular knee jerk 4. Management- diagnosis and treatment of underlying cause.	Classification of ataxias	
	7thSem Friday Topics			

1	Diseases Of Oral Cavity & Oesphagus	(Apthous ulcer, GERD, Achalasia Cardia, Ca esophagus) 1. Causes & Management of apthous ulcers 2. Symptoms of esophageal disease – heart burn, regurgitation, Chest pain, dysphagia, odynophagia, water ,brash 3. To understand etiopathology of GERD & complications like reflux esophagitis, esophageal strictures ,Barrett’s esophagus 4. To know about achalasia cardia- neurologic dysphagia- absence of ganglion cells in myenteric plexus 5. Risk factor for ca esophagus Types – Adenocarcinoma - Squamous cell ca		
2	Diseases Of Stomach	1. Basic physiology of gastric mucocal lining & secretions 2. To know different diseases of stomach e.g Acute & chronic Gastritis, peptic ulcers (Gastric & duodenal) 3. H pylori infection Pathophysiology & management 4. Treatment - Antacid – various classes & their action 5. Approach to dyspepsia 6. Names & indication for surgery in gastric ulcer duodenal ulcer	Complications Prevention of gastric ulcers	
3	Upper GI Bleeding	Causes of upper GI tract bleeding e.g. NSAIDs ,H.Pylori infections, Varices, Ulcers 1. Symptoms – Hematemesis - Malena - Complications- hypovolemic shock ,anemia etc - To diagnose upper GI bleed by endoscopy. 2. Management of Upper GI bleed - Medical Management - Endoscopic therapy - Blood Transfusion – if severe anemia/shock	Surgical management	
4	Abdominal Tuberculosis	1. Etiopathogenesis, routes of spread & people at risk for abdominal tuberculosis 2. Clinical Presentations of abdominal tuberculosis e.g ascites, abd,LN pathy 3. Diagnosis –high index of suspicion e.g Ascitic fluid analysis –ADA levels Ct Abdomen, endoscopy, biopsy. 4. Management – Medical Management – antitubercular therapy	Surgical Management – for e.g Stricture /obstruction Complication of abdominal tuberculosis	
5		1. Defects occurring during digestion and absorption of food. 2. Symptoms of malabsorption: a. Diarrhoea, flatulence, weight loss, steatorrhoea. b. Extra intestinal: Anemia, osteopenia, dermatitis ,peripheral neuropathy.	Complication of malabsorption	

	Malabsorption	3. Investigations for Malabsorption Complete blood count-Iron deficiency or macrocytic anemia, prothrombin time, serum electrolytes, Barium swallow –abnormal coarse pattern, CT abdomen – pancreatic growth calcification, Schilling test –Vit B12 ,D xylose test Fat malabsorption, Upper GI scopy with biopsy. 4. Management of Malabsorption Correction of nutritional deficiency, antibiotics, enzyme supplements, treat causative disease.		
6	Inflammatory Bowel Disease	1. a.Types - The chief types of inflammatory bowel disease are Crohn's disease and Ulcerative colitis . difference between Crohns disease & Ulcerative colitis 2. General clinical features – a. Abdominal pain, diarrhea, irregular bowel habits, blood in stools. b.extra-intestinal manifestations like arthritis Anemia, skin manifestations 3. Diagnosis - a. <u>colonoscopy</u> with <u>biopsy</u> of pathological lesions. b. inflammatory markers in blood 4. Management –a. Pharmacological – sulfasalazine vs Mesalazine ,steroids b. non pharmacological – Diet 5. Complication - Perforation ,toxic megacolon ,Ca colon, lower GI bleed	Surgery - indications and contraindications	
7	Irritable bowel syndrome	1. Definition- It is a functional gastrointestinal disorder. Onset of IBS is more likely to occur after an infection (postinfectious) or a stressful life event. 2. Classification - diarrhea-predominant , constipation-predominant . 3. Symptoms - Abdominal pain, abdominal distension , gastroesophageal reflux, stress related symptoms. 4. Diagnosis- No specific laboratory or imaging test can be performed to diagnose irritable bowel syndrome. Diagnosis involves excluding conditions that produce IBS-like symptoms. Complete blood counts-anaemia, stool –ova giardia, C difficile, metabolic panel, ultrasonography, colonoscopy. 5. Treatment- Diet, laxatives, antispasmodics, antidepressants, serotonin agonists or antagonists.	complications	
8	Liver Function tests	1. Enumerate the various Liver function tests – Bilirubin, SGOT/SGPT,GGTP/ Alk phosphatase, serum protein albumin, globulin, PT/INR 2. Clinical interpretation of LFT a. acute/chronic liver disease b. parenchymal/obstructive liver disease.	Viral markers A,B,C,D,E Autoimmune markers	

9	Jaundice	1. Etio-pathogenesis of jaundice – Bilirubin metabolism 2. Three main types Pre-hepatic, hepatic& post-hepatic 3. Clinical Algorithm in the evaluation of a jaundice patient 4. Lab & Radiological Investigations in a case of Jaundice	Management and complications of jaundice	
10	D/D of hepatomegaly & clinical methods including surface anatomy	1. Differential Diagnosis of Hepatomegaly 2. Infectious & non-infectious causes of Hepatomegaly 3. Clinical methods of examining Hepatomegaly – classic method ,examining left lobe of liver ,bimanual palpation in select cases 4. Surface anatomy of liver including left lobe. Calculating Liver span		
11	Acute Hepatitis	1. Etiology of acute Hepatitis – Infectious & non-Infectious 2. Clinical features of acute Hepatitis – tender hepatomegaly 3. Epidemiology of Hepatitis A ,E – faeco-oral transmission 4. Blood borne & sexual transmission of Hep B & C 5. Hepatitis B vaccination & immunoglobulin ,immunization schedule 6. Elaborate on the diagnosis of Acute Hepatitis – Specially LFTs 7. Discuss the Treatment of Acute Hepatitis –role of supportive management – Dextrose	Special conditions e.g pregnancy Complications including acute liver failure	
12	Chronic Hepatitis	1. Describe Etio- pathogenesis of Chronic Hepatitis - Viral ,Non-viral /autoimmune 2. Elaborate on Clinical Features of chronic Hepatitis mainly Hepatitis B & C 3. Treatment of chronic hepatitis B & C – lamivudine, interferon, ribavirin etc autoimmune hepatitis- steroid, immunosuppresants 4. Complication of chronic hepatitis B & C	Prevention and vaccination	
13	Liver Cirrhosis Part I	1. Define liver cirrhosis 2. Know different causes of liver cirrhosis- Classification 3. Understand its pathogenesis and staging of fibrosis 4. Describe its clinical features: symptoms and signs 5. Describe lab features of liver cirrhosis 6. Prognosis –Child Pugh scoring	Newer diagnostic modalities like elastography	

14	Liver Cirrhosis Part II	Portal hypertension: definition, mechanism, classification, complications 1. Gastro esophageal varices: risk factors of bleeding, management of acute variceal bleed, Banding Vs sclerotherapy, prevention of varices 2. Splenomegaly: symptoms, hypersplenism 3. Spontaneous bacterial peritonitis: Clinical features, characteristics of fluid, treatment,	4. Hepatorenal syndrome: types, pathogenesis, treatment	
15	Fulminant hepatic failure	1. Definition of fulminant hepatic failure aka acute liver failure 2. To know important aspects of pathophysiology of development of fulminant hepatic failure i.e. hyperammonemia, cerebral edema. 3. To know most important causes of acute/ fulminant hepatic failure i.e. acetaminophen and idiosyncratic drug reactions and viral hepatitis 4. To know about the important aspects of workup i.e. serum ammonia levels, viral serologies, liver biopsy etc. 5. To know important treatment components like management of encephalopathy, coagulopathy,	Indications of liver transplantation.	
16	Ascites	1. Definition of ascites 2. To know in brief about pathophysiology & Mechanism of ascites i.e increase hydrostatic pressure ,decrease oncotic pressure 3. To know important points in workup of ascites patients i.e USG abdomen, renal functions, liver functions, cardiac examination 4. Clinical examination- amount of ascites and decide about portal hypertension , SAAG 5. To know in brief about treatment of ascites- i.e. medical care- diuretics , protein supplements and surgical treatment	Spontaneous bacterial peritonitis	TIPSS)
17	Hepatic - Encephalopathy	1. Definition of hepatic encephalopathy: neuropsychiatric abnormalities in patients with liver dysfunction 2. To know about pathogenesis – astrocyte dysfunction, neurotoxic substance increase e.g. ammonia. 3. To know important points of clinical presentation of hepatic encephalopathy: grading, change in sleep-wake cycle, asterixis, coma 4. Management: depending upon the severity eg. Lactulose, enema, gut sterilizing agents.		
18	Acute	At the end of lecture student should be able to tell 1. Definition of Acute pancreatitis 2. Important point about pathophysiology: i.e. disturbed cellular homeostasis. Release of proteolytic enzymes. 3. Most common etiologic factors of : 1) alcohol. 2) gall stones 3) trauma 4) drugs 4. To arrive at the diagnosis by clinical examination	Grading of severity of acute pancreatitis- modified Ransom Imrie score , Bisap, Apache II	

	pancreatitis	and USG and laboratory parameters like lipase , amylase 5. To know in brief about treatment of Acute pancreatitis monitoring of vital and fluid therapy, antibiotics/ surgical intervention, supportive care 6. To know in brief about complications of acute pancreatitis: like multiple organ dysfunction, shock.		
20	Chronic pancreatitis	At the end of lecture student should be able to tell 1. Definition of chronic pancreatitis, : continuing chronic inflammatory process in pancreas – irreversible 2. To know important points in pathogenesis of C.P. i.e. pancreatic fibrogenesis 3. To know important causative factors : ethanol, direct toxins, oxidative stress 4. To know about work up of chronic pancreatitis i.e. diagnostic tests pancreatic function tests/ radiography/CT scanning. ERCP, MRCP 5. To know in brief about the management of chronic pancreatitis. i.e. pharmacologic- relief of pain and surgical treatment – Names & indications		
	8h Sem Tuesday			
1	Spinal Cord I	1. Basic Anatomy of Spinal Cord a. Different sensory & motor tracts b. Terminology 2. Classification of Spinal cord Disorders • Compressive /Non compressive • Extra medullary / Intramedullary • Conus medullaris / cauda equina 3. a. Relevance of anatomy with classification b. UMN & LMN manifestations		
2	Spinal Cord II	1. Compressive Disorders • Classification • Clinical features • Investigation –Imaging • Management 2. Management a) As per etiology b) General care of a spinal cord patient c) Management of urinary Bladder	Different types of bladder	
3	Spinal Cord III	1. Non compressive disorders • Classification • Clinical features • Investigations • Management as per etiology		
4		1. Common causes: - Systemic disease (Diabetes Mellitus leprosy), vitamin deficiency ,medication (chemotherapy) etc.	Complications like non-healing ulcer	

	Peripheral Neuropathy	2. Classification:- • Mononeuropathy • Polyneuropathy • Mononeuritis multiplex 3. Symptoms and signs • Sensory- imbalance of patient, tingling,pain. • Motor- weakness ,cramps, fasciculation, • Autonomic- constipation, dry mouth, difficulty urinating dizziness. 4. Diagnosis- Electromyography (EMG) and nerve conduction studies, sweat test ,tilt table test Blood test- Vitamin B12 levels, complete blood count, thyroid function test, blood sugar levels Treatment –strict blood sugar control, intravenous immunoglobulin, steroids antidepressants, antiepileptics for pain e.g. gabapentin, vitamin supplements		
5	Guillan Barre Syndrome	1. Definition & Types AIDP, AMAN, AMSAN, Miller -Fischer etc. 2. Etiopathogenesis – a) Role of C.jejuni & other infections b) Pathophysiology of immune mediated demyelination 3. Clinical Features • Motor > Sensory • Distal > Proximal • Respiratory involvement • Cranial Nerve • Autonomic 4. Investigation a) CSF –albumino cytological dissociation b) NCS c) Autoantibody assays 5. 6. Treatment - • IV Ig v/s Plasmapheresis • Supportive care including ventilatory support • Rehabilitation	Diagnostic criteria GBS – Modified Asbury's criteria	Newer modalities in treatment of GBS

6	Cranial Nerve Disorders	1. Anatomical pathway of Cranial Nerves and their components (1-12) 2. Important etiologies of each cranial nerves disorders & clinical management (II) – pupillary reaction ,visual fields ,hemianopia (III,IV,VI) – Ocular movements (V) – Trigeminal Neuralgia in some detail (VII) – Bells Palsy - UMN vs LMN (IX,X,XI XII) – Brain stem involvement, Gag reflex, tongue movements etc 3. Neurological exam of cranial nerve (1-12)		
7	Myasthenia Gravis	1. Etiology it is a autoimmune disorders 2. Clinical features- • Age & sex incidence • Pattern of muscle weakness • Drugs causing myasthenia like weakness ,β-blockers, aminoglycosides, quinolones, antiarrhythmic , myopathic pattern of weakness 3. Investigations • Tensilon test • EMG pattern • Serum antibodies 4. Treatment • Acetylcholinesterase inhibitors • Immunosuppressive treatment - Short term- steroids e.g. prednisolone - Medium term-Azathioprine - Long term- Mycophenolate mofetil • Use of plasmapheresis & intravenous immunoglobulin • Mechanical ventilation • Surgery- Thymectomy	-Indications and contraindications of thymectomy. -Lambert Eaton myasthenic syndrome(LEMS)	
8		1. Many types – the common ones are • Muscle dystrophies - Duchene's and Becker's - Limb Girdle muscular dystrophy • Polymyositis • Hypokalemic and Hyperkalemic periodic paralysis 2. Clinical features • Duchene's - onset 2-3 years--chair bound by 12 yrs - pattern of muscle involvement	Rare varieties of myopathy-	

	Muscle Diseases (Myopathies)	- pseudo hypertrophy of calf muscle - Gower's sign - Treatment • Polymyositis - Association with certain cancers - Treatment a. Glucocorticoids b. immunosuppression • Hypokalemic periodic paralysis - Common in males - Provoked by high carbohydrate or sodium or rest following exercise - Association with thyrotoxicosis - Treatment a. Oral potassium ,rarely IV supplementation • Investigations - Serum enzymes- creatine kinase CK - Electro diagnostic studies - EMG - Muscle biopsy		
9	Multiple Sclerosis	1 Etiology of disease is autoimmune ,characterized by demyelination 2 Type of disease can be- relapsing, remitting, progressive 3 Lesions of MS develop at different times and in different locations 4 Genetic consideration in MS in short 5 Clinical features like pyramidal signs (weakness, spasticity etc.) Optic neuritis, INO, Diplopia, sensory symptoms, Ataxia,dysfunction 6 What are ancillary symptoms like heat sensitivity and Lhermitte symptoms 7 Role of MRI, evoked potential and CSF examination in diagnosis. 8 Treatment modalities like a) methyl prednisolone , b) Disease modifying therapies like IFNB, Glatiramer acetate, natalizumab.	Diagnostic criteria of MS	
10	Motor Neuron	1. Etiology of disease is neurodegenerative 2. Pathological hallmark is Involvement of lower motor neurons (Anterior horn cell in spinal cord and their brainstem analogues)and/or motor neurons in Area 4 3. Types of motor neuron disease a) Amyotrophic lateral sclerosis(upper motor neuron + lower motor neuron b) Primary lateral sclerosis(upper motor neuron)	Diagnostic guidelines of the disease	

	Disease	c) Progressive muscular atrophy (Lower motor neuron) 4. Clinical features may be either predominantly LMN or UMN or both 5. Importance of fasciculations, preservation of sensory, bowel and bladder function. 7. Use of MRI – Motor neuron loss 8. Riluzole – Role in ALS 9. Rehabilitation measures in ALS		
11	Localization of lesion in CNS	- To identify the focal neurological deficit - Hemiplegia/hemiparesis- Upper motor neuron type - Cranial nerve involvement- most commonly 7th cranial nerve involvement - Ataxia - Speech disorder- aphasia: motor, sensory, global - To localize the lesion acc to the neurological deficit - Hemiplegia (UMN)- lesion in contralateral hemisphere or brainstem - Hemiplegia with same side UMN facial palsy- lesion in contralateral hemisphere - Hemiplegia with opp side LMN facial N palsy- lesion in pons , same side of facial N palsy - Ataxia – lesion in cerebellum or CP angle - Left (dominant) hemisphere lesion- hemiplegia with aphasia - If pt has seizures or decreased consciousness level; lesion can be in cerebral cortex.	Lacunar infarcts	
12	Hypopituitarism	- Etiology – Developmental, traumatic, neoplastic, vascular etc. - Pituitary Apoplexy- Acute intrapituitary vascular event (Sheehan syndrome) Acute presentation- hypoglycemia, hypotension, death - Lab investigations- Low levels of respiratory pituitary trophic hormones e.g low TSH ,GHRH, ACTH,CRH. - Treatment- hormone replacement therapy gluco – corticoid, thyroid hormones, sex steroids GH increased gluco –corticoids dose during stress.		
13	Hyperprolactinemia	- Etiology-physiology, hypopituitary stalk damage, pituitary hypersecretion, drugs. - Presentation – Amenorrhea, galactorrhoea Female- Infertility Male- diminished libido, infertility visual loss. - Diagnosis- MRI Basal(F) PRL levels(> 200Mg/L) - Treatment- - (Medical) Dopamine agonist – Bromocriptine -Cabergoline	Side effects of medications used for prolactinomas	

		(Surgical) Not respiratory to medical treatment		
14	Acromegaly	1.Etiology – Excess GH - Excess GHRH Excess GH – adenoma -Men syndrome -Carcinoma -Extrapituitary tumour Excess GHRH – Hypothalamic hamartoma - Peripheral – carcinoid pancreatic islet etc. 2.Classification- Acral bony overgrowth - soft tissue swelling - generalized visceromegaly - CVS involvement ,OSA 3.Lab investigation – IGH -21 levels age matched - Oral glucose challenge test 4.Treatment – Radiation and ablation of tumour, surgical resection (trans- sphenoidal approach)	Symptoms and signs of acromegaly	
15	Diabetes Insipidus	1. Etiology – Neurogenic DI- Destruction of Neurohypophysis - Mutation AVP II gene - Primary polydipsia Nephrogenic DI- V2 receptor gene mutation 2.Classification- Urine frequency ,Nocturia, enuresis 3.Lab investigation - > 50ml/kg/day • >3500 in 70kg male & osmolality serum <300mosm/L • Fluid deprivation increase plasma osmolality & Na without urine concentration – • Brain MRI – Pituitary cause • Osmolality decrease & Basal plasma AVP is > 1 pg/ml- Nephrogenic Di 4.Treatment – DDAVP –Desmopressin .iv/ sc/oral 1 to 2 mg OD Nephrogenic – Thiazide diuretic & low na+ diet	To be able to differentiate between psychogenic polydipsia and diabetes insipidus	
16	Hypothyroidism & Thyroiditis	1) Know the physiology of thyroid hormone synthesis & secretion & regulation of thyroid axis. 2) Know the causes of hypothyroidism - Dietary factors - Geographical factors 3) Know about congenital hypothyroidism 4) Know signs & symptoms of hypothyroidism & Myxedema 5) Know the appropriate investigations needed for diagnosis 6) Know about various types of hypothyroidism-	1. Subclinical hypothyroidism 2. indications for thyroxine hormone therapy	Low T3 syndrome

		Clinical, Subclinical etc 7) Know appropriate treatment protocol & monitoring of Rx outcome. 8) Know about various type of thyroiditis Hashimoto: de Quervain's etc. 9) Know the spectrum of clinical manifestation in various types of thyroiditis. 10) Management of thyroiditis		
17	Thyrotoxicosis	1) Know various causes of thyrotoxicosis 2) Know difference in hyperthyroidism & thyrotoxicosis 3) Know in brief about Grave's disease & toxic MNG 4) Know signs & symptoms of thyrotoxicosis- Thyroid ophthalmopathy (Grave's) 5) Appropriate investigation & their inference to know cause 6) Rx of thyrotoxicosis based on cause - Role of RIA 7) Management of thyrotoxicosis in pregnancy - PTU to be preferred over carbimazole 8) Thyrotoxic crisis- A short discussion on cause & Management. 9) Know various types of cancers in thyroid	-MEN 1 , MEN 2 syndromes	
18	Calcium metabolism & disorders of parathyroid gland	1 Calcium metabolism in the body-Role of parathyroid 2 Causes of hypo & hyperparathyroidism 3 Signs and symptoms hypo & hyper parathyroidism 4 Diagnostic evaluation of parathyroid gland & its interpretation 5 Rx of hypo & hyper parathyroidism	ECG findings of hypocalcaemia	
	8th Sem Thursday Topics			
1	Approach to Rheumatic Disorders	1. Common symptoms of Rheumatic disorders 2. Important diagnostic clinical signs 3. Articular vs periarticular pain 4. Inflammatory vs non – inflammatory pain 5. Important investigations in arthritis 6. Diagnostic algorithm		
2	Rheumatoid Arthritis	1. It is a type of inflammatory arthritis ,systemic disorder 2. EULAR/ACR 2010 classification 3. Pathology -pannus formation & Immunology – TNF α 4. Clinical Features:- Articular 5. Diagnosis – Laboratory test ESR, CRP, RA factor, anti CCP, X-Rays 6. Treatment – NSAIDS , corticosteroids	Extra articular manifestations Diagnostic criteria	

		DMARDs Biologics		
3	SLE	1. What is SLE- a multisystem autoimmune disorder 2. Clinical Features, diagnostic criteria 3. Investigations-Hemogram, renal functions, immunological tests – ANA 4. Complications , Lupus nephritis (class I – VI), Antiphospholipid (APLA) syndrome 5. Treatment – Corticosteroids, hydroxychloroquine , Rituximab	Different types of autoantibodies 2. diagnostic criteria	
4	Spondyloarthritis and Reactive arthritis	1. Concept of Spondyloarthritis and disease subgroups in spondyloarthropathy 2. Clinical features: Rheumatologic manifestations specific features 3. Genetic background :Family history, Role of HLA-B27 antigen 4. Ankylosing spondylitis: clinical features, assessment & measurements, treatment 5. Reactive arthritis: features, triggering bacteria, clinical course, treatment	1. Other seronegative arthritis 2. Extra articular features	
5	Osteoarthritis and infective arthritis	1. Osteoarthritis :definition, pathogenesis, clinical features, radiologic features 2. Osteoarthritis treatment: pharmacologic – analgesics, intra-articular steroids, nonpharmacological- role of exercise, physiotherapy 3. Distinguish between infectious arthritis and inflammatory arthritis 4. Septic arthritis :features, risk factors, treatment, complications 5. Viral arthritis :viruses, features, treatment, prognosis 6. Tubercular and other infectious arthritis :diagnosis and treatment	Indications for arthroscopy and knee replacement therapy	
6	Scleroderma ,MCTD	1. Typical clinical appearance skin over – face ,hands 2. Systemic involvement – GIT ,joints ,lungs 3. Types – limited cutaneous & diffuse scleroderma 4. Immunological markers 5. Management of skin changes, arthritis ,pulmonary hypertension 6. Definition / few word on MCTD.	To know about renal crisis and its management	
7	Gout and crystal arthropathies	1. Types of crystal arthropathies 2. What is Gout – Uric acid crystal arthropathy 3. Classical clinical presentation of Gout 4. Laboratory investigations in Gout 5. Hyperuricemia – When to treat 6. Management of Gout – Acute and maintenance therapy	Chronic gout	
8	Inflammatory myopathies	1. What are inflammatory myopathies –definition 2. Classification - Types 3. Clinical features of Polymyositis and Dermatomyositis 4. How do you confirm the diagnosis – CPK levels	Malignancies associated with Polymyositis and Dermatomyositis	

		EMG, muscle biopsy 5. Treatment – Corticosteroids, immuno suppressants		
9	Vasculitis	1. Classification and nomenclature of vasculitis 2. Pathogenesis, Common features and approach to diagnose vasculitis 3. ANCA associated vasculitis: Granulomatosis with polyangitis(Wegeners), 4. Eosinophilic Granulomatosis with polyangitis (Churg-Strauss), microscopic polyangitis: clinical features and treatment 5. Polyarteritis Nodosa :clinical features, association with Hepatitis B Virus, treatment 6. Takayasu arteritis , Giant cell arteritis: features, management	Immunosuppressants and biologics in vasculitis	Other uncommon vasculitis
10	Sarcoidosis	1. Definition of sarcoidosis and differentiating from similar granulomatous lesions 1. Etiopathogenesis of sarcoidosis 2. Clinical features: lung, skin, eyes, Lymph nodes, Liver, Spleen, cardiac, neurologic involvement 3. Laboratory features, Serum ACE levels, Biopsy features 4. Management: Glucocorticoids, alternative drugs, anti TNF drugs	Differentials of sarcoid	
	9th sem Topics			
1	Iron Deficiency Anemia	1. Know about Iron Metabolism 2. Be familiar with stages of Iron deficiency 3. Know about causes of Iron deficiency 4. Be well versed with clinical symptoms & signs of Iron deficiency anemia 5. Be able to order & interpret laboratory Investigations needed for diagnosis of iron deficiency anemia including peripheral smear examination 6. Be able to give appropriate Rx for Iron deficiency anemia (Oral & Parenteral)	Indications for IV correction Total dose calculation for infusion	
2	Megaloblastic Anemia	1. Know about dietary sources & requirement its absorption of unit B12 & Folate 2. Be able to enumerate the causes of Megaloblastic Anemia 3. Clinical presentation of Megaloblastic Anemia & its complications 4. Order & interpret laboratory findings including peripheral smear examination 5. Institute appropriate Rx for Megaloblastic Anemia	Serum homocysteine levels	
3	Aplastic anemia	1. Definition of Aplastic anemia 2. Signs and symptoms of Aplastic anemia 3. Causes of Aplastic anemia 4. Diagnosis of Aplastic anemia 5. Treatment and follow up of Aplastic anemia Prognosis of Aplastic anemia	Indications for bone marrow transplant Indications for GCSF GMCSF therapy	
4	Anemia of	1. Pathophysiology of anemia of chronic diseases	Blood picture of	

	chronic diseases	- Survival advantage - Severity of anemia of chronic diseases - Diagnosis of anemia of chronic diseases - Treatment of anemia of chronic diseases	anemia of chronic diseases	
5	Hemolytic anemias –	- Classify hemolytic anemias – according to intra & extra corpuscular defects, acquired & hereditary - Clinical features of hemolytic disorders – Common & specific - Tests for diagnosis of Hemolytic anemia & the etiology - Osmotic fragility - Hb electrophoresis - Enzyme Assays - Treatment – splenectomy, steroid as per etiology, immunosuppressive - Know in brief about G6PD deficiency	Coombs test	
6	Thalassemia	- Classification of alpha & beta thalassemia - Clinical features & diagnosis of beta thalassemia - Management of beta thalassemia – - BT - BM transplant - Genetic counselling	Genetic counseling	
7	Multiple myeloma	- Etiology of multiple myeloma– radiation , occupation - Clinical features – hypercalcaemia, pathological fractures, renal failure, anemia, bleeding, clotting disorders, recurrent infections - Diagnosis – bone marrow findings, routine lab findings, protein electrophoresis, Bence Jones proteins in urine - Treatment – transplantation,	Novel agents	
8	Approach to Leukocytosis & Leucopenia	- Definition of Leukocytosis & leucopenia with normal values - Neutrophilic/Lymphocytic/Eosinophilic/Basophilic Leukocytosis - Infective & non-infective causes of Leukocytosis - Infective & non-infective causes of Leucopenia - Relative Leukocytosis & Leucopenia - Diagnostic work-up in cases of Leukocytosis & leucopenia - Treatment principles of Leukocytosis & leucopenia		
9	Haematologic malignancies	ALL - Etiology& pathogenesis of ALL - Clinical Features of ALL & Differential Diagnosis - Elaborate on the Laboratory diagnosis of ALL - L1,L2 & L3 types - Treatment of ALL	Newer drugs	
		AML - Etiology& pathogenesis of AML - Clinical Features of AML –Gum hypertrophy	Cytogenetics & Immunohistochemistry,	

		3. FAB classification of AML 4. Lab diagnosis of AML including 5. Treatment of AML	Different chromosomal anomalies , treatment of M3	
		CML 1. Etiopathogenesis of CML 2. Philadelphia chromosome – molecular pathogenesis, BCr-AbL translocations 3. Clinical Features & differential diagnosis of CML 4. Lab diagnosis of CML including Cytogenetics & Immunohistochemistry 5. Treatment of CML – • Role of imatinib mesylate • Stem cell transplant	WHO classification of CML	
		CLL 1. Aetiopathogenesis of CLL 2. Clinical features of CLL 3. Diagnostic Work-up in CLL along with Differential diagnosis 4. Severity grading of CLL – Binnet& RAI grading 5. Treatment principles of CLL		
10	Hodgkins lymphoma	1. Lymphoma- basic definition, classification 2. Aetio-pathogenesis of Hodgkin's lymphoma 3. Clinical features of Hodgkin's Lymphoma 4. Investigations in a case of Hodgkin's Lymphoma 5. Treatment of Hodgkin's Lymphoma	Types of Hodgkin's Lymphoma with molecular diagnosis	
11	Non-Hodgkins Lymphoma	1. Aetiopathogenesis of NHL 2. Clinical features of NHL 3. Diagnostic work-up in a case of NHL 4. Differential diagnosis of NHL 5. Treatment of NHL	Newer drugs	
12	Disorders of Hemostasis Part 1 Platelet disorders	1. Platelet disorders leads to defect in primary hemostasis. 2. Etiology • Decreased number of platelet • Defective function of platelet - Inherited(Rare) - Acquired a) Immune e.g autoimmune ,drug induced b) Increased consumption (TTP) Thrombotic thrombocytopenic purpura c) Decreased production 3. Disorders of platelet function 1. von Willebrand inherited autoimmune bleeding disorders 2. Disorders of aggregation 3. Disorders of secretion 4. Disorders of thromboxane synthesis 5. Acquired – e.g drugs Aspirin, NSAID alcohol ,uremia 6. Myelodysplasia 4. Clinical presentation:-		

		- Symptoms – Bleeding from any site , Epistaxis, bleeding gums, - Signs - petechiae, ecchymosis splenomegaly etc 5. Diagnosis – Complete blood count ,peripheral smear, giant platelets, high lactate dehydrogenase, in vitro platelet function analyzer, Bone marrow 6. Treatment- as per etiology & Guidelines for platelet transfer		
13	Part 2	Coagulation disorders hemophilia/DIC (Disseminated intravascular coagulation) - DIC is characterized by systemic activation of blood coagulation. Consumption of coagulation factors, protein, platelets induces severe bleeding. - Derangement of fibrinolytic system contributes to clot formation & can present with simultaneous bleeding and thrombotic problem - Etiology- Sepsis ,trauma, necrotic pancreatitis etc - Complication – Acute kidney injury, respiratory & hepatic dysfunction etc - Lab investigation- Thrombocytopenia, clotting time prolonged measuring coagulation factors V ,VII, PT/INR,APTT,BT,CT ,electrolyte imbalance - Treating underlying disorders, correct hypokalemia basic hemostasis, coagulation factor replacement platelet replacement and heparin where indicated.		
		Hemophilia - Definition :- It is x linked recessive disorders caused by deficiency of factor VIII. - Types:- Hemophilia A & Hemophilia B. - Signs-Painful joints(haemarthrosis), headache, haemorrhage from any sites Diagnosis – - complete blood count, factor VIII assay, activated partial thromboplastin time (aPTT) prolonged ,factor IX. - CT,MRI, USG to look for bleeding. - Management of haemostasis ,bleeding episodes .Factor replacement products		
14	Part III Fibrinolytics, Anticoagulants and Deep venous thrombosis Deep venous thrombosis	- Etiology - Acquired: immobility ,surgery, medication – OC Pills - increased blood viscosity ,polycythemia rubra vera - Signs / symptoms :- Edema, leg pain(calf pain),discoloration of leg, breathlessness - Complication:- Pulmonary embolism ,recurrent deep vein thrombosis - Diagnosis:- D Dimer, Doppler venous, CT pulmonary angiography. prothrombin time ,aPTT. - Treatment:- - Anticoagulation ,heparin, warfarin/low molecular weight heparin 3-6 months - Thrombolysis – urokinase ,streptokinase	Surgical intervention starting/ thrombectomy & IVC filter	

		6. Prevention of DVT A. Early Mobilization B. Elastic stocking C. Role of heparin		

6th Sem Monday Tutorials

Sr. No	Topics	SLO's Must know	Desirable to know	T-L Methodology	Logistics required
1	ECG 1	To know about the normal cardiac electrical activity 1. To know basics of ECG machine- how to record ECG (12 leads), lead placement, standardization etc. 2. To know about the basic concepts of ECG paper 3. How to read ECG- rate, rhythm, axis, individual waves, intervals etc.		Demonstration & small group discussion	
2	ECG 2	1. Abnormalities of P wave - P mitrale, P pulmonale etc. 2. Supraventricular arrhythmia, atrial flutter, atrial fibrillation 3. Know about the PR interval and its significance 4. Brady arrhythmias and 1 st , 2 nd and 3 rd degree	Know to differentiate between APC and VPC	Demonstration & small group discussion	
3	ECG 3	1 To know about the QRS complex- Axis, duration and morphology 2 Ventricular hypertrophy- LVH and RVH 3 To identify bundle branch blocks- RBBB and LBBB 4 Know the differential diagnosis of ST elevation in ECG 5 Specific changes in ECG in myocardial infarction – STEMI and NSTEMI 6 To differentiate between myocardial infarction and other causes of ST elevation in ECG 7 Know about ventricular tachycardia and ventricular fibrillation	1.To know the different conditions causing ST depression – horizontal, upsloping and downsloping 2.Abnormalities in ECG in special conditions- Hyperkalemia, Digitalis toxicity etc.	Demonstration & small group discussion	

4	Pleural Tapping and Biopsy	1. Indications of pleural tapping- diagnostic, therapeutic 2. Contraindications- local skin infection, bleeding diathesis 3. Instruments- needle, syringe, three way IV tubing etc. 4. Importance of Radioimaging before and after the procedure 5. Procedure – position, site, how much can be tapped 6. Analysis of pleural fluid 7. Complications - pneumothorax. Hemothorax, empyema 8. Indications of pleural biopsy- recurrent pleural effusion, pleural mass 9. Instruments- Tru cut biopsy needle	Procedure of pleural biopsy– position, site, technique. Complication- injury to adjacent organs, hemorrhage	Demonstration & small group discussion	
5	Ascitic tapping	1. Indications of ascitic tapping- diagnostic , therapeutic 2. Contraindications- local skin infection, severe thrombocytopenia 3. Procedure – position of pt, sites, insertion of needle- Z technique 4. Instruments required-syringe, needle, local anesthetic. 5. How much fluid can be tapped, 6. Analysis of ascitic fluid 7. Complications- bleeding, infection, bowel injury	Role of albumin in paracentesis	Demonstration & small group discussion	
6	Lumbar Puncture	1. Description of the instruments needed- a. Needle proper b. Stylus 2. Indications- Diagnostic and Therapeutic 3. Contraindications- Absolute and relative 4. Procedure-Consent, position of pt., site, post procedure orders etc. 5. Complications- local and systemic 6. Analysis of CSF- normal values	Know CSF pictures in various conditions- Bacterial/Tuberculous/Viral meningitis and in GBS	Demonstration & small group discussion	
7	Liver Biopsy	1. Description of the instruments needed- a. Outer hollow needle b. Inner split needle c. Solid stylet 2. Indication of Biopsy-Cirrhosis ,Carcinoma ,Chronic hepatitis, Storage & metabolic disorders 3. Contraindications- Coagulopathy, Hydatid cyst, Congested liver, massive, ascites, Hemangioma etc. 4. Procedure-Consent, position of patient, site, post procedure orders etc. 5. Complications-Hemorrhage, Biliary peritonitis, Precipitation of hepatic coma etc.		Demonstration & small group discussion	

8	5. Kidney biopsy	- Description of the instruments needed- - Outer hollow needle - Inner split needle - Solid stylet - Indications of Biopsy- Nephrotic syndrome, Glomerulonephritis of any cause, Proteinuria, Hematuria, Systemic disorders with renal involvement, transplant rejection, Malignancy etc - Contraindications-Coagulopathy, ESRD, Solitary kidney etc. - Procedure - Consent, position of pt., site, post procedure orders etc - Complications - Hemorrhage, infection etc.	Post procedure care- w/f hematuria, strict bed rest	Demonstration & small group discussion	
9	Bone Marrow Aspiration and Biopsy	- Description of the instruments needed-Needle, stylet, adjustable guard, e.g Salah, Klima - Indications- Anemia, pancytopenia, hematological malignancies, pyrexia of unknown origin - Contraindications- local infection, coagulopathy etc. - Procedure-Consent, position of patient, site, post procedure orders etc. - Complications- hemorrhage, infection - Analysis of bone marrow- - Cellularity of marrow - WBC, Megakaryocytes, plasma cell - M.E ratio parasite /tumour cells/ fibrous tissue/iron	To know indications of bone marrow-biopsy like dry tap in bone marrow aspiration. e.g. Aplastic anemia, myelofibrosis	Demonstration & small group discussion	
10	CVP line insertion IV Fluids & Infusion set	CVP Line - Description of the instruments needed-Needle, Guide wire, Central line etc. - Procedure-Consent, position of pt., site, post procedure orders etc. - Complications- Pneumothorax, Carotid artery puncture etc	Indications of CV line like hydration status, fluid resuscitation.	Demonstration & small group discussion	
		IV Fluids - Types - Colloids- Hemaccel, Albumin etc. - Crystalloids - e.g NS, Dextrose, RL, Hypertonic saline - Indications- Hypovolemic shock, severe dehydration etc - Contraindication CCF, other fluid overload states - Advantages of IV fluids Rapid connection of deficit - Disadvantages - Thrombophlebitis - Hematoma	Different indications of special fluids like 3% NS and .45% NS	Demonstration & small group discussion	

11	Ryles Tube	- Other names, Description and explaining various markings e.g 405059 65Cardiac orifice Body Pylorus1st part of Duodenum Stomach - Indications- Diagnostic Therapeutic - Contraindications - Procedure- Technique of insertion and confirmation of placement - Complications - Epistaxis - Rhinitis, Pharyngitis - Variceal bleed	Contraindications like immediately after banding, thrombolysis	Demonstration & small group discussion	
12	Endotracheal tube	- Description - Portex - Cuffed /Uncuffed - Various sizes - Indication of Intubation - Respiratory failure - Cardio- respiratory arrest - General anaesthesia - Contraindications - Trauma - Laryngospasm - Procedure-Consent, position of pt., site, technique of insertion, post intubation care. - Complications - Obstruction - Intubation either Bronchus/esophagus - Trauma to cords intubation - Teeth dislodgement	Indications for changing endotracheal tube/ tracheostomy.	Demonstration & small group discussion	
13	Blood transfusion	- What are the different blood group systems? - Which are the different blood components? - What pre transfusion testing or precautions are taken? - What are the indications for blood transfusion? - What are the contraindications for blood transfusion? - What are the adverse reactions to blood	Direct/ indirect Coombs test. Compatible blood donors.	Demonstration & small group discussion	
14	Heat stroke and Near Drowning	- What is Heat stroke? - Clinical manifestations of heat stroke - Other causes of hyperthermia - Complications of heat stroke - Management of heat stroke	Difference between hyperthermia and hyperpyrexia	Demonstration & small group discussion	

15	Near Drowning	1. Know the types – Wet and dry 2. Know possible infections it can cause- Lungs, GIT etc. 3. Enumerate other complications 4. Management- Supportive & symptomatic		Demonstration & small group discussion	
16	Acute alcohol intoxication & withdrawal syndrome	1. Metabolism of alcohol in body. 2. clinical features of acute alcohol intoxication 3. Management of acute alcohol intoxication 4. Manifestations of alcohol withdrawal 5. Treatment of alcohol withdrawal		Demonstration & small group discussion	
17	Urine examination	1. Methods of collection of urine specimens 2. How is the gross & microbiological examination of urine done? 3. Which are the different urinary casts? 4. Evaluation of proteinuria 5. Further reading – treatment of UTI	Osmolarity and different tests like Bence Jones proteins	Demonstration & small group discussion	
18	Anaphylaxis & Acute Urticaria	1. Types of hypersensitivity reactions 2. Etiology of anaphylaxis & urticaria 3. Clinical features of anaphylaxis-3severe life threatening complications 4. Treatment of anaphylaxis 5. Treatment of acute urticaria	Angioedema	Demonstration & small group discussion	
19	CPR (Cardiopulmonary resuscitation)	1. When to initiate CPR 2. What is the initial evaluation of case of cardiac arrest 3. Principles & techniques of basic life support/ CPR 4. Know about shockable and non shockable rhythms 5. Know basics of ACLS	Complications post CPR rib fracture , elevation of cardiac enzymes	Demonstration & small group discussion	
20	Snake bite-	1. Different families of venomous snakes in India 2. Clinical features of vasculotoxic snakebite Clinical features of neurotoxic snakebite 3. General management measures- First aid- the RIGHT approach 4. Know about Anti snake venom- Indications, Method of giving, adverse effects 5. Management of case of vasculotoxic snakebite	Different snake antivenoms included in standard Indian ASV	Demonstration & small group discussion	
		8th Semester Wednesday Topics			

1	Physiology of Renal Function	1. Glomerular structure and ultrastructure 2. What is GFR? 3. measurement of renal plasma flow 4. auto regulation of renal blood flow 5. tubular transport: passive, active 6. transport in specific nephron segments 7. What is glomerulotubular balance? 8. What is countercurrent mechanism? 9. Various hormones involved in physiology	Cockcroft- gault formula for GFR	Drug dose adjustment according to GFR	
2	Investigations in Renal Diseases	1. measurement of GFR - concept of renal clearance with exogenous and endogenous filter methods 2. creatinine: 1)metabolism and excretion 2) creatinine assays 3) factors affecting creatinine concentration 4) estimation of GFR from creatinine 3. Urea: metabolism and excretion 4. Cystatin-C: metabolism, excretion, assay 5. Urinalysis: collection, physical and chemical characteristics, microscopy 6. Imaging: USG, Doppler, intravenous urography, CT 7. Biopsy			
3	Water and Electrolyte Imbalance (Hyponatremia and hypernatremia)	1. Hyponatremia: etiology and classification, clinical manifestations, SIADH (causes, diagnosis), treatment (symptomatic, asymptomatic) 2. Hypernatremia: etiology, classification, clinical manifestations, and treatment	Side effects of rapid correction of hyponatremia-central pontine myelinosis	To know how to identify and manage Pseudohyponatremia	
4	Water and Electrolyte Imbalance (hypokalemia and hyperkalemia)	1. Normal physiology of potassium balance 2. Hypokalemia: clinical manifestations, etiology, diagnostic evaluation, treatment 3. Hyperkalemia: clinical manifestations, etiology, diagnostic evaluation, treatment	ECG features of hypokalemia and hyperkalemia	Treatment of hyperkalemia	
5	Acid-Base Disturbances I	1. Definition 2. Normal acid production and buffer systems 3. Regulation of pH: respiratory, renal 4. Metabolic acidosis: definition, normal anion gap Metabolic acidosis, renal tubular acidosis, high anion gap metabolic acidosis, treatment	Types of RTA		

6	Acid Base Disturbances II	1. Metabolic alkalosis: definition, bicarbonate transport in kidney, diagnostic evaluation, etiology, clinical manifestations, treatment 2. Respiratory acidosis: definition, etiology, pathology, clinical manifestations, diagnosis, treatment 3. Respiratory alkalosis: definition, etiology, pathology, clinical manifestations, diagnosis, treatment	Interpret ABG		
	Arterial blood gas analysis	1. Indications to do ABG 2. Different sites and technique of Blood sampling 3. Different parameters studied in ABG 4. To know whether the pathology is primary or secondary metabolic / respiratory acidosis or alkalosis and their compensatory mechanisms	Different formulas for compensatory mechanisms and their correction.	Demonstration & small group discussion	
7	Asthma / COPD inhalation techniques	1. To know in brief about the grading and severity of asthma and COPD 2. To know different modalities of treatment like inhalational agents and oral medications 3. To know about different inhalational techniques like rotahalers, rivilisers, metered dose inhalers, spacer devices for pediatric and old age patients, nebulization devices 4. To know about the contents of inhalational agents: bronchodilators and steroids.	oxygen therapy like home oxygen therapy, oxygen concentrators	Demonstration & small group discussion	
8	Pulmonary Function Tests And Their Significance	1. To know about indications for pulmonary function tests 2. technique and the machine of PFT 3. Different parameters studied in PFT 4. To know about the inspiratory/ expiratory curves and their interpretation 5. To know to distinguish between obstructive and restrictive airway disease by different parameters like FEV1/FVC/TLC 6. To know the importance of PFTS in fitness for surgeries.	Importance of PFTS in fitness for surgeries.	Demonstration & small group discussion	
9	AFI With Rash	1. Define fever and describe various rash macules papules plaques, vesicles , nodules, eschar .etc 2. Describe different pattern of distribution of rash and its importance. In correlation to day of rash and its importance 3. Describe various etiology of fever with rash		Demonstration & small group discussion	

	AFI With Thrombocytopenia	1. Define thrombocytopenia 2. Enumerate various etiology of fever with THROMBOCYTOPENIA 3. Investigations in patients of fever with THROMBOCYTOPENIA 4. complications 5. Guidelines regarding platelet transfusion		Demonstration & small group discussion	
10	Diabetic Ketoacidosis	Should Know 1. Etiology & Pathophysiology – Glucose & Fat Metabolism lead to ketosis 2. Clinical features – Can be 1st presentation of T1DM. Medical cause of acute abdomen 3. Lab Features – Hyperglycemia, ketosis, metabolic acidosis with an increased anion gap. 4. Management – • Emergency Mx • IV Fluids & electrolyte correction		Demonstration & small group discussion	
	Hyperglycemic Hyperosmolar State or Hyperosmolar nonketotic coma	Should know 1. Etiology – Relative insulin deficiency and inadequate fluid intake. Precipitating causes are serious illness like sepsis or myocardial infarction and dehydration. 2. Clinical features – common are polyuria thirst, altered mental state Range from lethargy to coma. 3. Laboratory Features – Blood sugars are in range of 600-1200 mg%, serum osmolality is high 330-380 m osmol/ml, creatinine – moderately increased, serum ketones are		Demonstration & small group discussion	
11	Hypoglycemia	1. Definition-low glucose levels <45-50 mg % or 2.5- 2.9 mmol/L Whipples triad 2. Etiology- 1. drugs (insulin, secretagogues, alcohol, quinine, quinolones, salicylates, etc) 2. critical illness-hepatic, renal or cardiac failure, sepsis, prolonged starvation 3. hormone deficiencies-adrenal insufficiency, hypopituitarism 4. Insulinoma, B cell hyperplasia (congenital or post bariatric surgery). 3. Clinical features-autonomic-adrenergic palpitations, tremors, anxiety; cholinergic: sweating, hunger, and paresthesias Neuroglycopenic-behavioural changes, confusion, seizures, unconsciousness, fatigue and if severe, death. Recurrent hypoglycemia leads to hypoglycemia unawareness.		Demonstration & small group discussion	

12	Mx of Acutely Breathless Patient	1. Check vital (P BP,RR,spo2,temp) and severe airway ,treat hypotension, hypertension if present 2. History –Sudden onset, chest pain, trauma, chronic diseases –Asthma ,COPD 3. Examination – Respiratory pattern ,chest movements, auscultation of respiratory system for normal & abnormal breathing sounds 4. To know about investigations –ABG. chest x-ray ECG .Accelerated HT,ADHF 5. To know about the causes of Acute /sudden onset of dyspnoea –MI, pneumothorax, exacerbation of Asthma ,COPD, Aspiration pneumonia ARDS 6. Treat underlying cause ,O₂ supplementation ,assisted ventilation		Demonstration & small group discussion	
13	Approach to comatose patient presenting in Casualty	1. Check vitals (P,BP,RR,SpO₂) and severe airway and treat hypotension, blood sugar levels if present 2. Take relevant history –trauma seizure ,poisoning meningoencephalitis ,drugs, addiction , chronic disease 3. General examination to note fever, periodical rash, cyanosis, respiratory pattern 4. Neurological examination- • Glasgow coma scale scoring • Rigidity –decerebrate, decorticate • Neck stiffness & meningeal signs 5. Significance of pupil exam in a comatose patient • Plantar ,reflex • Asymmetry in clinical findings 6. To know about investigations- • Blood sugar levels & other blood parameters - Electrolytes - ABG • ECG • LP/CSF • CT/MRI brain 7. Treat hypotension, hypoglycemia, hypercapnia ,hypothermia 8. Treat underlying disease. Keep in mind tropical diseases e.g Cerebral malaria, Heat stroke etc.		Demonstration & small group discussion	

14	Management of Hemoptysis	1. To be able to differentiate Hemoptysis (red coloured blood with sputum) from Hematemesis (altered coloured blood with vomiting) 2. To know about source and causes of hemoptysis – Any location from glottis to alveoli – Most common cause- mycobacterial infection – Pneumonia, malignancies etc. 3. To investigate and treat according to severity • Mild – X-ray chest, CT scan, Rx underlying cause • Moderate- X-ray chest, CT scan, Bronchoscopy, Rx underlying cause • Severe- Secure airway, X-ray chest, CT scan, Bronchoscopy, Embolization of vessel, Rx underlying cause		Demonstration & small group discussion	
		9th Semester Tuesday Tutorial Topics			
1	Organophosphorous compound poisoning	1. Mechanism of action of OP compounds: acetyl choline esterase inhibitor 2. Different modes of poisoning : accidental, suicidal 3. Different ports of entry: GI tract, respiratory, skin exposure 4. Primary treatment : remove source of exposure, removal of poison soaked by clothes ,gastric lavage, antidotes -Atropine, Pralidoxime 5. Assessment of severity: respiratory pattern, consciousness, neck holding, single breath count. 6. To know risk of respiratory failure and need for ventilatory support	To know in brief about intermediate & delayed syndrome and its treatment	Demonstration & small group discussion	

2	Medical problems in old age	1. Disease susceptibility & comorbidities: DM, HTN, osteoporosis, Atherosclerosis: (Ischemic heart disease, stroke, peripheral vascular disease) ,recurrent infections, prolonged recovery, drug intolerance, problems with polytherapy 2. Disabilities & Recurrent falls: risk factors, multidisciplinary approach ,assessment and management, balance exercises, physiotherapy, walking aids, hearing aids 3. Anorexia & malnutrition: causes, clinical manifestations, nutritional supplementation 4. Urinary problems :overflow incontinence ,prostate enlargement (males) stress and urge incontinence (females) 5. Neuropsychiatric :sleep disorders, cognitive impairment, Delirium ; assessment of causes , management	Screening in elderly, exercise, nutrition	Demonstration & small group discussion	
3	Cardiac drugs: Part 1	• Anti anginal drugs: 1. Nitrates short acting & long acting: mechanism of action, side effects, dose, C/I 2. calcium channel blockers: dihydropyridines and non dihydropyridines, 3. potassium channel opener 4. Others • Anti-hypertensive drugs: 1. Ace inhibitors & ARBs : RAAS mechanism, doses, advantages, side effects, C/I 2. Calcium channel blockers: doses, advantages, side effects, C/I 3. Sympathetic Blockers: beta blocker, alpha blocker , alpha plus beta blocker; advantages, side effects 4. Diuretics: loop diuretics, Thiazides, potassium sparing • Choice of drug, combination therapy; resistant hypertension- Definition management	Newer drugs	Demonstration & small group discussion	

4	Cardiac drugs: Part 2	• Drugs for CHF: 1. Cardiac Glycosides:-Digoxin: mechanism, dose, adverse effects, toxicity 2. Other inotropes: dobutamine, dopamine, amrinone 3. Decrease preload: diuretics 4. Prevent disease progression: ACE & ARBS inhibitors, beta blockers, spironolactone, eplerenone • Anti-arrhythmic 1. Mechanism of arrhythmias and classification of anti –arrhythmic drugs (I to V) 2. Membrane stabilizers: drugs , doses, adverse effects 3. Beta blockers; Potassium channel blockers; Calcium channel blockers 4. Other :adenosine, digitalis, atropine • Choice of drugs	Monitoring for side effects	Demonstration & small group discussion	
5	OHA and Insulin	1. Different modalities of treatment of diabetes like OHAS and Insulin 2. To know classification of OHAs(different classes) and insulins (different types like conventional and analogues) 3. To know in brief about mechanism of action of OHAS and Insulin (duration and peak action) 4. Indication , contraindication and side effect	Newer insulins and OHAs like degludec insulin, GLP1 analogues, SGLT2 inhibitors eg. Canagliflozin	Demonstration & small group discussion	
6	Dyslipidemia	1. To know about Lipoprotein metabolism, classification and composition 2. To know about disorders of elevated cholesterol and TGS like Familial Hypercholesterolemia, Familial defective APO B 100, etc 3. To know screening ,clinical manifestations and laboratory features and management of disorders of lipoprotein metabolism 4. Rx-Diet, Omega chain FA and others		Demonstration & small group discussion	
7	Anasarca	1. Definition etiology and various pathophysiology of ANASARCA 2. Investigations in patients of ANASARCA 3. Treatment and complications		Demonstration & small group discussion	
8	Jaundice	1. Define jaundice & revise bilirubin metabolism 2. Approach to case of jaundice 3. Describe various etiology of jaundice 4. Treatment and complications of severe jaundice		Demonstration & small group discussion	

9	Manageme nt of Acute Decompens ated Heart Failure	1. To know about different causes of left ventricular failure like : acute MI, HT, Valvular disorders 2. To know about diagnostic approach of left ventricular failure like 2D echo, ECG,X-Ray 3. To know about volume management, vascular therapy , inotropic therapy. 4. To know about neurohormonal antagonist like ACE inhibitors and mineralocorticoid antagonist 5. To know about the treatment of causative pathology like MI.	Newer modalities in treatment	Demonstration & small group discussion	
10	Wilson disease	1. pathophysiology and genetics of the disease 2. clinical manifestations of the disease like hematological , neurological , psychiatric and hepatobiliary involvement.(KF ring) 3. diagnostic approach to the disease like urine copper excretion, serum copper and ceruloplasmin levels and confirmation by liver biopsy 4. different modalities of treatment according to the clinical scenario like zinc and tetrathiomolybdate		Demonstration & small group discussion	
	Hemochromatosis	1. To know definition and classification of iron overload states 2. To know genetic basis and pathophysiology 3. To know about clinical manifestations of the disease like liver cirrhosis, skin pigmentation, bronze diabetes, arthropathy, cardiac involvement , hypogonadism. 4. To know the diagnostic approach of the disease like measurement of serum iron , transferrin saturation, liver biopsy. 5. To know regarding screening of hemochromatosis 6. To know different treatment modalities like chelating agent-desferoxamine	prognosis of the disease and liver transplantation	Demonstration & small group discussion	
	Porphyrias	1. To know about different types of porphyrias according to enzyme deficiency n heme biosynthesis 2. To know pathophysiology and clinical manifestations and laboratory features of porphyria like photosensitivity, neuropsychiatric manifestations 3. To arrive at diagnosis using appropriate laboratory investigations like enzyme levels, porphyrin precursors.	Treatment of porphyrias	Demonstration & small group discussion	

Clinical SLOs

- 1) General overview about History taking; Introduction to various heads of History taking like Vital information ,Chief complaints, ODP, Past ,personal, family, drug ,socio economic, menstrual & obstetric history & their importance
- 2) History taking (ODP in detail) & General symptomatology- Fever, Pain, Weight Loss etc.
- 3) GIT symptomatology i.e cardinal symptoms of Gastrointestinal disease like Dysphagia ,GERD symptoms, Weight loss, Vomitting, Diarrhea, Constipation, Hematemesis, Abdominal pain etc
- 4) RS symptomatology like Cough, Expectoration, Breathlessness, Hemoptysis, Cyanosis, Wheeze etc.
- 5) CVS symptoms like Chest pain ,Breathlessness, Palpitations, Syncope, Orthopnoea, PND, S/S of Rheumatic fever & infective endocarditis
- 6) Symptomatology of miscellaneous cases like CKD, Arthritis, Goiter
- 7) Basic introduction of General Examination Height, Weight, Nutrition (Stature/Obesity)Vital signs Pulse, BP, Temp, Respiratory, JVP, Icterus, Pallor, Clubbing, Cyanosis, Edema, lymphadenopathy Exam of Skin, Exam of Hands & Feet, Exam of Face (Facies, hairs, Icterus, pallor)
- 8) Examination of GIT – Basic information
- 9) GIT Case- case presentation by student incorporating the details taught earlier
- 10) Examination of RS– Basic information
- 11) R/S Case- case presentation by student incorporating the details taught earlier
- 12) Examination of CVS– Basic information
- 13) CVS Case- case presentation by student incorporating the details taught earlier.

Per Abdomen

1. History Taking
2. Symptoms of Abdominal diseases:-
Anorexia ,Altered taste, salivation (Dry & excess),dysphagia, Heart burn, Vomitting, Pain, Distension, Haemetemesis, Malena, Rectal Bleeding, Weight Loss, Flatulence, Hiccups, Constipation, Diarrhea Altered stool colour, Blood and mucous in stool, high coloured urine.
3. Quadrants of Abdomen and surface anatomy of various intra-abdominal structures in relation to different Quadrants.

4. Inspection

Shape of Abdomen, Umbilicus, movement, visible pulsation, visible gastric peristalsis or intestinal peristalsis, skin over abdomen and lesions, visible dilated veins, fullness of flanks, abdominal distension.

5. Palpation:-

- Measurement-xiphisternum to umbilicus and umbilicus to pubic symphysis, umbilicus to both ASIS, significance of various measurements
- Superficial –Guarding, Rigidity and Tenderness and the differential diagnosis
- Flow of blood in dilated veins
- Deep palpations and different methods of palpation of liver, spleen and Kidney palpation of pelvic organs ovary, bladder
- Differences between spleen and kidney enlargements

6. Percussion:-

- Tidal percussion
- Percussion for Upper Border of liver dullness
- Free fluid
 - Puddle sign
 - Shifting dullness
 - Horse shoe dullness
 - Fluid thrill
- Nixon and Castell's Method of Splenic Percussion.

7. Auscultation:-

- Bowel sounds frequency and its significance
- Bruit – over aorta, liver
- Venous Hum.

8. Approach to various cases.

- Hepatomegaly +/- lymphadenopathy
- Splenomegaly +/- lymphadenopathy
- Hepatosplenomegaly
- Jaundice
- Ascites
- Cirrhosis
- Lump in Abdomen

Respiratory system

1. Respiratory system:-

- History taking

Symptomatology – Hemoptysis, Cyanosis, Cough, Expectoration, Breathlessness etc.

- How to differentiate between respiratory and cardiac breathlessness and grading of dyspnoea.
- Lung Anatomy – Lobes and Broncho pulmonary segments.
 - Names of different areas of chest
 - Surface marking of minor and major fissures.
- Upper respiratory system examination Nose, Nostrils Throat.

- Inspection of chest – Trails sign, shape of chest ,movements of different area of chest. Hollowing or depression and fullness. Position of shoulder, position of Nipple, spine examination, Dilated vessels over chest. Sinuses, scars over chest ,Accessory muscles of Respirations.

2. Palpations:-

- Trail sign
- Apex beat
- Movement of chest – Anterior
-Posterior
- Measurement of chest: - A-P diameter. Transverse diameter during inspiration and expiration- methods and significance.
- Vocal fremitus
- Palpable added sounds.

3. Percussion:-

- Method of percussion
- Different percussion notes and their DD's
- Left lung percussion
- Right lung percussion
- Limitations of percussion.

4. Auscultation

- Abnormal vesicular breath sounds
- Bronchial breathing and the types with differential diagnosis.
- Breath sounds increase or decrease and their differential diagnosis
- Whispering pectoriloquy
- Aegophony
- Different added sounds Rhonchi, crepitations ,pleural rub and how to differentiate between them.
- Vocal Resonance
- Succussion splash
- De Espines sign

5. Approach and treatment of cases

- Asthma
- COPD
- Tuberculosis
- Pleural Effusion
- Pneumothorax
- Empyema
- Cavity
- Fibrosis
- D/D's of decrease breath sounds, increase breath sounds, Dull note ,shift of Trachea, Bulging or Retraction of Chest cage

CVS

History taking

- Cardinal symptoms of CVS-

Chest pain, Breathlessness, Palpitations, Syncope, paroxysmal nocturnal dyspnoea, orthopnoea etc

- Surface marking of heart borders
 - Right
 - Left
 - Inferior
- Anatomy of heart chambers valves, structure, coronary arteries, major vessels of heart.
- Pulse rate, Rhythm, volume, condition of vessels, character of pulse, Radio radial delay, Radio femoral delay, pulse deficit, Arteries to be palpated for pulse.
- Blood pressure – systolic and diastolic
- Pulse pressure
- Mean arterial pressure
- Methods of B.P Measurements
- Postural BP Measurement.
- Examination of Jugular vein
- Measurement of JVP

Different waves and descents of JVP

1. Inspection:-

- Precordial Bulge
- Apical Impulse
- Scar mark of surgery
- Pulsations over Aortic pulmonary, Epigastric suprasternal, carotid locomotor Brachialis, Suzzman's sign
- Inspection of spine.

2. Palpation :-

- Apex beat –site, character (tapping, heaving, hyperdynamic) localized or diffuse
 - Palpable heart sounds
 - Thrill
- Aortic Area
 - Pulsation
 - Palpable heart sound
 - Thrill
- Pulmonary Area
 - Pulsations
 - Palpable P2
 - Thrill
- Tricuspid Area
 - Parasternal heave, thrill

3. **Percussion:-**

Borders of heart and its significance .Cardiomegaly vs pericardial effusion C/I for percussion e.g. Atrial fibrillation

4. Auscultation:-

- Cardiac rate
- Apex pulse deficit
- Rhythm
 - Mitral Area
- Heart sounds
- Murmur systolic, Diastolic and their DD's
- Opening snap, ejection clicks, split S3S4
 - Tricuspid area-
Murmur of TR, role of passive leg raising
 - Pulmonary area
- Loudness of P2, split second heart sound
- Murmur :- systolic diastolic and it's D/D's
 - Aortic Area
 - Murmur Ejection systolic, diastolic and it's D/D's
 - Neo aortic area-
 - Diastolic murmur & its D/D's
 - Gibsons area –murmur of PDA
 - Auscultation of carotid artery for bruit or conduction of murmur
 - Pericardial Rub.
 - DD's of murmur
 - ESM ,PSM
 - EDM,MDM
 - Continuous

4. Approach to cases of

- Rheumatic heart disease
MS AR AS AR
Jones Criteria
- Endocarditis –Dukes Criteria
- STEMI, NSTEMI, Unstable Angina, Stable Angina
- ECG ,evaluation in various cardio vascular disease.
- Pericarditis /pericardial effusion/Tamponade.
- Cyanotic and Acyanotic heart diseases
- CXR
- ECG/TMT/CT angio /CAG
- Echocardiography

CNS

1. Brief anatomy of CNS
2. Symptoms- Headache, vomiting, seizures, altered sensorium, LOC, behavioral abnormalities, visual disturbances, Vertigo speech disorders, Dysarthria ,Dysphagia, weakness of limbs, sensory disturbances, gait abnormality.

Abnormal movements, syncope, fall, incoordination. Tremors, bladder bowel symptoms etc

3. Examinations –

- Higher function- levels of consciousness
 - GCS score
 - Orientation
 - Memory
 - Speech
- Examination of skull and spine, neck rigidity, Kernigs sign. Brudzski sign, SLR
- Cranial Nerve examinations in details
- Motor system- Nutrition, Tone, power, co-ordination Involuntary movement
- Sensory system
 - Superficial –pain touch temperature
 - Deep – Proprioception, vibration, joint position
 - Cortical –One point localization two point discrimination, Stereo gnosis, graphesthesia
- Reflexes with root value
 - Superficial abnormal ,cremasteric, plantar
 - Deep- Biceps, Triceps, supinator knee and ankle
 - Visceral –Swallowing ,bladder, bowel
 - Glabellar tap ,grasp reflex
 - Cerebellar signs- Finger nose, dysdiadochokinesia etc
 - skull and spine examinations
 - Meningeal sign

4. Approach to cases

- Hemiplegia
- Paraplegia
- Quadriplegia
- Bells palsy
- Cerebellar ataxia
- Ramsay hunt syndrome
- Parkinsons
- Myasthenia gravis
- Peripheral Neuropathy

EVALUATION

Attendance requirements are 75% attendance in theory and 80% in clinics in each of the terms separately

Formative Assessment (Internal Assessment)

Theory

Maximum marks 30 computed from maximum 300 marks obtained in two written examination and two viva voce as follows:

	Theory	Viva voce
VI semester	50	20
VIII semester	50	20
IX semester	120	40
Preliminary	(2 papers of 60 marks each)	
Total	220	80 = 300

The mark obtained out of these 300 marks, will be converted into 30 marks.

Practical

Maximum marks 30, computed from maximum 300 marks, obtained from 10 practical examination as shown below.

Posting	Practical	Journal	Total
Clinical 2 nd posting (4th sem)	25	5	30
Clinical 3 rd posting (5th Sem)	25	5	30
Clinical 4 th posting(6th Sem)	25	5	30
Clinical 5 th posting(8th Sem)	25	5	30
Clinical 6 th posting (9th Sem)	25	5	30
Dermatology			20
Psychiatry			10
Pulmonary Medicine			10
Critical Care			10
Prelim Exam			100

Total Marks 300

The marks obtain out of 300 will be converted into 30marks.

The candidate must secure at least 35 % marks separately in theory and practical in 35 % in internal assessment to be eligible to appear for the university Examination.

Summative Assessment (University Examination)

University Examination

Theory:

Examination will consist of two written papers of two hours duration and carrying maximum 60 marks in each paper.

Distribution of the topics and the pattern of question paper will be as follows:

Paper I

Section I

(30marks)

1) Long Question (Medicine)	10 marks
2) Short notes on (any 5 out of 6) (4 marks each)	20 marks

The topics to be covered in this section are as follows:

- Cardiovascular system
- Respiratory system
- Haematology
- Tuberculosis

Section II

(30 marks)

1) Long Question (Medicine)	10 marks
2) Short notes on any 5 out of 6 (4 marks each)	20 marks

The topics to be covered in this section are as follows:

- Central Nervous system
- Therapeutics
- Renal Diseases, endocrinology
- Metabolic disease including Diabetes mellitus

Paper II

Section I

(30 marks)

1) Long Question (Medicine)	10 marks
2) Short notes on (any 5 out of 6) (4 marks each)	20 marks

The topics to be covered in this section are as follows:

- Tropical and infectious diseases
- Medical emergencies
- Rheumatology including collagen diseases
- Gastro intestinal system including hepato biliary system

Section II

(30 marks)

1) Long Question (Medicine)	10 marks
2) Short notes on any 5 out of 6 (4 marks each)	20 marks

- 3 Short notes on Psychiatry
- 3 Short notes on Dermatology
-

The topics to be covered in this section are as follows:

- Dermatology
- Leprosy
- STD
- Psychiatry
- Nutrition and geriatrics
- Toxicology

PRACTICAL

Practical examination-

Long case - 50 marks

Short case (two of 25 each) -50 marks

Viva voce -20 marks

(ECG -4; X-Ray -4 ; Prescription -4;)

Drugs -4; Instrument -2; Interpretation of Laboratory results -2

(Viva voce marks- 20 will be added to theory marks)

Total Assessment (Final + Internal)

Theory

Theory Paper (I +II)	120 marks
Viva Voce	20 marks
Internal Assessment	30 marks
Total	170 marks

Practical

Final Practicals	100 marks
Internal Assessment	30 marks
Total	130 marks

Candidate will be declared pass in the subject only when at least 50 % marks are obtained separately in theory and practical examination.

Recommended Books and Journals

TEXT BOOKS

- 1 Davidson's Principles and Practice of Medicine
- 2 API textbook of medicine
- 3 Harrison's Principles of Internal Medicine (Reference Book)
- 4 Cecil Textbook of Medicine(Reference Book)
- 5 Hutchison's Clinical Methods
- 6 Washington manual of medical therapeutics
- 7 Macleod's Clinical Examination
- 8 Kumar and Clark's Clinical Medicine (Reference Book)
- 9 Bates' Guide to Physical Examination and History-Taking(Reference Book)

BHARATI VIDYAPEETH DEEMED UNIVERSITY MEDICAL
COLLEGE
DEPARTMENT OF MICROBIOLOGY

[I] GOAL

The broad goal of the teaching of undergraduate students in Microbiology is to provide an understanding of the natural history of infectious disease in order to deal with the etiology, pathogenesis, laboratory diagnosis, treatment and control of infections in the community.

[II] OBJECTIVES

(a). KNOWLEDGE

At the end of the course, the student should be able to:

1. describe the infective micro-organisms of the human body and describe the host parasite relationship.
2. enlist pathogenic micro-organisms (bacteria, viruses, parasites, fungi) and describe the pathogenesis of the diseases produced by them.
3. indicate the modes of transmission of pathogenic and opportunistic organisms and their sources, including insect vectors responsible for transmission of infection.
4. describe the mechanisms of immunity to infections.
5. enlist the methods of disinfection and sterilization to control and prevent hospital and community acquired infections.
6. enumerate laboratory investigations regarding bacteriological examination of food, water, milk and air.
7. choose appropriate laboratory investigations required for clinical diagnosis.

(b). SKILLS

At the end of the course, the student should be able to:

1. choose and interpret laboratory investigations for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agent.
2. Identify the common infectious agents with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents.

3. Perform commonly employed bed-side tests for detection of infectious agents such as blood film for malaria, Filaria, Gram staining and AFB staining and stool sample for ova cyst.
4. choose the correct method of collection, storage and transport of clinical material for microbiological investigations.
5. describe the principles of immunology and its application in the diagnosis and prevention of infectious diseases including immunization schedule, and different vaccines available for the prevention of communicable diseases.
6. enumerate the methods of disinfection and sterilization and their application to control and prevent hospital and community acquired infections including biosafety precautions and waste disposal.
7. enumerate laboratory investigations regarding bacteriological examination of food, water, milk and air.

(c) INTEGRATION

The student should understand and be well equipped with the knowledge of prevalent infectious diseases and new emerging pathogens of national importance in relation to their clinical, therapeutic and preventive aspects.

[III] Competencies:

III semester

- General Microbiology
- Immunology
- Systemic bacteriology (to be continued...)

Competencies:

A. Knowledge: At the end of the III semester, the student should be able to:

1. describe the morphology, cultural characteristic, biochemical activity and virulence factors of infective micro-organisms
2. enlist the methods of disinfection and sterilization required in Microbiology service laboratory and to control and prevent hospital and community acquired infections.
3. describe the modes and sources of transmission of pathogenic organisms.

4. describe universal safety precautions, biomedical waste disposal.
5. give examples and explain genetic mechanisms of drug resistance in bacteria.
6. explain the various mechanisms and types of immunity.
7. enlist various immunological reactions and their role in diagnostic microbiology
8. describe normal and abnormal immune response and their role in the pathogenesis of various clinical conditions.

B. Skill : At the end of the course, the student should be competent to :

1. perform commonly used staining techniques like Gram stain and ZN stain.
2. choose the correct method of collection, storage and transport of clinical material for microbiological investigations.
3. interpret laboratory investigations (eg. culture, biochemical reactions, antibiotic sensitivity, serological reactions etc.) for the diagnosis of infectious diseases .
4. enlist methods of sterilization used, biomedical waste management and hand hygiene.

IV semester

- Systemic bacteriology
- Parasitology

Competencies:

A. Knowledge: At the end of the IV semester, the student should be able to:

1. list pathogenic bacteria and fungi and state their sources and modes of transmission
2. Describe the pathogenesis of the diseases produced by them
3. Select the appropriate laboratory procedures for identification of causative agents (bacteria and fungi).
4. Justify treatment, general measures and vaccines available for prevention of infections caused by bacteria and fungi.

B. Skill : At the end of the IV semester, the student should be competent to :

1. Perform commonly employed bed-side tests for detection of bacteria and fungi such as Gram staining, ZN staining.

2. Choose laboratory investigations for the diagnosis of infectious diseases caused by bacteria / fungi and correlate the clinical manifestations with the etiological agent.
3. Choose and interpret antimicrobial sensitivity tests to select suitable antimicrobial agents
4. Perform commonly employed bed-side tests for detection of infectious agents such as blood film for malaria, kala azar and stool sample for ova/cyst.

V semester

- Parasitology
- Mycology
- Virology
- Clinical Microbiology

Competencies:

A. Knowledge: At the end of the V semester, the student should be able to:

1. list pathogenic micro-organisms (Parasites and viruses) and describe the life cycle (for parasites) and pathogenesis of the diseases produced by them
2. Identify the common infectious agents with the help of laboratory procedures.
3. Describe the scope of immunotherapy and different vaccines available for prevention of communicable diseases.
4. Enumerate organisms causing various clinical syndromes. Describe laboratory diagnosis of these clinical syndromes

B. Skill : At the end of the V semester, the student should be competent to :

1. Perform commonly employed bed-side tests for detection of infectious agents such as blood film for Filariasis and stool sample for ova/cyst.
2. Analyze laboratory investigations for the diagnosis of parasitic, fungal and viral infectious diseases and to correlate the clinical manifestations with the etiological agent.
3. Organize various laboratory tests for diagnosis of clinical syndromes Caused by infectious agents

[IV]Teaching Schedule

Teaching Hours allotted: 250 hours

Learning methods: Lecture, practical and tutorial (seminars, quiz, debate and integrated seminars)

Theory - 100 hours

Practical– 102 hours

Tutorials -58 hours

Term wise distribution of teaching hours allotted:

Term		Theory	Practical	Tutorial
III term	General Microbiology	16	28	15
	Immunology	15		
	Syst.Bacteriology	05		
IV term	Syst. Bacteriology	23	38	14
	Parasitology	10		
V term	Parasitology	06	36	20
	Systemic bacteriology	04		
	Virology	15		
	Mycology	06		
	Clinical Microbiology			9
Total		100	102	58

III semester

A) Didactic lectures:

General Microbiology

1. History & scope of Microbiology
2. Morphology of bacteria –I (size ,shape, classification and anatomical structure of bacterium)
3. Morphology of bacteria –II (appendages of bacteria)
4. Physiology of bacteria
5. Culture Media
6. Sterilisation –I (definition, enumeration, sterilisation by heat)
7. Sterilisation- II (sterilisation by filtration, radiation, Chemical disinfection)
8. Bio medical waste disposal
9. Bacterial Genetics I (Basics of bacterial genetics, Mutation)
10. Bacterial Genetics II (Methods of gene transfer , role in drug resistance)
11. Basic molecular techniques-(PCR ,RT PCR and other methods)
12. Antibiotic sensitivity testing
13. Host parasite interaction –I (Sources, modes of infection)
14. Host parasite interaction –II (virulence factors of bacteria)
15. Host parasite interaction –III (Immunity- active and passive)
16. Automation in Microbiology-Bactec, Vitek, MaldiTOF, Flow cytometry, LPA,

Immunology

1. Introduction to Immunology
2. Antigen
3. Antibody
4. Antigen antibody reactions –I (Precipitation reaction)
5. Antigen antibody reactions –II (Agglutination ,CFT, RIA)
6. Antigen antibody reactions –III (Immunofluorescence and ELISA)
7. Structure and function of immune system I (Structure of immune system)
8. Structure and function of immune system II (Cells of immune system)
9. Immune response I (Humoral immune response)
10. Immune response II (Cell mediated Immune response)
11. Hypersensitivity reactions –I (Anaphylaxis)
12. Hypersensitivity reactions –II (Type II,III and type IV hypersensitivity)
13. Autoimmunity
14. Immunodeficiency
15. Transplant immunity

Systematic Bacteriology

1. Staphylococci I (Staph . aureus)
2. Staphylococci II (Coagulase negative staphylococci)
3. Streptococci
4. Pneumococci
5. Neisseria

B) Practicals

1. Microscopy I - demonstration
2. Morphology- I (Gram Staining)
3. Morphology- II - demonstration
4. Morphology- II (ZN staining)
5. Sterilisation
6. Culture Media
7. Systematic study of Bacteria-I (sample collection, transport and microscopy)
8. Systematic study of Bacteria-II (Culture, biochemical test, ABST)
9. Automation in Microbiology-Visit to laboratory
10. Antigen antibody reactions –I (Precipitation and Agglutination reactions)
11. Antigen antibody reactions –II(IFT,RIA and ELISA)
12. Staphylococci
13. Streptococci
14. Neisseria

C) List of tutorials:

1. History & Scope of Microbiology
2. Morphology
3. Gram Stain
4. Physiology & Growth requirements of Bacteria
5. Z.N.Stain
6. Sterilization
7. Culture Media
8. Antibiotic Sensitivity Testing
9. Bacterial Genetics
10. Infection
11. Immunity
12. Staphylococci
13. Streptococci & Pneumococci
14. Neisseria

IV semester:**A) Didactic lectures:**

1. Enterobacteriaceae I (E. coli)
2. Enterobacteriaceae II (Klebsiella, Proteus)
3. Shigella
4. Salmonella I (morphology, cultivation ,pathogenicity)
5. Salmonella II (laboratory diagnosis)
6. Vibrio cholera I (morphology, cultivation ,pathogenicity)
7. Vibrio cholera II (laboratory diagnosis)
8. Pseudomonas
9. Haemophilus and Bordetella
10. Brucella
11. Yersinia, Pasteurella

12. Corynebacterium
13. Bacillus and Non sporing anaerobes
14. Clostridium I- Cl. Perfringens
15. Clostridium II- Cl. Tetani
16. Clostridium III- Cl. Botulinum, Cl. difficile
17. Mycobacterium I- M. tuberculosis
18. Mycobacterium II- M. tuberculosis- laboratory diagnosis
19. Mycobacterium III – Atypical mycobacteria
20. Mycobacterium IV –M. leprae
21. Spirochetes I- T. pallidum
22. Spirochetes I- T. pallidum- Laboratory diagnosis
23. Spirochetes III-Borrelia, Leptospira

Parasitology

1. Introduction to Parasitology
2. Entamoeba histolytica
3. Nagleria and Acanthamoeba
4. Giardia & Trichomonas
5. Malaria I (morphology , life cycle)
6. Malaria II (laboratory diagnosis)
7. Leishmania
8. Toxoplasma ,Toxocara, Isospora and Cryptosporidium
9. Intestinal nematodes I(T.trichiura, E. vermicularis)
10. Intestinal nematodes II (Strongyloides, T. spirallis)

B) Practical:

1. Enterobacteriaceae- E. coli
2. Enterobacteriaceae- Klebsiella ,Proteus
3. Shigella
4. Salmonella
5. Vibrio/ Pseudomonas
6. Coccobacilli
7. Corynebacterium/ Bacillus
8. Clostridia
9. Mycobacteria
10. Spirochetes
11. Protozoa I (E. histolytica)
12. Protozoa II (G. lamblia, Trichomonas)
13. Malaria
14. Leishmania

C) Tutorials:

1. Enterobacteriaceae- E. coli
2. Enterobacteriaceae- Klebsiella ,Proteus
3. Shigella
4. Salmonella
5. Vibrio/ Pseudomonas

6. Coccobacilli
7. Corynebacterium/ Bacillus
8. Clostridia
9. Mycobacteria
10. Spirochetes
11. Protozoa I (E. histolytica)
12. Protozoa II (G. lamblia, Trichomonas)
13. Malaria
14. Leishmania

V semester

A) Didactic Lectures:

Parasitology:

1. Intestinal nematodes III (Ascaris, Ancylostoma)
2. Tissue nematodes I(Wuchereria bancroftii)
3. Tissue nematodes II (D. medinensis)
4. Cestodes I (T.solium, T. saginata)
5. Cestodes I (Echinococcus Granulosus, H.nana)
6. Trematodes- Schistosoma

Systemic Bacteriology:

7. Chlamydia, Mycoplasma
8. Rickettsia
9. Miscellaneous bacteria- Acinetobacter, Helicobacter, Campylobacter
10. Bioterrorism

Mycology

11. Mycology I- General, Laboratory diagnosis
12. Mycology II - superficial mycosis-Dermatophytosis
13. Mycology III – Subcutaneous mycosis, Actinomycetes
14. Mycology IV – Systemic mycosis (Cryptococcosis)
15. Mycology V -Systemic mycosis (Histoplasmosis, Blastomycosis, Coccidioidomycosis)
16. Mycology VI – Opportunistic fungal infections

Virology:

1. General properties of viruses and Bacteriophage
2. Virus- Host interaction, Life cycle of viruses
3. Laboratory diagnosis of viral infections
4. Herpes viruses (Herpes simplex)
5. Herpes viruses (Herpes zoster)
6. Retro viruses I (morphology, multiplication and pathogenicity)
7. Retro viruses II (laboratory diagnosis)
8. Rhabdo virus

9. Hepatitis viruses I (morphology, multiplication and pathogenicity)
10. Hepatitis viruses II (laboratory diagnosis)
11. Arbo viruses
12. Orthomyxo viruses
13. Paramyxo viruses
14. Picorna viruses
15. Emerging new viruses- H1N1, SARS, Ebola and Zika

Practicals:

1. Intestinal nematodes
2. Tissue nematodes
3. Cestodes
4. Trematodes
5. Entomology
6. Rickettsia
7. Mycology I
8. Mycology II
9. Virology

B) Tutorials:

Regular tutorials, student seminars & symposia shall be conducted in addition to lectures.

Students must know:

- Micro-organisms causing diseases & pathological lesions
- Methods of collection & transportation of specimens
- Methods of laboratory diagnosis
- Serological response produced by organisms
- Interpretation of laboratory report

No	Topic of Tutorial	Hrs
1	Gastrointestinal infections (diarrhoea and dysentery) and their laboratory diagnosis	1
2	Upper respiratory tract infection (patch and sore throat) and their laboratory diagnosis	1
3	Lower respiratory tract infection (pneumonia, bronchitis, etc.) and their laboratory diagnosis	1
4	Urinary tract infection and their laboratory diagnosis	1

5	Infections of the central nervous system (meningitis, encephalitis, brain abscess) and their laboratory diagnosis	1
6	Wound infections and pyogenic infections	1
7	Septicemia and laboratory diagnosis and PUO	1
8	Eye infections and their laboratory diagnosis	1
9	Sexually transmitted disease (STD) and their laboratory diagnosis (genital ulcerative disease)	1

SLOs

Sr. No.	Topic Theory	SLOs At the end of lecture student should be able to-	
		Must know	Desirable to know
1	History & scope of Microbiology	- Describe the contributions of Louis Pasteur, Robert Koch, Semmelweis, Lister, Paul Erlich in Microbiology - Describe Koch's postulates - Describe scope of molecular techniques in diagnosis of infectious diseases	Nobel prize winners
2	Morphology of bacteria –I	• Difference between prokaryotic cell and Eukaryotic cell • Describe the structure, function and demonstration methods of bacterial cell and its components • Basis of classification of bacterial cell based on cell wall properties	
3	Morphology of bacteria –II	• Describe structure, chemical composition, function and demonstration methods of capsule, spore, flagella and fimbriae • Describe bacterial growth curve	
4	Physiology of bacteria	-give an account of nutritional requirement of bacteria -distinguish between aerobic and anaerobic respiration of bacteria -define generation time, autotrophs, heterotrophs, aerobes, anaerobes, capnophilic, psychrophilic, mesophilic, thermophilic bacteria -explain growth and growth curve of bacteria - an account factors affecting growth of bacteria	
5	Culture Media	-classify culture media - define different types of culture media -give applications of culture media	Important constituents of culture media
6	Sterilization –I	• Define sterilization, disinfection and antisepsis • Principle of sterilization • Enumerate physical and chemical methods of sterilization.	

		• Describe physical methods of sterilization	
7	Sterilization- II	• Enumerate chemical disinfectants • Describe mechanism of action and applications of disinfectants • List agents and equipment used for sterilization • List applications of sterilization • Describe quality monitoring of sterilization	
8	Bio medical waste disposal	• Definition of Biomedical waste • Importance of waste segregation and disposal • Colour coding for Biomedical waste segregation • Method of disposal of sharps. • Protection of Health care workers from injury by sharps	
9	Bacterial Genetics I	• Definition of bacterial genetics • Define mutation and describe the types of mutations • Mechanism of transfer of genetic material in bacterial cell and its importance	
10	Bacterial Genetics II	• Methods of transfer of drug resistance in bacteria • Understanding the concept of genetic engineering and its applications. • Use of Restriction endonuclease in genetic engineering • DNA probes • Blotting techniques • Understanding the principle of PCR	
11	Antibiotic Sensitivity testing methods	• Enumerate different methods for performing ABST • Describe Procedure for performing ABST • Describe factors affecting ABST • State controls used for ABST • Define MIC and MBC • Interpret results of ABST	
12	Host parasite interaction –I (Infection)	• Write definitions of various terms related to infection • Enumerate different sources of infection with examples • Describe different routes of transmission of infection with examples • Enumerate different factors affecting	

		virulence of bacteria and describe their role in pathogenesis of bacterial diseases.	
13	Host parasite interaction –II (Infection)	Enumerate different factors affecting virulence of bacteria and describe their role in pathogenesis of bacterial diseases.	
14	Host parasite interaction –III (Immunity)	Enumerate different factors affecting virulence of bacteria and describe their role in pathogenesis of bacterial diseases.	
15	Introduction to Immunology	- Define immunity - Write classification of immunity - Define and tell types of innate immunity - Describe factors affecting innate immunity - Discuss mechanisms of innate immunity - Define Acquired immunity - Write classification of acquired immunity - Describe differences between Active and Passive immunity	
16	Antigen	- Define and enumerate types of antigens - describe determinants of antigenicity - describe antigenic specificity - describe biological classes of antigens.	
17	Antibody	- describe the structure of antibody - describe Immunoglobulin classes – IgG, IgM, IgE, IgA, IgD and their properties	
18	Antigen antibody reactions –I	- Define serological reactions - Enumerate types of Ag-Ab reactions - describe the stages and features of Ag-Ab reactions - describe the specificity and Sensitivity of test - Define precipitation - describe mechanism and types of Precipitation	
19	Antigen antibody reactions –II	- define agglutination - describe mechanism and types of agglutination, complement fixation test, neutralization, opsonisation	
20	Antigen antibody reaction – III	describe principle of ELISA, immuno florescence, immuno blot techniques, RIA, immunochromatography, immuno electron microscopy	

		- Describe clinical applications. - applications of Ag-Ab reactions	
21	Structure and function of immune system I	- describe the lymphoid system – central and peripheral lymphoid organs - describe the cells of the lympho- reticular system – lymphocytes, and their types, null cells, phagocytic cells and their types,	
22	Structure and function of immune system II	- describe major histocompatibility complex/ HLA complex - describe HLA typing and its applications.	
23	Immune response I	- Describe development, basic pattern of the immune response - Describe organs and types of the cells of immune system - Natural and passive immunity and natural versus specific immunity	
24	Immune response II	- Describe humoral and cell mediated immunity - Describe innate/natural/adaptive immune responses - Describe role of T and B cells	- Clonal selection theory -assessment of host immune system
25	Hypersensitivity reactions –I	- Define hypersensitivity - Classify hypersensitivity - Describe type I hypersensitivity and its mechanism - Describe manifestations of anaphylaxis and tests for anaphylaxis	
26	Hypersensitivity reactions –II	- Describe type II,III and type IV hypersensitivity - Describe mechanisms of type II,III and type IV	
27	Autoimmunity	- Define autoimmunity - Describe mechanism and pathogenesis of autoimmunity - Describe super antigens and HLA system	
28	Immunodeficiency	-classify immunodeficiency diseases -give example of each type -specify the laboratory tests for detection	
29	Transplant immunity	-classify transplants -explain mechanism of allograft rejection and graft versus host reaction -Tell how graft rejection can be prevented	-tumour immunology
30	Staphylococci I		

		-Describe morphology, cultural characteristics of <i>S. aureus</i>. -Describe virulence factors of <i>S. aureus</i> - Enumerate various tests used for confirmation of <i>S.aureus</i> spp	
31	Staphylococci II	-Describe various infections caused by <i>S.aureus</i>. - Describe laboratory diagnosis of infections caused by <i>S.aureus</i>.	Describe in short about drug resistance in <i>S.aureus</i>. Describe hospital acquired infections caused by <i>Staphylococci</i>
32	Streptococci	-classify Streptococci -describe morphological features and cultural characteristics of <i>Streptococcus pyogenes</i> -tell antigens and their cross reactivity with normal tissue -list virulence factors with their significance -discuss pathogenicity -describe laboratory diagnosis -specify treatment and prevention of <i>Streptococcus pyogenes</i> infection	- biochemical reactions ,resistance, - epidemiology of <i>Streptococcus pyogenes</i>. -Group B streptococci -Enterococcus -viridance group of streptococci
33	Pneumococci	-describe morphology and cultural characteristics of Pneumococci -tell antigens/virulence factors with their significance - describe pathogenicity and laboratory diagnosis of Pneumococcal infections. -specify treatment and prophylaxis -differentiate between <i>Streptococcus pneumonia</i> and viridans group of streptococci	, biochemical reactions ,resistance, - epidemiology
34	Neisseria	-describe morphology, cultural characteristics , pathogenesis and pathogenicity of <i>N. meningitidis</i>. - describe laboratory diagnosis of meningitis - describe morphology, cultural characteristics, pathogenesis and pathogenicity of <i>N. gonorrhea</i>. - describe laboratory diagnosis of gonorrhea	-biochemicals -antigenic structure -virulence factors -epidemiology
35	Enterobacteriaceae I – <i>E. coli</i>	Classification, Morphology, Culture & virulence, viability, Diseases, Pathogenesis, Laboratory diagnosis	
36	Enterobacteriaceae II – <i>Klebsiella</i> ,	Classification, Morphology, Culture & virulence, viability, Diseases, Pathogenesis,	

	Proteus	Laboratory diagnosis	
37	Shigella	Classification, Morphology, Culture & virulence, viability, Diseases, Pathogenesis, Laboratory diagnosis	
38	Salmonella I	Classification, Morphology, Culture & virulence, viability,	-Resistance , -principle of Kauffman- White classification of salmonellae -gastroenteritis and septicemia caused by salmonellae
39	Salmonella II	Diseases, Pathogenesis, Laboratory diagnosis, Immune response	
40	Vibrio cholera I	Classification, Morphology, Culture & virulence, viability,	
41	Vibrio cholera II	Diseases, Pathogenesis, Laboratory diagnosis, Immune response	
42	Pseudomonas	Describe Morphology, viability, virulence, diseases caused, and laboratory diagnosis	
43	Haemophilus	Morphology, cultural characteristics virulence, and laboratory diagnosis.	
44	Brucella	Morphology, cultural characteristics virulence, and laboratory diagnosis.	
45	Bordetella	Morphology, cultural characteristics virulence, and laboratory diagnosis.	
46	Yersinia, Pasteurella, Francisella	-list medically important species of yersinia -describe morphology of Y. pestis -describe pathogenicity Y. pestis -describe laboratory diagnosis of plague -review epidemiology of plague -specify treatment and prophylaxis	-Cultural characteristics biochemicals and virulence factors, resistance of Y. pestis -Pasteurella, Francisella
47	Corynebacterium	Describe Morphology, cultural characteristics, diseases, pathogenesis, lab diagnosis. and prophylaxis	Classification
48	Bacillus	Describe the morphology, cultural characteristic, virulence, diseases, lab diagnosis. Prevention and control.	biochemical reaction
49	Clostridium I- Cl. perfringens	-Classify medically important clostridia -describe morphology of Cl. Perfringens -describe cultural characteristics -describe Nagler's test -describe pathogenesis of gas gangrene -discuss laboratory diagnosis of gas gangrene	-Biochemical reactions -resistance

50	Clostridium II- Cl. tetani	- describe morphology of Cl. tetani -describe cultural characteristics -enumerate toxins produced by Cl. tetani with their actions -discuss laboratory diagnosis of tetanus -explain immunization against tetanus	-biochemical reactions -resistance
51	Clostridium III- Cl. botulinum, Cl. difficile	-describe morphology and cultural characteristics of Cl. botulinum -explain toxin produced by Cl. botulinum with its actions -describe pathogenesis of Cl. botulinum -discuss laboratory diagnosis of botulism	
52	Non sporing anaerobes	-classify non sporing anaerobes -enumerate bacteria responsible for anaerobic infections -describe laboratory diagnosis of anaerobic infections	
53	Mycobacterium I- M. tuberculosis	- describe morphology and cultural characteristics of M. tuberculosis -differentiate between M. tuberculosis and M. bovis -explain pathogenicity and pathogenesis M. tuberculosis	-Classification of Mycobacteria -antigenic structure -Biochemical reactions -resistance
54	Mycobacterium II- M. tuberculosis	-describe laboratory diagnosis of tuberculosis -explain tuberculin test -describe prophylaxis and treatment of tuberculosis	-epidemiology- Koch's phenomenon -sensitivity testing
55	Mycobacterium III – Atypical mycobacteria	-classify atypical mycobacteria and give examples of each group -enumerate diseases caused by atypical mycobacteria	-Laboratory diagnosis -treatment
56	Mycobacterium IV –M. leprae	- Describe morphology of M. leprae. - Write methods used for cultivation of M. leprae. - Write classification of leprosy. - Describe pathogenesis of leprosy. - Differences between Lepromatous leprosy & Tuberculoid leprosy - Describe laboratory diagnosis of leprosy.	Epidemiology
57	Spirochetes I- T. pallidum	-list medically important spirochetes -describe morphology of T. pallidum -Write methods for cultivation of T. pallidum	-cultivation, antigenic structure, resistance and epidemiology
58	Spirochetes II- T. pallidum	- Write pathogenicity Of T.pallidum - describe laboratory diagnosis of syphilis	- specify treatment and prophylaxis

			nonvenereal trepanomatoses
59	Spirochetes III- Borrelia, Leptospira	- Describe in short about diseases caused by Borrelia and write laboratory diagnosis of relapsing fever. - Describe morphology of Leptospira. - Describe pathogenesis of Leptospirosis. - Describe laboratory diagnosis of Leptospirosis.	cultivation, antigenic structure, resistance and epidemiology
60	Chlamydia	-Describe the laboratory diagnosis of (LGV) lymphogranulomavenerum - Describe Ocular infections caused by Chlamydia and write laboratory diagnosis of Trachoma.	
61	Mycoplasma	. Describe general characteristics of Mycoplasma. -Describe morphology and cultural characteristics of M. pneumoniae -describe primary atypical pneumonia and lab diagnosis of Primary	
62	Rickettsia	- Enumerate diseases caused by different rickettsia. - Write different vectors transmitting rickettsial infections. - Describe laboratory diagnosis of Rickettsial infections. - Describe Weil-Felix test.	
63	Actinomycetes	• Introduction:Actinomyces & Nocardia • Describe Clinical forms • Describe Actinomyotic mycetoma	
64	Miscellaneous bacteria- Legionella, Listeria, Helicobacter, Compylobacter	• Legionella:Legionnaires' disease,Epidemiology • Helicobacter:Morphology,Pathogenecity, Diagnosis of - compylobacter:Species,Pathogenesis	
65	Mycology I- General, Laboratory diagnosis	• Classification of fungi • Fundamental characteristic features of fungus • Laboratory diagnosis: Microscopy-stains used, KOH mount, Culture • Describe sexual and asexual form of spores.	
66	Mycology II- Superficial mycosis, Cutaneous mycosis	• Classification : Surface infection and cutaneous infections • Surface infection :Pathogenecity of Pityriasis Versicolor,Taenia nigra,peidra	

	Dermatophytes , candidiasis	• Dermatophytosis: Classify dermatophytes • Describe pathogenicity of dermatophytes. • Laboratory diagnosis of dermatophytosis	
67	Mycology III- Subcutaneous mycosis	• Enumerate fungi causing subcutaneous mycosis • Organisms causing mycetoma, Epidemiology, Differential diagnosis based on characteristic features of granules and filaments. • Causative agents of chromoblastomycosis and main diagnostic features • Mode of infection ,laboratory diagnosis of Sporotrichosis • Pathogenecity, epidemiology and histopathology of Rhinosporidiosis.	
68	Mycology IV – Systemic mycosis (cryptococcosis)	• Morphology ,cultural characteristic and pathogenicity of Cryptococcus neoformans • Laboratory diagnosis of Cryptococcosis • Diagnosis of Cryptococcal meningitis	
69	Mycology V - Systemic mycosis (Histoplasmosis, Blastomycosis, Coccidioidomycosis)	• List fungi causing systemic infections • Morphology, pathogenicity and laboratory diagnosis of Histoplasmosis, Blastomycosis, Coccidioidomycosis	
70	Mycology VI – Opportunistic fungal infections	• Predisposing conditions for the opportunistic fungal infections • List fungi causing opportunistic infections • Describe Candidiasis. Laboratory diagnosis of candidiasis • Morphology, Pathogenicity of Aspergillus, penicillium and mucor and diagnosis of mycosis due to them	
71	Introduction to Parasitology	- Define parasite, host - Enlist types of parasites and host - Classify parasites - Describe laboratory diagnosis (sample collection, methods of preservation, different stains used , culture and serological tests.)	
72	Entamoeba histolytica I	- Describe morphology of parasite - Describe Life cycle - Describe Pathogenicity – intestinal and extra-intestinal	- Morphology, Life cycle , Pathogenicity Of Naeglaeria and

			Acanthamoeba sp. of the parasite
73	Entamoeba histolytica II & soil amoebae	- Describe Pathogenesis - Describe Laboratory diagnosis	
74	Giardia & Trichomonas	- Describe Morphology of parasite - Describe Life cycle - Describe Pathogenesis and pathogenicity - Describe Laboratory diagnosis	
75	Malaria I	- Enlist definitive and intermediate host - Describe Life cycle of parasite – human and mosquito cycle	
76	Malaria II	- Describe Morphology of different stages of the parasite - Describe Pathogenesis - Describe Pathogenicity /Complications - Describe Lab diagnosis	
77	Leishmania	• Describe Morphology, Life cycle of L. donovani, • Describe Pathogenicity/ Clinical presentation • Describe laboratory diagnosis of Kala Azar	
78	Misc. Sporozoa	• Describe Morphological forms, • Describe life cycle, pathogenicity • Describe the laboratory diagnosis of Toxoplasma and cryptosporidium	
79	Cestodes I	-Enumerate cestodes -Describe morphology, life cycle, and pathogenicity of T. solium, T. saginata -Describe lab diagnosis of T. solium, T. saginata infections	
80	Cestodes II	-Describe morphology, life cycle, and pathogenicity of E. granulosus -Describe lab diagnosis of hydatid cyst disease -Describe morphology, life cycle, and pathogenicity of H. nana -Describe lab diagnosis of H. nana infection	morphology, life cycle, and pathogenicity of D. latum -lab diagnosis of diphyllbothriasis
81	Intestinal nematodes I	• Write classification of Nematodes based on habitat with examples • Describe morphology of adult worm Ascaris and eggs of Ascaris, life cycle, clinical infections and laboratory diagnosis of Ascaris lumbricoides	
82	Intestinal	Describe	

	nematodes II	• morphology, • life cycle, pathogenicity • and laboratory diagnosis of <i>Ancylostoma duodenale</i>	
83	Intestinal nematodes III	Describe • morphology, • life cycle, pathogenicity and lab diagnosis of <i>T. trichura</i>, <i>T. spiralis</i> and <i>S. stercoralis</i> in short	
84	Tissue nematodes I	-Write classification of tissue nematodes based on habitat with examples Describe morphology of adult worm and microphilaria of <i>W. bancrofti</i> -describe life cycle, pathogenecity and laboratory diagnosis of <i>W. bancrofti</i>	Loa loa, <i>Onchocerca volvulus</i>
85	Tissue Nematodes II	-Differentiate between <i>W. bancrofti</i> and <i>Brugia malai</i> -Describe morphology of adult worm and microphilaria of <i>D. medinensis</i> -describe life cycle, pathogenecity and laboratory diagnosis of <i>D. medinensis</i>	
86	Trematodes I	-Describe morphology, life cycle, pathogenicity and laboratory diagnosis of schistosomes with differences between three species	
87	General properties of viruses I	-Describe biological and physical properties of viruses - classify viruses and properties of DNA and RNA viruses -Describe morphology of viruses -Enumerate methods of cultivation of viruses-	
88	General properties of viruses II	- describe life cycle of viruses - describe pathogenesis and diseases process - describe immune response in viral diseases	
89	Bacteriophage	-describe morphology of Bacteriophage - explain lytic and lysogenic life cycles -explain clinical importance and applications	bacteriocin
90 & 92	Herpes viruses I & II	- describe structure of Herpes virus - describe clinical manifestations and pathogenesis of Herpes - describe laboratory diagnosis of herpes infection	
92	Retro viruses I	- describe structure of HIV - describe clinical manifestations of HIV	

		disease - describe pathophysiology and pathogenesis of HIV	
93	Retro viruses II	- describe laboratory diagnosis of HIV disease - describe preventive measures of HIV infection	
94	Rhabdo virus	Describe • morphology of Rhabdovirus, • pathogenesis, • clinical presentation, • laboratory diagnosis • prophylaxis of rabies	
95	Hepatitis viruses I	• Types of hepatitis virus: A,E,C,B,D, • Mode of infection, complications of hepatitis infection • Diagnosis of Hepatitis A and E virus • Prevention	
96	Hepatitis viruses II	• Mode of transmission • Serological markers of Hepatitis B virus • Diagnosis of Hepatitis B and C infection • Prevention of infection in high risk groups including health care workers.	
97	Arbo viruses	• Definition and classification • Important arboviruses: JE, Yellow fever, Dengue, Chikungunya, KFD • Pathogenesis and vectors • Clinical features and diagnosis of Dengue • Vaccine for yellow fever • Prevention	
98	Orthomyxo viruses	• Definition • Classification • Antigenic structure & classification of influenza virus • Importance of antigenic variation: Antigenic drift & shift in epidemiology of Influenza • H1N1 pandemic • Laboratory diagnosis • Prevention including Influenza vaccine	
99	Paramyxo viruses	• Classification • Pathogenesis, clinical picture, mode of transmission and complications of Mumps and measles virus infection • MMR vaccine	
100	Picorna viruses	• Pathogenesis of poliomyelitis	

		• Polio vaccine ,Difference between Salk and Sabin vaccine • Pulse polio programme	
Practical		SLO At the end of III semester practical, student should be able to -	
		Must know	Desirable to know
1	Microscopy	-Identify parts of compound microscopes -demonstrate slides under microscope -see wet mount of bacterial suspension using DGI -specify types of microscopes with principle and application	Micrometry
2	Morphology- I	-see Gram staining demonstration -identify Gram positive and Gram negative bacteria -draw diagrams of Gram positive and Gram negative cocci and bacilli	
3	Morphology –I	-perform Gram staining -demonstrate and identify Gram character of bacteria -specify modifications ,principle and theories of Gram staining - specify examples and clinical importance of Gram staining	
4	Morphology- II	-see ZN staining demonstration -identify AFB in smears -draw diagrams of various AFB bacilli	- grading of smear -cultivation of My. tuberculosis
5	Morphology –II	- Perform ZN staining - specify modifications and principle of ZN staining - demonstrate AFB in sputum smears - specify examples and clinical importance of ZN staining	
6	Sterilisation	-identify sterilisation instruments -see working of autoclave, Hot air oven, biosafety cabinet ,etc -select the proper method of sterilisation for various article in Microbiology -identify role of chemical disinfectant and their application in hospital. -specify management of biomedical waste disposal	
7	Culture Media	-identify and classify culture media -specify type, constituents, indicator used,	Contents of media

		sterilisation method and application of blood agar, Mac Conkey's agar, chocolate agar, L J medium, Loeffler's serum slope, Wilson-Blair's medium, RCM, Alkaline Peptone water, Nutrient broth, Sabouraud's	
8	Systematic study of Bacteria-I	-specify various samples collection methods and their transport - demonstrate microscopic observation of bacteria -specify methods of isolation of bacteria in pure culture form	
9	Systematic study of Bacteria-II	-interpret biochemical tests used for identification of bacteria -interpret ABST plate - apply uses of animal inoculation in diagnosis of bacterial infections	
10	Antigen antibody reactions –I	- enlist Ag-Ab reactions - describe applications of precipitation and agglutination reaction - Interpret VDRL test, Widal test	
11	Antigen antibody reactions –II	- describe applications of CFT, Immunoflorescence and ELISA - interpret ELISA test	
12	Staphylococci	- perform Gram stain on clinical sample and identify Staphylococci - Interpret coagulase test and biochemical reactions for diagnosis of infections due to Staphylococci, ABST for Staph.aureus	Detection of MRSA
13	Streptococci	- perform Gram stain on clinical sample and identify Streptococci - interpret biochemical reactions of Streptococci and serological tests for diagnosis of infections due to Streptococci	
13	Neisseria	- perform Gram stain on clinical sample and identify N.gonorrhoe and N.meningitidis - describe laboratory diagnosis	
15	Enterobacteriaceae- E. coli	- enumerate characteristic of Enterobacteriaceae member - Describe sample collection and laboratory diagnosis of UTI , diarrhoea and pyogenic infections due to Esch. coli	
16	Enterobacteriaceae- Klebsiella ,Proteus	- Describe sample collection and laboratory diagnosis of UTI , diarrhoea and pyogenic infections due to Klebsiella	

		pneumoniae and Proteus sps	
17	Shigella	- Enumerate species of Shigella - Describe sample collection and laboratory diagnosis of bacillary dysentery.	
18	Salmonella	- Describe sample collection and laboratory diagnosis of typhoid and paratyphoid fever - Interpret Widal test	
19	Vibrio/ Pseudomonas	- Classify - classical and El Tor vibrio - Describe sample collection and laboratory diagnosis of cholera	Halophillic vibrios
20	Coccobacilli	- Describe sample collection and laboratory diagnosis of whooping cough, H.influenza infections , plague and brucellosis	
21	Corynebacterium/ Bacillus	- Describe sample collection and laboratory diagnosis of diphtheria - Describe sample collection and laboratory diagnosis of malignant pustule and food poisoning due to Bacillus sp	
22	Clostridia	- Describe sample collection and laboratory diagnosis of gas gangrene - Describe sample collection and laboratory diagnosis of tetanus - Describe sample collection and laboratory diagnosis of food poisoning due to Cl.botulinum	
23	Mycobacteria	- Describe sample collection and laboratory diagnosis of pulmonary and extra pulmonary tuberculosis - Describe sample collection and laboratory diagnosis of leprosy - Describe sample collection and laboratory diagnosis of infections due to atypical mycobacteria	
24	Spirochetes	- Describe sample collection and laboratory diagnosis of relapsing fever, fusospirochetosis - Describe sample collection and laboratory diagnosis of weils disease - Describe sample collection and laboratory diagnosis of syphilis	
25	Rickettsia	- Describe sample collection and laboratory diagnosis of typhus fever - Interpret Weil-felix reaction	
26	Mycology I	- Classify fungi	

		- Classify mycosis and enlist fungi causing superficial mycosis - Describe sample collection and laboratory diagnosis of Dermatophytosis, Candidiasis - identify fungi from clinical samples	
27	Mycology II	- Describe sample collection and laboratory diagnosis of Mycetoma - Describe sample collection and laboratory diagnosis of Rhinosporidiosis, Sporotrichosis - Describe sample collection and laboratory diagnosis of Cryptococcosis - Describe sample collection and laboratory diagnosis of Histoplasmosis - Describe sample collection and laboratory diagnosis of opportunistic mycosis	
28	Introduction to parasitology	-Types of host -Classification of parasites -Laboratory diagnosis: Collection of specimens, transport. -Fixatives used for preservation of stool sample. -Examination of stool for ova/cyst by direct/concentration method (salt floatation and formal-Ether methods) and reporting -Performance of stains- Leishman, Giemsa, Modified Acid fast, Toluidine Blue O etc	
29	Protozoa I (E. histolytica)	1. Collection of specimens 2. Difference between amoebic dysentery and bacillary dysentery. 3. Draw the diagram and show the different characteristics of trophozoites and cyst of various amoeba. 4. Examination of stool for cyst , trophozoite by direct/concentration method	
30	Protozoa II (G. lamblia, Trichomonas)	Laboratory diagnosis for giardiasis, trichomonas infection- detection of trophozoite and cyst by wet mount preparation.	
31	Malaria	-classify malarial parasite -identify different stages of malaria parasite in PBS	
32	Leishmania	-Describe sample collection and laboratory	

		diagnosis of kala azar	
33	Cestodes	- enlist Cestodes - Describe sample collection and laboratory diagnosis of taeniasis, hydatid cyst	
34	Intestinal nematodes	- Enumerate intestinal nematodes - Describe sample collection and laboratory diagnosis of roundworm, hookworm, pinworm, threadworm and Strongyloides infection	
35	Tissue nematodes	- Enumerate tissue nematodes - Describe sample collection and laboratory diagnosis of Filariasis and guinea worm infection	
36	Trematodes	- Enumerate Trematodes - Describe sample collection and laboratory diagnosis of schistosomiasis	
37	Entomology	- Identify vectors for infectious diseases - Describes diseases transmitted by them	

[V] Assessment

Examination Schedule:

I - Internal assessment:

Theory:

Maximum 15 marks, computed from maximum 300 marks, obtained in 5 written examinations and three viva voce as below-

	Semester	Written	Viva
III semester	Mid term	25	-
	Term end	50	25
IV semester	Mid term	30	-
	Term end	50	25
V semester	Preliminary exam	80	15
Total		235	65

The marks obtained out of 300 will be converted into out of 15

Practical:

Maximum 15 marks, computed from maximum 150 marks, obtained in three practical examinations as below-

Semester	Exam	Exercise					Marks
		Spots	Gram	ZN	Stool	Journal	
III semester	Term end	20	10	10	--	10	50
IV semester	Term end	30	15	10	10	10	75
V semester	Preliminary exam	05	05	05	05	05	25
Total							150

The marks obtained out of 150 will be converted into out of 15

The student must secure at least fifty percent marks separately in theory and practical in internal assessment to be eligible to appear for the University Examination.

II – University Examination:

Theory-

Examination will consists of two written papers each of 2 hours duration and carrying maximum 40 marks in each paper.

Paper I – (General Microbiology and systemic bacteriology)

Question 1

10 marks

- a) Applied systemic bacteriology 5
- b) Applied systemic bacteriology 5

Question 2

10 marks

- a) Define following terminology in Microbiology 4
- b) Give two examples of the following (General Microbiology) 3
- c) Give two examples of the following (Systemic microbiology) 3

Question 3

10 marks

- a) General Microbiology 4
- b) General Microbiology 3
- c) General Microbiology 3

Question 4

10 marks

Write short notes on any five out of six (two marks each)

Paper II – (Mycology, Virology, Immunology, Parasitology)

Question 1

10 marks

- a) Applied virology /Parasitology/Mycology 5
- b) Applied Parasitology/Virology/Mycology 5

Question 2

10 marks

- a) Applied immunology 4
- b) Immunology 3
- c) Immunology 3

Question 3

10 marks

- a) Mycology/Parasitology/virology 4
- b) Parasitology/Mycology/virology 3
- c) Mycology/Parasitology/virology 3

Question 4

10 marks

Write short notes on any five out of six (two marks each)

Practical:

Maximum marks - 25 marks

- a) Spots 10 marks
- b) Bacteriology 10 marks
- c) Parasitology 05 marks

Total marks: 25 marks
d) Viva voce- 15 marks (to be added to theory marks)

Candidate will be declared pass in the subject only when at least fifty percent marks are obtained in theory and practical examinations.

[VI] Suggested Reading

A) Textbook

1. Textbook of Microbiology- R.Anathanarayan, C K Jayram Panikar
2. Textbook of Microbiology- P Chakraborty
3. Textbook of Medical Parasitology- K D Chattarjee
4. Textbook of Medical Parasitology- Karyakarte R P and Damle A S

B) Reference books -

1. Mackie McCartney practical Medical Microbiology- Colle J G, Fraser A G
2. Medical Mycology(Emmons)- Kwon-Chung
3. Review of Medical Microbiology- Jawetz
4. Koneman's colour atlas and Textbook of diagnostic Microbiology, 6th edition
-Elmer Koneman
5. Bailey Scott's diagnostic microbiology: latest edition
6. Essential Immunology by Ivan Roitt



Department of Obstetrics and Gynecology
Bharati Vidyapeeth University Medical College
Syllabus for M.B.B.S.

(I) GOALS:

The broad goal of the teaching of undergraduate students in Obstetrics and Gynecology is that he /she shall acquire understanding of anatomy, physiology and pathophysiology of the reproductive system.

The student shall learn the diagnostic and treatment modalities of management of common clinical conditions related to Obstetrics & Gynecology.

(II)OBJECTIVES:

At the end of the course, the student shall be able to:

1. Outline the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it.
2. Diagnose normal pregnancy, labour, puerperium and learn the management related to common obstetric emergencies.
3. List the leading causes of maternal, perinatal morbidity and mortality.
4. Understand the principles of contraception and various techniques/methods employed, methods of medical termination of pregnancy, sterilization and their complications.
5. Identify the use, abuse and side effects of drugs in pregnancy and gynecological conditions.
6. Describe the national program of maternal and child health and family welfare and their implementation at various levels.
7. Learn common gynecological diseases and describe principles of their management.

8. State the indications, techniques and complications of surgeries like operative deliveries, laparotomy, hysterectomy, gynecological surgical procedures, and various methods for Medical Termination of Pregnancy (MTP).

9. Should be able to identify fertility related issues, causative factors, baseline investigations, examination and management principles.

10. Should know the implications of MTP & PCPNDT act.

(B) SKILLS: At the end of the course, the student shall be able to:

1. Adopt the proper technique of detailed gynecological and obstetrical history taking

2. Properly examine a pregnant woman and identify high-risk pregnancies, and refer the high risk patient to tertiary care after giving proper basic management.

3. Conduct a normal delivery, identify complications and counsel regarding postnatal care including breast feeding and contraception.

4. To demonstrate mechanism of labour on dummy and pelvis.

5. Learn the technique of resuscitation of the new-born and examine a new-born for congenital anomalies.

6. Participate in counseling of a couple on the use of various available contraceptive techniques and assist in insertion and removal of intra-uterine contraceptive devices.

7. Perform pelvic examination under supervision to understand normal anatomy

8. Make a vaginal cytological smear (PAP smear), perform visual inspection of cervix with acetic acid (VIA test) and make a wet vaginal smear.

9. Interpret correctly the common investigations like biochemical, histopathological, microbiological, and radiological ultrasound etc and advice referral.

(C) INTEGRATION

The student shall be able to integrate clinical skills with other disciplines and bring about coordination of family welfare program for the national goal of population control.

Also the student will be aware of judiciously using prescription medicines in women especially of reproductive age group.

The student shall be aware of the medico-legal issues related to the subject.

(III) COMPETENCIES:

a. Competency in Obstetrics: The student must demonstrate ability to:

- i. Provide peri-conceptional counseling and antenatal care,
- ii. Identify high-risk pregnancies and refer appropriately,
- iii. Conduct normal deliveries, using safe delivery practices in the primary and secondary care settings,
- iv. Prescribe drugs safely and appropriately in pregnancy and lactation,
- v. Diagnose complications of labor, institute primary care and refer in a timely manner,
- vi. Perform early neonatal resuscitation,
- vii. Provide postnatal care, including education in breast-feeding,
- viii. Counsel and support couples in the correct choice of contraception,
- ix. Interpret test results of laboratory and radiological investigations as they apply to the care of the obstetric patient,
- x. Apply medico-legal principles as they apply to tubectomy, Medical Termination of Pregnancy (MTP) and Pre-conception and Prenatal Diagnostic Techniques (PC PNDT Act).

b. Competency in Gynecology: The student must demonstrate ability to:

- i. Elicit a gynecologic history perform appropriate physical, pelvic examination and PAP smear in the primary care setting,
- ii. Recognize diagnose and manage common reproductive tract infections in the primary care setting,

Department of OBGYN
Lectures and tutorial distribution Semester wise

Lectures in OBGYN :

Semester	Hours per week	Total hours
3 rd	1/week	22
4 th	1/week	22
6 th	1/week	22
7 th	1/week	22
8 th	2/week	44
9 th	1/week	22
		Total=154

Tutorials in OBGYN

Semester	Hours per week	Total hours
6 th	2/week	48
8 th	2/week	48
9 th	2/week	48
		Total=144

Clinical posting in OBGYN

Semester	weeks	Hours
3 rd	6	90
4 th	4	72
5 th	4	36
6 th	2	36
8 th	4	72
9 th	4	72
	Total=24	378

This compiles with MCI Guidelines.

III Semester topics for Lectures : (22 HRS)

Sr.NO.

Topics

Anatomy & Physiology

1. Introduction to Obstetrics & Gynecology
2. Female reproductive system: anatomy & applied importance: Uterus
3. Female reproductive system: anatomy & applied importance: Fallopian tube, ovary, perineum, and vagina.
4. Development of female reproductive system.
5. Anomalies of female genital tract and applied importance.
6. Physiology of menstruation.
7. Common menstrual disorders-definition, history taking, investigations and diagnosis.
8. Physiology of Puberty & menopause. Introduction to Puberty Disorders.
9. Physiology of conception. I –fertilization & implantation.
10. Early development of embryo and fetal circulation
11. Physiology of conception II – development of placenta.
12. Placental Functions.
13. Maternal adaptation to pregnancy I
14. Maternal adaptation to pregnancy II
15. Diagnosis of pregnancy.
16. Antenatal care. & investigations in antenatal patient
17. Examination of an Obstetric Patient.
18. Common conditions associated with Pregnancy & Hyperemesis gravidarum.
19. Formation of amniotic fluid, importance and applied importance.
20. Introduction to abortions and MTP. (Types, symptoms, diagnosis)
21. Introduction to contraception (Definition, Types, Classification, Pharmacology)
22. Drug prescription in Obstetrics (FDA class of drugs, safe and harmful commonly prescribed drugs: antibiotics, anti hypertensives, NSAID, OHA)

IV Semester topics for Lectures : (22 HRS)

Sr.NO. Topics

Labour & Puerperium

1. Introduction to labour, Définition, Stages, Onset.
2. Physiology of stage 1 labour & management
3. Physiology & management of stage 2 labour
4. Physiology & management of stage 3 labour.
5. Fetal Skull & Maternal Pelvis
6. Mechanism of labour.
7. Labour- analgesia & anesthesia.
8. Intrapartum assessment of fetus and Partogram
9. Examination of newborn.
10. Normal puerperium.
11. Lactation & breast feeding.
12. Abnormal labour-overview

Complications in First half of Pregnancy

13. Abortion : Types, définitions, etiology, presentation.
14. Abortion II : Investigations, management..
15. M.T.P. I (Law & First Trimester methods)
16. M.T.P. II (Second trimester methods), PCPNDT Act Overview.

Basic Surgeries & Procedures in Obs & Gynec

17. Caesarean section: Introduction, common indications and revision of Steps.
18. Dilatation and evacuation: Overview of Procedure, Complications.
19. Tubal ligation: Procedure of abdominal tubal ligation with complications.
20. Screening of Genital cancers: Pathology perspective Pap Smear
21. Role of Forensic Medicine in Obs & Gyn: Criminal Abortions, Septic Abortion, IUFD, Gestational age in abortions, Consent for MTP& TL.
22. Hormonal Contraception: Pharmacology Perspective: Classification, Advantages, Side effects, MEC.

VI Semester topics for Lectures : (22 HRS)

Sr No.	Topic
	<i>Bleeding in First half of pregnancy</i>
1	Abortions Revision
2	Ectopic pregnancy.
3	Vesicular mole.
	<i>Bleeding in Second half of pregnancy</i>
4	APH I-placenta previa
5	APH II-abruptio placentae
6	IIIrd stage complications- PPH
7	IIIrd stage complications – Perineal Tears, Retained Placenta, MRP
8	IIIrd stage complications- Inversion of uterus, Embolism.
9	Revision of normal puerperium & overview of abnormal puerperium.
10	Seminar: PPH Drill
	<i>Common Gynecological Infections</i>
11	Examination of Gynec Patient- Clinical approach.
12	Infections of Lower Genital Tract.
13	Benign lesions of vulva, warts, Bartholin cyst.
14	Pelvic Inflammatory Diseases
15	Genital TB.
16	Sexually transmitted Infections (STIs)
	<i>Contraception</i>
17	Contraception I : introduction, pearl index, Classification, Cafeteria approach
18	Contraception II: Natural & Barrier methods
19	Hormonal contraception: COC, POP, Non-Steroidal Pills.
20	Injectable contraception & Emergency Contraception
21	Intrauterine Devices
22	Female Sterilization & Male Sterilization & Recent Advances in Contraception

VII Semester topics for Lectures : (22 HRS)

Sr. No. Topic

Gynecological Disorders

1. Revision of Menstrual Cycle & definitions of common menstrual disorders with common causes.
2. Amenorrhoea I : Etiology, clinical presentation
3. Amenorrhoea II : Investigations, Treatment
4. A.U.B. I : Definitions, Etiology, clinical presentation,
5. A.U.B. II : Management
6. Leiomyoma I- Types, cause, clinical features, diagnosis, pathology.
7. Leiomyoma II- Management.
8. Endometriosis & Adenomyosis.
9. Prolapse I- Supports of Uterus, Etiology of prolapse, Clinical features, Classification.
10. Prolapse II- Investigations, Decubitus ulcer, Complications, Management- Hysterectomy with Repairs
11. Prolapse III- Management with conservative surgeries.
12. Hysterectomy : Types, Indications, Basic Surgical Principles
13. Surgical aspects of hysterectomy & Complications.

Abnormal Labour

14. Revision of Normal Labor : Mechanism
15. Revision of management of first and second stage of labor
16. Abnormal labor
17. Types of Female Pelvis, Clinical Pelvimetry & C.P.D.
18. Caesarean Section I – History, Types, Indications.

19. Caesarean section II- Techniques & Complications.

20. Uterine Rupture.

Demographics in Obstetrics and Gynecology

21. Définitions of PNMR, MMR, NMR and its importance.

22. Lactation & Breast feeding PSM perspective

VIII Semester topics for Lectures : (44 HRS)

Sr.No.	Topic

Obstetrical Complications & Medical disorders

1. Anatomy of female genital tract : Integration with anatomy.
2. Cervical Incompetence
3. Multifoetal pregnancy.
4. Patho-Physiology of Amniotic Fluid, Polyhydramnios, Oligohydramnios.
5. Anomalies of Placenta and Cord, Cord Prolapse
6. Anaemia I-Aetio-Pathogenesis, Classification, Clinical features
7. Anaemia II- Investigations & Management.
8. Hypertensive Disorders in Pregnancy- I définition, classification & pathophysiology
9. Hypertensive disorders in pregnancy : clinical features & management
10. Hypertensive disorders in pregnancy : eclampsia.
11. Diabetes in pregnancy.
12. Heart disease in pregnancy.
13. RH isoimmunisation.

14. Urinary tract Infections during pregnancy.
15. Viral infections in pregnancy.
16. H.I.V. in pregnancy.
17. Preterm labour
18. Immunology of pregnancy (integrated micro)
19. Recurrent Pregnancy Loss
20. Antenatal Fetal surveillance
21. IUGR.
22. Anencephaly, hydrocephalus, IntraUterine Demise
23. Induction & augmentation of labour.

Gynecological Malignancies

24. Basis of cytology, dysplasia, metaplasia, atyia (integrated patho).
25. Screening of malignancies of genital tract & CIN
26. Ca cervix I- Etiology, clinical features, diagnosis & investigations
27. Ca cervix II- Management
28. Ca endometrium
29. Benign lesions of Ovary including Dermoid cyst
30. Ca ovary I- Classification, etiiology, pathology, clinical features.
31. Ca ovary II- Investigations and Management.
32. Chemotherapy & Radiotherapy
33. Imaging technique : USG, MRI,CT,sonosalpingography, HSG.
34. Laparoscopy & hysteroscopy.
35. Pharmacokinetics of drugs(pharmac integrated)

Infertility

36. Infertility Introduction : male- causes, investigations and treatment.
37. Infertility female-causes, investigation.
38. PCOS & Hirsutism

39. Infertility Treatment with drugs, surgery and ART techniques.

Geriatrics

40. Menopause & HRT

41. Genital fistulas-VVF, UVF, RVF.

42. Urinary Incontinence

Social Obstetrics, National Programme & Demography

43. National programmes (integrated PSM).

44. Maternal-mortality, perinatal mortality.

IX Semester lecture topics (22 hours)

Sr. No. Topic

Gynecological Disorders

1 Revision of Menstrual Cycle& definitions of common menstrual disorders with common causes.

2 Amenorrhoea I : Etiology, clinical presentation

3 Amenorrhoea II: Management

4 A.U.B. I: Definition, age wise classification, presentation

5 A.U.B. II: Group specific investigations, treatment

6 Leiomyoma I- Types, cause, clinical features, diagnosis, pathology.

7 Leiomyoma II- Management.

8 Endometriosis & Adenomyosis.

9 Prolapse I- Supports of Uterus, Etiology of prolapse, Clinical features, Classification.

10 Prolapse II- Investigations, Decubitus ulcer, Complications, Management- **Hysterectomy with Repairs**

11 Prolapse III- Management with conservative surgeries.

12 Hysterectomy : Types, Indications, Basic Surgical Principles

13 Surgical aspects of hysterectomy & Complications.

Abnormal Labour

14 Revision of Normal Labor : Mechanism

- 15 Revision of management of first and second stage of labor
- 16 Abnormal labor
- 17 Types of Female Pelvis , Clinical Pelvimetry & C.P.D.
- 18 Caeserean Section I – History, Types, Indications.
- 19 Caeserean section II- Techniques & Complications.
- 20 Uterine Rupture.

Demographics in Obstetrics and Gynecology

- 21 Definations of PNMR, MMR, NMR and its importance.
- 22 Lactation & Breast feeding PSM perspective

VI Semester topics for Tutorials : (24 topics)

Sr.No. Topic

Normal & Abnormal Labour

1. Obstetric examination in pregnancy & labour
2. Female pelvis & fetal skull.
3. Management of stage I labor.
4. Management of stage II & Labor mechanism
5. Management of stage III Labor
6. Episiotomy, instruments, suturing, care, complications.
7. PPH I- Atonic
8. PPH II- Traumatic
9. Drugs in Labour room: Oxytocin, Prostaglandins and Methergin
10. Anti-Hypertensives: Magnesium sulphate, Nifedepine, Labetolol
11. PNC case discussion- Overview
12. Dystocia: Diagnosis & Causes

Malpresentations

13. Breech presentation- Causes, Types, Complications
14. Breech Presentation- Management including ECV
15. Occipito posterior presentation & DTA
16. Transverse lie, Face & brow.

Labour room practices:

17. Examination of Placenta & Cord and Placental abnormalities.
18. Partograph & NST
19. Drill of fetal distress and Cord prolapse
20. Examination of newborn and gross congenital anomalies
21. Caesarean section check list
22. Caesarean section indications
23. MTP: Introduction, Act, overview of different methods

24. Overview of abortions

VIII Semester topics for Tutorials : (24 topics)

Sr.No. Topic

1. LSCS: indications & instruments.
2. LSCS: operative procedure, post-operative
3. Post LSCS pregnancy, VBAC & TOLAC
4. Writing exercise on LSCS
5. Forceps & vacuum.

Family welfare

6. M.T.P. I –law, 1st trimester MTP
7. M.T.P. III 2ND trimester, PCPNDT Act
8. Contraception: Classification, Pearl Index, Natural methods
9. Contraception: Barrier Methods & Injectable methods
10. Contraception: Hormonal methods Pills
11. Contraception: Intrauterine devices
12. Writing exercise on contraception
13. Tubectomy

First half of Pregnancy

14. Ectopic pregnancy & Vesicular Mole with Specimen
15. First trimester Abortions
16. Second trimester Abortions
17. Writing exercise on abortions

Second half of Pregnancy

18. Antepartum Hemorrhage : Clinical Aspects
19. Preterm Labour : Causes, investigation and management
20. Drugs: Oxytocin & Methergin
21. Drugs: Prostaglandins in OB & GYN
22. Drugs: Antihypertensives & Magnesium sulphate

23. Writing exercise on drugs

Gynecology Procedures

24. Dilatation & Curettage, Fractional Curettage

IX Semester topics for Tutorials : (24 topics)

Sr. No. Topic

Common Gynecological Conditions

1. Cervical Erosion, Cervicitis, Management.
2. Vaginal infections, Diagnosis, clinical features & Management
3. Pelvic Inflammatory Disease, Causes, Clinical Features, OPD management.
4. Writing exercise on lower infections of genital tract
5. Amenorrhoea: Discussion using models
6. Menorrhagia: Causes, Investigations, Management
7. Prolapse case sheet analysis with decubitus ulcer (Problem based learning)
8. Prolapse case sheet analysis with conservative surgeries
9. Fibroid of uterus Case sheet analysis (Problem based learning)
10. Carcinoma Cervix Case sheet analysis (Problem based learning)
11. Post Menopausal Bleeding evaluation, causes management
12. Benign ovarian tumors with Dermoid cyst
13. Ovarian tumors case sheet analysis

Infertility

14. Definition, Types, Male & Female causes, Semen analysis
15. Tubal Patency tests
16. Tests of Ovulation & Drugs for Ovulation
17. Writing exercise on infertility

Obstetrics Cases Clinical Discussion (Problem based learning)

18. Anemia evaluation and clinical management
19. Preeclampsia clinical diagnosis, investigations and management.
20. Medical Disorders: Heart Disease & Diabetes Case Oriented discussion

Labour discussion

- 21. Pelvis, Skull, Mechanism of Normal Labour
- 22. Third stage management, Complications
- 23. Episiotomy, Perineal tears.

Clinical posting topics

1ST CLINICAL POSTING (III Semester): 6 weeks

1) HISTORY TAKING in Detail i) General ii) Obstetrics & Gynec

2) GENERAL EXAMINATION- Built, Gait, Height, Weight, Vital signs
(Temperature, Pulse, BP, Respiration) Pallor, Edema, JVP, Cyanosis, Icterus, Clubbing,
Lymphadenopathy, Any other abnormalities

3) SYSTEMIC EXAMINATION: Demonstration of CVS & RS examination in detail

P/A – Obstetric Examination (demonstration & Practice)

Genital examination – external & bimanual, demonstration of per
speculum examination

4) ANTENATAL CARE:

- Practice of history taking in OPD.
- Diagnosis of Pregnancy
i) Clinical diagnosis – 1st & 2nd half ii) Lab diagnosis iii) USG
- Discussion of minor ailments of pregnancy
- Discussion on duration of pregnancy, definition of Gravida, Para, full term, pre-term pregnancy.
- Investigations during antenatal period- importance of each investigation
- Management in normal antenatal period, basic drugs, follow up visits, importance of repeat Hemoglobin and weight estimation
- Screening for high risk pregnancy
- Advice regarding diet, drug & exercise in Pregnancy

LABOR ROOM: Observation of at least one case of vaginal delivery

OPERATION THEATRE:

- Sterilization Disinfection, O.T. Manners, etiquettes in OT.
- MTP 1st trimester (D& E)
- Tubal ligation
- LSCS Observation & Discussion
- Discussion of applied Anatomy

2nd clinical posting (IV Sem):4 weeks

- 1) **Revision of History taking**, Gynaec & Obstetrics Examination
- 2) **Case demonstrations**
 - Malpresentations
 - Medical disorders in Pregnancy(anemia , Heart disease , HDP ,GDM)
 - Menstrual disorders
- 3) **Labour room:**
 - Normal labour
 - Discussion on physiology & *management* of 1st, 2nd & 3rd stage of Labour
- 4) **Operation Theatre:**
 - Dilatation& Evacuation
 - Dilatation& Curettage
 - Tubectomy- types, techniques, instruments, complication etc
 - Cervical Biopsy& Cervical cauterization
 - How to send a histopathology sample
- 5) **OPD:** Demonstration of following cases
 - Vaginitis(types, distinguishing features, diagnosis, mgt)
 - Pap smear (technique, analysis)
 - Cervical erosion
 - Cervicitis
 - Ca cervix
 - Colposcopy

III CLINICAL POSTING (V semester): 4 weeks

- 1) **Revision** of Obstetrics &Gynaec Examination & History taking
- 2) **Nutrition in Pregnancy** (calorie requirement, dietary advice, 24 hrs dietary)
- 3) **OPD procedures**
 - Pap smear(technique, analysis, Bethesda System)
 - Vaginal swab & Colposcopy
 - Copper T insertion& removal (criteria for insertion, selection of patient, counseling, technique, complications, follow up)

- Basics of USG(1st 2nd 3rd trimester scan & their importance)

4) Demonstration & discussion of following cases

- Pregnancy Induced Hypertension
- Post LSCS pregnancy
- Malpresentations
- Multiple pregnancy
- Recurrent Pregnancy Loss (BOH)
- DM with pregnancy
- Heart disease in pregnancy
- Demonstration & discussion of Gynaec Cases

5) Operation Theatre:

- Dilatation& Evacuation Dilatation& Curettage
- Tubal ligation (revision)
- LSCS(indication, technique, complications, instruments)
- OS Tightening (prerequisites, types, technique, complications)
- Hysterectomy(types, indications, steps-pedicles clamped, relevant surgical anatomy, advantages/disadvantages, complications)

4th CLINICAL POSTING (VI semester): 2 weeks

1. **OPD:** Observation of ANC care and examination of antenatal patients, Pap smear, Vaginal swab & Colposcopy, Copper T insertion& removal (criteria for insertion, selection of patient, counseling, technique, complications, follow up)
2. **Wards:** case taking in antenatal and post natal patients
3. **O T:** observation of various surgeries
4. **Labour Room:** Observation of normal labour and monitoring of labour room patients

5th CLINICAL POSTING (VIII Semester): 4 weeks

ROTATIONAL POSTING IN OPD/WARDS/OT

WARD POSTING:

1. **Revision** of History taking in Obstetrics & Gynecology

2. **Obstetric case** discussion of the following cases
 - Anemia in pregnancy
 - Preeclampsia
 - Post LSCS pregnancy
 - Malpresentations
 - Different types of abortions
 - Antepartum hemorrhage
 - Recurrent pregnancy loss
 - PNC case discussion
 - PNC (VAGINAL DELIVERY) Case discussion Medical Disorders in pregnancy
3. **Gynecology case** discussion:
 - Prolapse
 - DUB
 - Fibroid uterus
 - Ovarian cyst
 - Cervical carcinoma
 - Infertility/cervicitis/vaginitis

OPD POSTING:

1. Discussion and revision of Antenatal Examination
2. Discussion and revision of diagnosis of pregnancy
3. Management and follow up of ANC
4. Demonstration of various obstetric grips, SFH, Gestational age assessment
5. Diagnosis of different malpresentations
6. Antenatal fetal surveillance and NST
7. VIA and cancer cervix screening
8. Demonstration of prolapse and discussion
9. Demonstration of IUCD insertion and discussion
10. Discussion of various contraceptives (advantages, disadvantages, side-effects, counseling)
11. Discussion of common OPD instruments
12. Case writing in journals and review of journal completion

OPERATION THEATRE

1. Discussion of Hysterectomy: abdominal- (steps, indications, advantages, disadvantages complications)
2. Discussion of Hysterectomy: vaginal- (steps, indications, advantages, disadvantages complications)
3. MTP discussion: technique, complications post op counseling
4. Tubal ligation: types, techniques, lap TL, complications
5. Os Tightening : procedure, types, complication, stitch removal

6. LSCS; Revision
7. D&E, D&C
8. Laparoscopy in OBGYN

6th CLINICAL POSTING (IX Semester): 4 weeks

- 1) Revision of ANC, PNC cases
- 2) Discussion of Gynaec Cases
- 3) Obst&Gynaec Case Presentations
- 4) Instruments (Revision)
- 5) Drugs(Revision)
- 6) Specimens (Revision)
- 7) Contraception (Revision)
- 8) Maternal pelvis & fetal skull
- 9) Post-operative management of patient
- 10) Antenatal& intranatal fetal monitoring
- 11) Discussion of Hysterectomy: abdominal- (steps, indications, advantages, disadvantages complications)
- 12) Discussion of Hysterectomy: vaginal-(steps, indications, advantages, disadvantages complications)
- 13) MTP discussion: technique, complications post op counseling
- 14) Tubal ligation: types, techniques, lap TL, complications
- 15) Os Tightening : procedure, types, complication, stitch removal
- 16) LSCS; Revision
- 17) D&E, D&C
- 18) Laparoscopy in OBGYN

Department of Gynecology and Obstetrics

UG Lectures SLOs Semester III

<u>Sr No</u>	<u>Topic</u>	<u>Must know</u>	<u>Desirable to know</u>	<u>Nice to know</u>
1	Introduction to Gynecology and Obstetrics	- Define the terms - Describe the spectrum of clinical situation involved - List the Purpose of learning the subject	Enumerate the Approach to studying OBGYN	Advances and sources of standard updates information of study
2	Female Reproductive System : anatomy and applied importance : Uterus	Define the Reproductive System (components). Describe Anatomical positions and the factors maintaining this Demonstrate Surface anatomy implying the access for examinations in non-gravid and gravid state Describe Detailed anatomy of the uterus : gross, parts , composition , blood supply ,lymphatic drainage, relationships Describe alterations during pregnancy /LUS	Evaluation through USG	Evaluation through other imaging modalities LUS surgical context
3	Female Reproductive System : anatomy and applied importance: Fallopian tube, ovary ,perineum and vagina	Recapitulate the previous lecture Describe Segments of the fallopian tube and detailed gross ,pathological anatomy of each structure with blood supply and lymphatic drainage Describe Ovary structure, blood supply and introduction to malignancies origin Introduction to pathologies	Evaluation of the fallopian tube patency Imaging for ovaries and clinical context of evaluation	Ovarian follicular monitoring Introduction to ectopic gestation

		such as the TO mass / hemato, hydro and pyosalpinx. Describe the Anatomy of the perineum with the context of delivery and prolapse Describe the Vagina anatomy with relationships and cytological changes		
4	Development of female reproductive system	Basic embryology from fertilization to implantation , Formation of the neural tube and time wise differentiation of the gonadal ridge Development of the Mullerian system and some part of the Wolffian duct	Importance of imaging ,peri conceptional medications and their influences	Introduction to abnormalities
5	Anomalies of female genital tract and applied importance.	Introduction of incidence and possible etiologies Classification of the anomalies Associated obstetrical and other clinical abnormalities	Clinical presentations of the common abnormalities such as MRKH syndrome , Imperforate Hymen , Turners & Klinefelter's Syndrome	Modern treatment modalities such as ART ,Surrogacy ,HT
6	Physiology of menstruation.	Introduction of reproductive age & the physiology of the and tract : Function of the endometrium and Ovaries and the uterus and the Fallopian tubes Describe the HPO axis ; Functions and physiology Explain the Correlation of Endometrial cycle /ovarian	Clinical evaluation of normality Hormonal Assays and values	Intricate mechanisms of control e.g. Inhibins associated vaginal smear changes

		cycle /cervical cycle Describe the Hormonal interplay and feedback mechanisms		
7	Common menstrual disorders- definition and overview	Definitions of all the terminologies related to menstruation HMB/AUB /DUB to be explained \ Describe the etiology and pathogenesis Evaluation and Management	Medical and surgical management Classification :PALM COEIN	Modern management technologies
8	Physiology of Puberty & menopause.	Describe Stages of adolescent changes from pre-menarchal to menarche and till adulthood Describe Stages of menopausal transition Ovarian function and details of the same	Abnormalities of pubertal development Osteoporosis HT	evaluation radiological and hormonal
9	Physiology of conception. I – fertilization & implantation.	Describe Gametogenesis Describe Fertilization window Describe Implantation window Describe Chronology from ovulation to implantation	Abnormalities such as ectopic gestation , early miscarriages	Endometrial receptivity
10	Physiology of conception II – development of placenta	Describe the Outer cell mass and decidua description Describe Trophoblastic structure Describe Formation of placenta	First and second wave of trophoblastic invasion	Abnormalities of placentation
11	Early development of	Embryonic differentiation	Clinical correlations	Milestones and abnormalities

	embryo and fetal circulation	and organogenesis Fetal circulation initiation , during IUL and at birth	and imaging for milestones and colour Doppler for fetomaternal circulation	
12	Placental Functions.	Describe the Nutrient supply : Glucose ,amino acids ,Oxygen Enumerate and describe the Endocrinological functions	Placental insufficiency and its investigation	Colour doppler
13	Maternal adaptation to pregnancy I	Describe the physiological changes in various organs Know the changes in hematology, cardiovascular and respiratory system	Narrate the changes in apex beat in pregnancy patient	Describe hemoconcentration
14	Maternal adaptation to pregnancy II	Describe the changes in locomotor system Describe the changes in genital organs and breasts Describe the applied importance of each adaptation	Describe the changes in glucose metabolism	
15	Diagnosis of pregnancy.	Enumerate the symptoms and signs of pregnancy Describe the physiological basis of the symptoms and signs Discuss the role of ultrasound	Describe the presumptive and definitive signs of pregnancy	
16	Antenatal care. & investigations in antenatal patient	Describe the importance of antenatal care. And define antenatal care Describe the antenatal investigations w.r.t. its relevance Enumerate the drugs in antenatal period	Describe the importance of diet in antenatal period	Describe the first trimester screening

17	Obstetric examination.	Describe the change in shape and contour of uterus with advancing gestational age Should be able to identify the correct gestational age clinically Know the importance of symphysio- fundal height and abdominal girth Describe the Leopold's maneuvers	Describe the importance of per-speculum and per-vaginal examination	
18	Common conditions associated with Pregnancy & Hyperemesis gravidarum.	List the common pregnancy ailments Describe the physiological basis of increased in frequency of urine and nausea and vomiting Define hyperemesis List the important clinical findings in hyperemesis and investigations in hyperemesis	Describe the treatment modalities	Discuss Wernicke's and Korsakoffs psychosis
19	Formation of amniotic fluid, importance and applied importance	Describe the formation of amniotic fluid Draw a flow diagram of the amniotic fluid	Define oligohydramnios and polyhydramnios	Enumerate complications of raised and reduced amniotic fluid volume
20	Introduction to abortions and MTP	Define MTP Enumerate the indications of MTP Know the Act, Law and Amendments	Describe what is safe & Legal, Unsafe & Legal, Unsafe & illegal MTP	
21	Introduction to contraception	Define contraception, sterilization Describe the various contraceptives available	Describe the mechanism of action of barrier, oral pills and intrauterine devices	Give the contraindications of the same
22	Drug prescriptions in Obstetrics	FDA classification of drugs Enumerate the safe and harmful of the commonly prescribed drugs	Describe the fetal adverse effects of anti-hypertensive and antibiotics	

IV Semester Lectures

SLOs

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Introduction to Labour, Definition, Stages , Onset I	Definition of Labour including all parameters Definition of Preterm & Post term Labour Theories of Onset Of labour Definitions and durations of stages of labour Define attitude, lie, presentation, presenting part, engagement. Describe the Leopold's maneuvers Signs and symptoms of Onset of Labour	Preparatory Phase of Labour	Uterotonins & Uterokinins
2	Physiology & Management Of I Stage Of labour	Definition of the first stage of labor Enumerate the components of first stage of labor Describe effacement, formation of bag of membranes, cervical dilatation, descent Describe the characters of true labor pains Differentiate between upper uterine segment and lower uterine segment Enumerate the steps in preparation of patient for labor	Admission Test	CTG Monitoring

		Enumerate the components of monitoring of fetus and mother Enumerate the components of partogram		
3	Physiology & Management Of II Stage Of labour	Definition of the second stage of labor Duration of II stage of labor Enumerate the events in mechanism of normal labor Describe crowning, engagement, internal, external rotation, restitution and delivery of shoulders Describe clamping of umbilical cord and applied importance	The basic steps of baby resuscitation	Ritgen maneuver
4	Physiology & Management Of III Stage Of labour	Definition of the third stage of labor Duration of III stage of labor Describe the phases of III Stage of labour – Separation, Expulsion, Hemostasis Describe Management of III Stage Describe AMTSL (Active Management Of Third Stage Of Labour)	Schultz, Duncan methods	All Uterotonics
5	Fetal Skull & Maternal Pelvis	Enumerate the 4 basic types of female pelvis Enumerate the differentiating features of the 4 types of pelvis Describe the axis of pelvis Describe the planes and important diameters of the planes	Enumerate Abnormal Pelvis	Terms Like PSD, Dead Space Of Morris

		Describe the clinical significance of the planes Describe the vault of fetal skull Enumerate the important sutures and diameters of fetal skull Enumerate the importance of anterior and posterior fontanel Applied importance of fetal skull w.r.t caput, moulding and cephal hematoma.		
6	Mechanism Of Labour	Describe every step of mechanism of labour viz Engagement, internal rotation etc Episiotomy technique	Long term sequel of episiotomy	Labour & Future Prolapse Of Genital Organs
7	Labour Analgesia / Anaesthesia	Nerve supply of Pelvis Describe methods Of Labour Analgesia Advantages & Disadvantages Local Anaesthesia Pudendal Block	Pharmacology of Labour Analgesia medicines	Epidural Analgesia and Anaesthesia
8	Intrapartum assessment of Fetus & Partogram	Enumerate Clinical, Biophysical, Biochemical methods Basal Fetal Heart Rate variation Basics of CTG Meconium liquor Parameters of Partogram	Fetal scalp pH	Amnio-infusion
9	Examination Of Newborn	Physical signs of preterm and term newborns APGAR Scoring Common Physical Disorders Of	Neonatal Hyperbilirubinaemia	Neurological assessment Of Newborn

		Newborn Cord Blood Investigations		
10	Normal Puerperium	Definition Puerperium Describe the involution of uterus and genital organs Describe the systemic changes in Puerperium Describe the types of lochia and clinical significance Describe the care of episiotomy Minor ailments in Puerperium Enumerate the components of post partum advice, counseling and follow up		Hormonal Resumption for menstruation
11	Lactation & Breast Feeding	Describe the gross anatomy of breast Describe the different reflexes like rooting, suckling, milk let down reflex Enumerate the components in physiology of lactation Enumerate the advantages of breast feeding Describe the components of breast milk Describe the techniques of breast feeding Enumerate the complications of lactation in the breast Enumerate the galactogogues and drugs for suppression of lactation	Lactose intolerance	Hormonal governance of breast feeding

12	Abnormal Labour Overview	Mechanism Of Labour in Breech and Face Presentation – Overview Deep Transverse Arrest (DTA) – Diagnosis & management Definition of Labour Dystocia, Precipitate Labour, Protracted Labour Concepts Of PROM & EROM Diagnosis & Management Of CPD	VBAC	TOLAC
13	Abortion I	Definition Of Abortion Classification Of different types of abortions Enumerate the etiological factors for early abortions and late abortions Enumerate the clinical features of different abortions	Describe anembryonic, and embryonic	RPL of 1st Trimester
14	Abortion II	Describe the various investigations in abortions Describe in short the diagnosis and management of each type of abortion Describe in short the technique of dilatation and evacuation Enumerate the components of post abortion care	Complications Of D & E	Mifepristone & Misopristol
15	MTP I	Describe the MTP law- year, components, salient features Enumerate the indications of MTP as per the law Enumerate the techniques of first trimester abortion (MVA)	PCPNDT Act	Amendments in the MTP act

		Describe in short medical abortion Enumerate the complications of MTP Describe what is safe and legal, unsafe and legal, unsafe and illegal MTP		
16	MTP II	Enumerate the methods of II nd trimester MTP Describe the technique of ethacridine lactate, its advantages and disadvantages Describe the role of prostaglandins in MTP Describe the role of hysterectomy in MTP Complications of IIInd Trimester MTP	Sex Ratio & Save Girl Child Campaign	
17	Cesarean Section	Definition & Overview Of Historical Aspect Incidence Indications – Recurrent / Non-recurrent Overview Of Anaesthesia for CS Operative Steps Complications – Intra-operative, Post Operative And Late	Scar Tenderness & Dehiscence	Cs Of II Stage Of Labour
18	D & E	Indications Emergency / Planned D & E Anaesthesia for D & E Operative Steps	Role Of Laparoscopy in management of complications Of D & E	

		Complications – Intra-operative, Post Operative And Late Management Of Suspected Uterine Perforation		
19	Tubal Ligation	Definitions Of Puerperal, Post Abortal & Interval TL Routes Of TL – Laparotomy, Vaginal, Laparoscopy Techniques Pomeroy Madlener Silastic Rings Complications – Intra-operative, Post Operative And Late	Uchida, Erwin, Oxford Techniques	Reversal Of TL
20	Screening Of Genital Cancers	Incidence Of different genital Cancers Role Of Screening in Cervical Cancer Technique Of VIA Cervical Cytology Sample Collection Preservation & Transport Of Smear PAP Staining Interpretation Of PAP	Bethesda Classificatio n	Liquid based Cytology
21	Role Of Forensic Medicine in Obstetrics & Gynaecology	Criminal / Septic Abortion MTP / PCPNDT Act Termination Of Pregnancy in view Of Congenital Malformation	Forensic Aspects Of Rape	

		Consent for various procedures Pregnancy in Teenagers, Lunatics and Rape Victims		
22	Hormonal Contraception	Types Steroidal / Nonsteroidal Oral / Injectable COC / POP Emergency Mechanism Of Action Contraindications Side effects & Complications	Missed Pill	Newer Delivery Systems Of Hormonal Contraceptive

VI Semester Lectures

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Abortions Revision	Define abortion Classify different types of abortions Enumerate the etiology factors for early abortions and late abortions Describe embryonic an-embryonic and missed abortion Enumerate the clinical features of different abortions Describe various investigations in abortions Describe in short the diagnosis and management of each type of abortion	Enumerate the components of post abortion care	Describe in short the technique of dilatation and evacuation
2	Ectopic pregnancy	Definition Varieties of ectopic pregnancy Clinical features of ectopic Diagnosis of ectopic pregnancy Management of ectopic pregnancy	Current diagnostic approach for tubal pregnancy Medical management of ectopic pregnancy	Conservative surgery for tubal ligation Abdominal pregnancy
3	Vesicular mole	Definition of vesicular mole	Describe the High risk factors for choriocarcinoma	Discuss the Current diagnostic approach for

		Types of vesicular mole Clinical features of vesicular mole Complications of vesicular mole Management of vesicular mole		vesicular mole
4	APH – placenta previa	Define antepartum hemorrhage Enumerate the causes of antepartum hemorrhage Describe the etiology, types, presentation, investigations, and management of placenta previa	What precautions are to be taken before caesarean section in case of placenta previa	How to reduce maternal and perinatal death in placenta previa?
5	APH-II- abruption placentae	Describe the etiology, types, presenting features, investigations and management of abruption placentae Compare and contrast placenta previa and abruption	What are the fetal and maternal complications in abruption placentae? Couvelaire's uterus	How to reduce maternal and perinatal death in abruption placentae?
6	IIIrd stage complications – PPH	Enumerate the third stage complications Enumerate the high risk factors of uterine atony Define post partum hemorrhage and classification of PPH Describe the management algorithm for PPH Describe drugs with dosage and side effects and	Describe what is B-Lynch brace suture	Describe what are the causes and management of secondary PPH

		contraindications for PPH Enumerate causes of traumatic PPH and high risk factors for traumatic PPH Active management of 3rd stage of labour		
7	IIIrd stage complications – perineal tears , retained placenta, MRP	What are causes, degrees and management of perineal tears? Define retained placenta. What are its causes and management?	What is placenta accreta?	Management of placenta accrete
8	IIIrd stage complications- Inversion of uterus, embolism	What are the varieties etiology and dangers of uterine inversion? What are the risk factors for amniotic fluid embolism	Management of uterine inversion Diagnosis of amniotic fluid embolism	Management of amniotic fluid embolism
9	Revision of normal puerperium and overview of abnormal puerperium	Define puerperium, duration of puerperium Describe the involution of uterus and genital organs Describe the types of lochia and clinical significance Describe the care of episiotomy Describe the management of puerperium Enumerate the components of post-partum advice, counseling, and follow up Describe physiology of	Describe the technique of breast feeding Describe the components of breast milk Enumerate complications of lactation in the breast	Enumerate the galactagogues and drugs for suppression of lactation Describe minor puerperal ailments with management

		lactation Enumerate advantages of breast feeding Define puerperal pyrexia and sepsis		
10	Seminar-PPH drill	Active management of 3rd stage of labour components Steps of management of atonic PPH Describe drugs used in atonic PPH with dosage, side effects and contraindications	Uterine tamponade methods	Stepwise uterine devascularization procedures
11	Examination of gynaec patient – clinical approach	History taking of gynaec patient General and systemic examination of gynaec patient Breast examination and abdominal examination of gynaec patient Blood and urine examination of gynaec patient	Pap smear and Colposcopy	Pelvic examination What are the imaging techniques in gynaecology
12	Infections of lower genital tract	Enumerate different types of vaginal infections Describe the clinical features, diagnosis and treatment of candidiasis, trichomoniasis and mixed Vaginitis Describe the aetiopathogenesis of Cervicitis Describe the management of chronic Cervicitis	Describe the clinical features and treatment of Bartholin's abscess	Vulvovaginitis in childhood Atrophic Vaginitis

13	Benign lesions of vulva, warts, Bartholin cyst	What are different ulcers of the vulva? Describe pathology, clinical features and treatment of Bartholin's cyst	what are the benign tumors of vulva	What is Gartner's cyst
14	Pelvic Inflammatory Diseases	Describe the protective mechanisms of female genital tract Enumerate risk factors for causing PID Enumerate the causative organisms causing PID Enumerate the signs and symptoms of acute and chronic PID Describe the management of acute and chronic PID	What are the complications of PID	What is Fitz-Hugh Curtis syndrome?
15	Genital TB	What is pathogenesis and mode of spread of genital TB? Which genital organ is most commonly affected in TB What is the specific change in the fallopian tube & uterus in genital TB? What are the clinical features of genital TB? What are the investigations, diagnosis, and treatment of genital TB?	What is the regimen for antitubercular chemotherapy? And DOTS?	Indications and contraindications of surgery in genital TB
16	Sexually transmitted infections (STIS)	What are the various sexually transmitted infections? What are the	What are the clinical features, diagnosis and	What are the current recommendations

		various causative agents? What are the clinical features, complications, diagnosis and treatment of bacterial vaginosis? What is HIV? What is the immune pathogenesis of this infection?	treatment of syphilis, gonorrhoea?	for the treatment of HIV?
17	Contraception: introduction, Pearl index, classification, cafeteria approach	Explain population dynamics, describe aims and objectives of family planning Describe what is an ideal contraceptive? How to calculate contraceptive effectiveness? Classify methods of contraception What is pearl index?	Benefits of contraceptive practice	Current contraceptive used
18	Contraception II-natural and barrier methods	Describe physiology of ovulation in short Describe meaning of natural methods of contraception Describe different natural methods of contraception Describe each method in short with respect to : technique, advantages, disadvantages, effectiveness Explain prolonged lactation and drawbacks minor methods Define a barrier contraceptive in male and	Describe in short Nirodh	Describe various spermicidal agents

		female Describe about condoms: made from which material, how to use, advantages, disadvantages, failure rate. Describe about vaginal diaphragm, female condom, cervical caps: made from which material, how to use ,advantages, disadvantages, failure rate		
19	Hormonal contraception: COC, POP, non steroidal pills	Classify hormonal contraceptives Describe different combined oral contraceptive pills, different types of oestrogens and progesterones Describe generations of various O,C pills Describe the modes of action and indications of O.C pills Selection of patient Enumerate contraindications ,follow up Describe progesterone only pills: mechanism of action, dosage, schedule, advantages, disadvantages, failure rate Newer : lower dose combined pills, continuous 89 days pills	Enumerate the non contraceptive advantages of O.C pills	Preparations of O.C pills (names)

20	Injectable contraception and emergency contraception	Describe the injectable contraceptives: types, mechanism of action, advantages, disadvantages, side effects What is emergency contraception? What are the indications of emergency contraception? What are the drugs used?	Dosage of drugs for postcoital contraceptives	Discuss in short Norplant
21	Intrauterine devices	Classify IUCD Description of device, mechanism of action of IUCD Describe patient selection, indications, contraindications Describe method of insertion, timings of insertion, removal Enumerate disadvantages, advantages Enumerate the factors to be included in counseling during follow up	Describe medicated IUCD	Describe protocol of management of missing threads of IUCD PPIUCD
22	Female sterilization & Male sterilization and recent advances	Define sterilization Indications, selection of patient for female sterilization, counseling of patient of patient, investigations, timing of operation Describe the operative procedure with different techniques of tubal ligation, post-operative care, advantages, complications	Describe Other methods of TL Eg, Madlener's	Describe Operative steps of TL

		Describe advantages and disadvantages of laparoscopic sterilization, selection of patient Compare and contrast abdominal and laparoscopic TL Describe minilap TL Pomeroy's method of TL		
22	Male sterilization and recent advances in contraception	Define sterilization Describe the selection of patients and investigations for vasectomy Describe the operative procedure, post operative care, advantages, drawbacks of vasectomy	Complications of vasectomy	NSV

VII Semester Lectures

SLOs

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Revision of menstrual cycle and definitions of common menstrual disorders with common causes	Describe physiology of menstrual cycle. Describe features of normal menstrual cycle? Enumerate the causes of different menstrual disorders? Describe the management of dysmenorrhea	Draw diagram of menstrual cycle	Describe endocrinology of menstrual cycle

2	Amenorrhea I	Comment on HPO axis. classify amenorrhea? Define primary and secondary amenorrhea Enumerate the causes of primary amenorrhea w.r.t. compartments Describe mulleraian agenesis	Describe tanners staging	Describe turners syndrome
3	Amenorrhea II	Define secondary amenorrhoea and enumerate its causes Describe progesterone and estrogen-progesterone challenge tests Draw flow chart to reach the diagnosis of amenorrhea.	Describe asherman syndrome	Describe hypergonadotrophic and hypogonadotrophic amenorrhea
4	A.U.B. I	Write the definition of different menstrual disorders. Enumerate the causes of AUB. Define DUB and classify DUB Enumerate the investigations of DUB	Describe the bleeding pattern in metropathia hemorrhagica	Newer classification of A.U.B
5	A.U.B II	Classify the medical management of DUB. Describe the	Describe the role of oral contraceptives in DUB	Describe the role of GnRH agonist and antagonist in DUB

		commonly used drugs for treatment of DUB Enumerate the surgical management of DUB Discuss the role of DnC in DUB How will you diagnose A.U.B?		
6	Leiomyoma I – Types , causes , clinical features , diagnosis , pathology	Define leiomyoma and describe its etiopathogenesis? Enumerate the symptoms and signs of fibroid Enumerate the degenerations in fibroid Describe the gross and microscopic features of fibroids Describe the role of ultrasound in fibroid	Enumerate the other features of estrogen excess associated with fibroid	Role of MRI in fibroid diagnosis
7	Leiomyoma II – Management	Describe the role of hysterectomy in fibroid Describe myomectomy: Prerequisites, technique, precautions, procedure, advantages, complications. Describe the drugs	Describe uterine artery embolization in fibroid	Describe myolysis

		used in treatment of fibroids		
8	Endometriosis and Adenomyosis	Define endometriosis. Describe various theories for endometriosis Enumerate the symptoms and signs of endometriosis Describe the correlation of endometriosis and infertility Enumerate the differential diagnosis Discuss the medical and surgical management of endometriosis Describe symptoms, signs, investigation and treatment of adenomyosis	Describe the gross differences between adenomyoma and leiomyoma	What are newer advances in endometriosis treatment.
9	Prolapse I – Supports of uterus , etiology of prolapsed , clinical features , classification	Enumerate the different supports of uterus? Enumerate the etiology of prolapse Describe the various symptoms of prolapse Describe the grades prolapse	Describe POP-Q	-

		Discuss different classifications in prolapse		
10	Prolapse II – Investigations , decubitus ulcer , complications , management – hysterectomy with repairs	Enumerate the investigations in prolapse Describe a decubitus ulcer Role of vaginal hyspterectomy and AP repair in prolapse Describe the management principles in young/ perimenopausal/ menopausal patient with prolapse	Enumerate complications of prolapse	describe enterocoele and its repair
11	Prolapse III – Management with conservative surgeries	Enumerate the different conservative surgeries of prolapse Discuss each with advantages and disadvantages Differentiate Forthergills surgery and Shirodkars modification.	Identify shirodkar ligature carrier instrument and differentiate it from cerclage needle	Describe le-fortes surgery
12	Hysterectomy : Types , indications , basic surgical principles	Describe different types of Hysterectomies? Enumerate the indications and discuss the steps for abdominal hysterectomy? Enumerate the	Describe the role of oophorectomy with hysterectomy	Describe the vault suspension during hysterectomy

		indications and steps for vaginal hysterectomy.		
13	Surgical aspects of hysterectomy and complications	Enumerate the advantages of abdominal over vaginal hysterectomy and vice-versa Enumerate the complications of hysterectomy: intraoperative, immediate and late. Describe laparoscopic hysterectomy: TLH/LAVH	Discuss the measures undertaken to prevent complications	Short note on robotic surgery
14	Revision of normal labor : Mechanism	Define labor and normal labor. Enumerate the stages of labor. What are principle movements in the mechanism of labor? Describe mechanism of labor in Left occipito anterior position.	Describe four types of pelvis	-
15	Revision of management of first and second stage of labor	Differentiate between true and false labor? Role of partograph Describe CTG Describe Episiotomy	Define arrest of dilatation and arrest of descent	-

16	Abnormal Labor	Describe the normal uterine activity. What is the role of upper and lower segment, node of uterine activity? Define dystocia, eutocia Describe the 'P' of abnormal labor. Describe Passage, Passenger and Power in detail. What is bandels ring? Compare it with Schroeder's ring.	Management of abnormal uterine activity	-
17	Types of female pelvis , clinical pelvimetry and C.P.D	Enumerate the four basic types of pelvis. Describe differentiating features of the four types of pelvis? And different planes and important diameters of the pelvis. Mention stepwise clinical pelvimetry Describe CPD and clinical tests for CPD.	Describe the role of caesarean section in CPD	What are types of abnormal pelvis and its clinical importance?

18	Caesarean section I – History , types , indications	Define L.S.C.S. Describe in short about history of L.S.C.S. Enumerate the indications of L.S.C.S? Describe elective and emergency caesarean section.	Identify various instruments used in caesarean section with its uses	
19	Caesarean section II – Techniques and complications	Describe the operative steps of caesarean section. Name the incision taken on uterus. Describe mono layer and double layer closure of uterus. Describe Misgav Ladach technique.	Enumerate the checklist for patient for caesarean section	Other techniques of caesarean section
20	Uterine rupture	Define uterine rupture. Enumerate are the causes of uterine rupture / etiology of uterine rupture? What is the difference between scar dehiscence and scar rupture? Describe the diagnosis and management of uterine rupture?	What are different management options in case of ruptured uterus?	-

21	Definitions of PNMR , MMR , NMR and its importance	Define Perinatal Mortality? What are the causes? Define Maternal Mortality Rate and What are the causes of Maternal Mortality in India? Define Neonatal Mortality and Enumerate causes for it.	What is current PNMR, MMR, NMR of India and Maharashtra?	Which steps you will take to reduce PNMR , MMR , NMR?
22	Lactation and breast feeding PSM perspective	Describe the lactation cycle: Galactopoiesis, kinesis, What are advantages of Breast Feeding? What are different techniques of breast feeding? Contents of breast milk and cows milk What do you understand by exclusive breast feeding?	Enumerate breast feeding complications in puerperium?	Enumerate contraindications for breast feeding?
22	Role of PHC , RH , Sub Centre , ANM , ASHA worker in antenatal care	Describe role of PHC in ANC? Describe role of rural hospital in ANC? Discuss role of ANM in ANC? Discuss the role of ASHA in ANC?	What are the indicators of quality control in antenatal care?	Suggest interventions to improve quality of antenatal care

VIIIth semester Lecture SLO

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Anatomy of female genital tract	describe uterus gross anatomy and its positions blood supply ,lymphatic drainage and nerve supply of uterus describe histology of endometrium describe anatomy and histology of cervix and its clinical importance describe the anatomy and physiology of ovary Describe parts and functions of fallopian tubes.	Describe the ovarian fossa	Describe the applied anatomy of the supports of the uterus
2	Cervical incompetence	Define recurrent abortions Describe the abortion in cervical incompetence Describe etiological factors for cx incompetence Enumerate tests to diagnose cx incompetence Describe surgical management of cx incompetence enumerate complications of surgery	Compare and contrast the Shirodkars technique and macdonalds	Describe emergency cervical cerclage
3	Multi fetal pregnancy	describe twinning? Describe clinical features of multi fetal pregnancy	Enumerate the Indications of lscs in multiple pregnancy	Describe conjoined twins

		Discuss the diagnosis of twins? What are maternal and fetal complications of multiple pregnancy How do you manage case of multiple pregnancies in labour?		
4	Polyhydramnios and Oligohydramnios	Describe normal physiology of amniotic fluid and list functions of amniotic fluid? Define poly and oligo hydramnios Enumerate the etiological factors for poly and oligohydramnios? Enumerate the Complications of polyhydramnios and oligohydramnios? Describe the management principles of polyhydramnios and oligohydramnios.	Discuss the role of hydration in oligohydramnios	Discuss the role of ultrasound in poly and oligo hydramnios
5	Abnormalities of placenta ,cord and cord prolapse	Enumerate various placental anomalies and clinical significance. Describe a true knot and false knot Enumerate the Complication of short and long cord. Define cord prolapse discuss its etiology, diagnosis and management	Describe in short morbidly adherent placenta	Describe the management options in morbidly adherent placenta
6	Anaemia Part I Aetio pathogenesis ,classification, clinical features	Define Anaemia, what is physiological Anaemia. Describe the hematological	Draw a peripheral blood smear of iron deficient anaemia	-

		changes in pregnancy. classify Anaemia and describe the clinical features of iron deficiency anaemia Enumerate the complications of anaemia in pregnancy		
7	Anaemia Part II Investigations & Management	Enumerate the lab investigations of a patient of anaemia and describe in detail the peripheral blood smear in anaemia. Describe the role of oral iron verses intravenous iron therapy Describe the parental iron does calculation and administration of i.v. sucrose 4)What is the dose ,side effects and contraindications of oral Iron therapy What are the indications of Blood transfusion therapy?	Describe F C M	Describe the RDW and its role in iron deficiency anaemia.
8	Hypertensive disorders in pregnancy I–definition, classification & pathophysiology.	Classify Hypertensive disorders in pregnancy with definition of each Describe pathophysiology of PIH	Draw the diagram of pathophysiology of pre-eclampsia	Describe the waves of trophoblastic invasion
9	Hypertensive disorders in pregnancy II clinical features and management	Describe the symptoms and signs of pre-eclampsia Enumerate the investigations in pre-eclampsia Describe the anti-hypertensive drugs in pre-eclampsia Discuss HELLP Syndrome	Describe the management of hypertensive crisis	Describe hypertensive retinopathy

10	Eclampsia	define eclampsia describe the stages of eclampsia enumerate the D/D of eclampsia describe various Magnesium sulphate regimens, mechanism of action and its monitoring	Describe the antidote of magnesium Sulphate	Describe PRES
11	Diabetes in Pregnancy	Define Gestational diabetes mellitus. Describe the screening of GDM with OGCT Enumerate the maternal and fetal complications of GDM Enumerate the congenital anomalies associated with diabetes. describe the principles of management in GDM: MNT, Fetal Surveillance, Insulin and drug therapy	Describe the role of HbA1c	Describe the Contraception in GDM
12	Heart disease in pregnancy	Describe cardiovascular changes in pregnancy. Enumerate the investigations Describe medical management of heart disease in pregnancy. Enumerate the complications of heart disease in pregnancy.	Describe the role of instrumental delivery in heart disease	Describe the role of surgery w.r.t. gestational age.
13	Rh Isoimmunisation	Define iso-immunization and incompatibility Describe the investigation protocol in Rh negative	Describe Amniocentesis and Lileys chart	Describe Intra uterine transfusions

		mother Describe and draw the algorithm of treatment in Rh negative pregnancy. Discuss the Role of Anti D in Rh negative pregnancy. Enumerate Investigations on cord blood in Rh Negative pregnancy Describe hydrops fetalis		
14	Urinary tract infections in pregnancy	Enumerate the common organisms responsible for UTI Diagnose UTI in pregnancy. Enumerate the signs and symptoms in UTI Describe the safe antibiotics in pregnancy with UTI Enumerate the complications of UTI in pregnancy.	Describe in short pyelonephritis	-
15	Viral Infections in pregnancy	Enumerate TORCH group of infections Describe the significance of IgG and IgM antibodies in TORCH Enumerate the congenital anomalies associated with Rubella infections Management of Toxoplasmosis	Describe Spiramycin	Describe the role of Rubella vaccination
16	HIV in pregnancy	Describe microbiology of HIV virus Describe vertical	Describe ICTC/DISHA	Describe classification of anti-retroviral drugs

		transmission Enumerate diagnostic and screening test for HIV Discuss various drug regimens for preventing vertical transmission Enumerate Precautions to be taken to prevent vertical transmission		
17	Preterm labour	Define preterm labour Enumerate the etiological factors of preterm labour Enumerate the complications Discuss the diagnosis of preterm labour? Enumerate the investigations Describe various tocolytic drugs w.r.t dosage, side effects contraindication	Describe role of corticosteroids	Describe atosiban
18	Recurrent pregnancy loss	Define recurrent pregnancy loss. Enumerate the causes of recurrent pregnancy loss Describe cervical incompetence as a cause Describe anti-phospholipid syndrome	Enumerate Investigations in APLA	Describe Role of heparin
19	Immunology of pregnancy Integrated with microbiology	Immunology of recurrent pregnancy loss Describe anti-phospholipid syndrome	Describe the immunology of pregnancy	

20	Antenatal foetal surveillance	Describe DFKC of Cardiff Describe Non stress test Describe Biophysical profile Describe Modified biophysical profile	Describe FTS	Lamellar body index
21	IUGR	Define IUGR Classify IUGR: symmetrical vs asymmetrical Enumerate the causes: maternal, fetal, and placental. Describe the diagnosis and investigations Define SGA	Enumerate the fetal complications	Describe the role of intravenous amino acid infusion
22	Anencephaly , hydrocephalous and IUD	Define anencephaly, incidence, diagnosis and clinical features anencephaly Enumerate causes of hydrocephalous Describe the sonological features of hydrocephalous Describe management options of hydrocephalous Enumerate causes of IUD Describe Signs and symptoms and Investigations of IUD	Describe the Prevention of anencephaly	Describe organ donation in anencephaly foetus
23	Induction and augmentation of labour	Define induction and augmentation Enumerate the indications of induction of labor with rationale in each Enumerate the drugs used in	Enumerate the complications of induction of labor	Define hyper stimulation, hyper tonus, tachysystole

		induction of labor Enumerate the indications of augmentation of labor Enumerate the drugs used for augmentation		
24	Basis Of Cytology , Metaplasia , Atypia	Describe What is dysplasia? Discuss the difference between neoplastic Cell and normal cell What is S-C Junction of Cervix Define atypia	What is Cervical Erosion	Describe in short oncogenes
25	Screening Of Malignancy Of Genital Tract & CIN	Describe CIN Classification What is PAP Smear Describe VIA Explain Colposcopy	What is liquid based cytology Management of premalignant lesions of cervix.	What is Human Papilloma Viruses Describe Vaccines Against Ca Cx
26	Ca Cervix - Etiology, clinical features, diagnosis & investigations	What is Etiology Of Ca Cx Describe clinical features in patients with Ca Cx. Describe Types Of Cervical Biopsy Describe Investigations to be done in patients With Ca Cx. Explain Staging in Ca Cx.	Classification of Ca Cx	Describe the basics of HPV oncogenesis
27	Ca Cx Management	Describe What is Wertheim's Hysterectomy Describe steps	Chemotherapy & Radiotherapy in patients with ca cx	Palliative care in patients with advanced ca cx.

		Explain complications Explain Postoperative management		
28	Ca Endometrium.	Explain screening Of Ca Endometrium Enumerate etiology of ca endometrium. Describe Staging of Ca Endometrium. Discuss the diagnosis Explain classification of ca endometrium. Explain management of ca endometrium depending upon the staging.	Explain Corpus cancer Syndrome.	Explain Chemo radiation in patients with ca endometrium.
29	Benign lesions of ovary including dermoid	Classify benign lesions Investigations Describe a Dermoid	Define immature teratoma	
30	Ca ovary Ca ovary I- Classification, etiology, pathology, clinical features.	describe classification of ca ovary Describe etiology of ca ovary Explain clinical features in ca ovary Discuss How to diagnose ca ovary	Describe How to screen ca ovary	Differentiate borderline from malignant ovarian tumors
31	Ca ovary Investigations and Management	Explain investigations to be done in patients with ca ovary Explain staging laparotomy in patients with ca ovary.	Explain lymphatic drainage in patients with ca ovary.	Explain Chemo radiation in patients with ca ovary.

32	Chemotherapy and radiotherapy			
33	USG/MRI/ CT/HSG/Sonosalphingography	What are indications of USG in early pregnancy Describe the role of ultrasound in gynecology w.r.t. AUB, DUB, Infertility What is saline sonohysterography What is role of CT/MRI in Gynecology	What is the principle in sonography	Describe the advantages and disadvantages of MRI
34	Laparoscopy / Hysteroscopy	Enumerate indications of laparoscopy in gynecology Enumerate indications of hysteroscopy Identify the instruments used for laparoscopy Describe the role of pneumoperitoneum	Enumerate complications of laparoscopy.	Describe office hysteroscopy
35	Pharmaco kinetics of drugs	Basics in pharmaco kinetics Its application in gynecology and obstetrics	FDA classes of various drugs	
36	Infertility Male Causes, investigations and treatment.	Enumerate the causes of male infertility Tell the procedure & readings of Semen analysis Define Oligospermia/asthenospermia Azoospermia/Teratospermia Draw diagram of normal sperm	Explain management of Oligospermia	Discuss the evaluation of azoospermia

37	Infertility Females causes, investigation.	Enumerate the causes of Female Infertility Enumerate & Describe Investigations To Be Done In Patients with Infertility. Explain management of different factors	Discuss PID as a cause of infertility	Discuss endometriosis as a cause for infertility
38	PCOS & Hirsutism	Describe PCOS Describe the ASRM Criteria for PCOS Discuss the diagnosis of PCOS Discuss Medical management of PCOS What is Hirsutism? Management of cases of Hirsutism.	Discuss the etiopathogenesis of PCOS	Enumerate the long term metabolic sequel after PCOS
39	Infertility Treatment with drugs, surgery and ART techniques.	Enumerate the various options w.r.t the etiology Describe what is IUI/MESA / PESA / TESA Enumerate the Ovulation Induction drugs, mechanism, dosage, side-effects Discuss the role of laparoscopy Explain role of Gonadotropins in ovulation induction	Describe what is IVF/ICSI	Describe in short: surrogacy
40	Menopause / HRT	Define, menopause, peri-menopause and climacteric Enumerate various menopausal symptoms.	Describe SERMs	Various drug delivery system for HRT.

		List the investigations done in menopausal woman. Discuss the treatment modalities available: Pharmacological and Non-Pharmacological		
41	VVF /UVF/RVF	Describe etiology of urogenital fistulae Describe Clinical features & symptoms of Urogenital fistulae Describe the three swab test	Discuss the principle of repair of VVF	-
42	Urinary Incontinence	Define SUI Discuss the etiopathogenesis of SUI Define urge and overflow incontinence Describe Bonneys test for SUI Enumerate the various surgeries for SUI	Describe Burch colpo suspension and Kegels exercises.	Describe urodynamic studies
43	National Programmes	Describe NRHM Scheme What is MTCT What are Baby Friendly Clinics? Describe the RCH programme ICTC	What are the WHO Goals for 2015?	
44	Maternal Mortality / Neonatal Mortality	Define MMR. What are the GOI initiatives to reduce MMR? Enumerate the main causes	Discuss the preventive measures for MMR	

		of Maternal mortality? Enumerate the causes of neonatal mortality		

IX Semester Lectures

SLOs

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Revision of menstrual cycle and definitions of common menstrual disorders with common causes	Describe physiology of menstrual cycle. Describe features of normal menstrual cycle? Enumerate the causes of different menstrual disorders? Describe the management of dysmenorrhea	Draw diagram of menstrual cycle	Describe endocrinology of menstrual cycle
2	Amenorrhea I	Comment on HPO axis. Classify amenorrhea? Define primary and secondary amenorrhea Enumerate the causes of primary amenorrhea w.r.t. compartments Describe Mullerian agenesis	Describe Tanners staging	Describe Turners syndrome

3	Amenorrhea II	Define secondary amenorrhea and enumerate its causes Describe progesterone and estrogen-progesterone challenge tests Draw flow chart to reach the diagnosis of amenorrhea.	Describe Asherman syndrome	Describe hypergonadotrophic and hypogonadotrophic amenorrhea
4	A.U.B. I	Write the definition of different menstrual disorders. Enumerate the causes of AUB. Define DUB and classify DUB Enumerate the investigations of DUB	Describe the bleeding pattern in metropathia hemorrhagica	Newer classification of A.U.B
5	A.U.B II	Classify the medical management of DUB. Describe the commonly used drugs for treatment of DUB Enumerate the surgical management of DUB Discuss the role of DnC in DUB How will you diagnose A.U.B?	Describe the role of oral contraceptives in DUB	Describe the role of GnRH agonist and antagonist in DUB

6	Leiomyoma I – Types , causes , clinical features , diagnosis , pathology	Define leiomyoma and describe its etiopathogenesis? Enumerate the symptoms and signs of fibroid Enumerate the degenerations in fibroid Describe the gross and microscopic features of fibroids Describe the role of ultrasound in fibroid	Enumerate the other features of estrogen excess associated with fibroid	Role of MRI in fibroid diagnosis
7	Leiomyoma II – Management	Describe the role of hysterectomy in fibroid Describe myomectomy: Prerequisites, technique, precautions, procedure, advantages, and complications. Describe the drugs used in treatment of fibroids	Describe uterine artery embolization in fibroid	Describe myolysis

8	Endometriosis and Adenomyosis	Define endometriosis. Describe various theories for endometriosis Enumerate the symptoms and signs of endometriosis Describe the correlation of endometriosis and infertility Enumerate the differential diagnosis Discuss the medical and surgical management of endometriosis Describe symptoms, signs, investigation and treatment of adenomyosis	Describe the gross differences between adenomyoma and leiomyoma	What are newer advances in endometriosis treatment?
9	Prolapse I – Supports of uterus , etiology of prolapsed , clinical features , classification	Enumerate the different supports of uterus? Enumerate the etiology of prolapse Describe the various symptoms of prolapse Describe the grades prolapse Discuss different classifications in prolapse	Describe POP-Q	-

10	Prolapse II – Investigations , decubitus ulcer , complications , management – hysterectomy with repairs	Enumerate the investigations in prolapse Describe a decubitus ulcer Role of vaginal hysterectomy and AP repair in prolapse Describe the management principles in young/ perimenopausal/ menopausal patient with prolapse	Enumerate complications of prolapse	Describe enterocele and its repair
11	Prolapse III – Management with conservative surgeries	Enumerate the different conservative surgeries of prolapse Discuss each with advantages and dis- advantages Differentiate Fothergills surgery and Shirodkars modification.	Identify Shirodkar ligature carrier instrument and differentiate it from Cerclage needle	Describe le-fortes surgery
12	Hysterectomy : Types , indications , basic surgical principles	Describe different types of Hysterectomies? Enumerate the indications and discuss the steps for abdominal hysterectomy? Enumerate the indications and steps for vaginal hysterectomy.	Describe the role of oophorectomy with hysterectomy	Describe the vault suspension during hysterectomy

13	Surgical aspects of hysterectomy and complications	Enumerate the advantages of abdominal over vaginal hysterectomy and vice-versa Enumerate the complications of hysterectomy: intraoperative, immediate and late. Describe laparoscopic hysterectomy: TLH/LAVH	Discuss the measures undertaken to prevent complications	Short note on robotic surgery
14	Revision of normal labor : Mechanism	Define labor and normal labor. Enumerate the stages of labor. What are principle movements in the mechanism of labor? Describe mechanism of labor in Left occipito anterior position.	Describe four types of pelvis	-
15	Revision of management of first and second stage of labor	Differentiate between true and false labor? Role of partograph Describe CTG Describe Episiotomy	Define arrest of dilatation and arrest of descent	-
16	Abnormal Labor	Describe the normal uterine activity. What is the role of upper and lower segment, node of	Management of abnormal uterine activity	-

		uterine activity? Define dystocia, eutocia Describe the 'P' of abnormal labor. Describe Passage, Passenger and Power in detail. What is Bandels ring? Compare it with Schroeder's ring.		
17	Types of female pelvis , clinical pelvimetry and C.P.D	Enumerate the four basic types of pelvis. Describe differentiating features of the four types of pelvis? And different planes and important diameters of the pelvis. Mention stepwise clinical pelvimetry Describe CPD and clinical tests for CPD.	Describe the role of caesarean section in CPD	What are types of abnormal pelvis and its clinical importance?
18	Caesarean section I – History , types , indications	Define L.S.C.S. Describe in short about history of L.S.C.S. Enumerate the indications of L.S.C.S? Describe elective and emergency caesarean section.	Identify various instruments used in caesarean section with its uses	

19	Caesarean section II – Techniques and complications	Describe the operative steps of caesarean section. Name the incision taken on uterus. Describe mono layer and double layer closure of uterus. Describe Misgav Ladach technique.	Enumerate the checklist for patient for caesarean section	Other techniques of caesarean section
20	Uterine rupture	Define uterine rupture. Enumerate are the causes of uterine rupture / etiology of uterine rupture? What is the difference between scar dehiscence and scar rupture? Describe the diagnosis and management of uterine rupture?	What are different management options in case of ruptured uterus?	-
21	Definitions of PNMR , MMR , NMR and its importance	Define Perinatal Mortality? What are the causes? Define Maternal Mortality Rate and What are the causes of Maternal Mortality in India? Define Neonatal Mortality and Enumerate causes for it.	What is current PNMR, MMR, NMR of India and Maharashtra?	Which steps you will take to reduce PNMR, MMR , NMR?

22	Lactation and breast feeding PSM perspective	Describe the lactation cycle: Galactopoiesis, kinesis, What are advantages of Breast Feeding? What are different techniques of breast feeding? Contents of breast milk and cow's milk What do you understand by exclusive breast feeding?	Enumerate breast feeding complications in puerperium?	Enumerate contraindications for breast feeding?
22	Role of PHC , RH , Sub Centre , ANM , ASHA worker in antenatal care	Describe role of PHC in ANC? Describe role of rural hospital in ANC? Discuss role of ANM in ANC? Discuss the role of ASHA in ANC?	What are the indicators of quality control in antenatal care?	Suggest interventions to improve quality of antenatal care

VI Semester tutorials				
Sr No	Topic	Must Know	Desirable To Know	Nice To Know
1	Obstetric examination in pregnancy (ANC)	Name four Leopold manoeuvres Demonstrate various grips correctly Enumerate importance of each grip Enumerate the signs of pregnancy Demonstrate the signs of pregnancy	Define lie, position, presentation , engagement	Applied importance of Obstetric examination
2	Obstetric examination in labour	Demonstrate all 4 grips in labour patient Demonstrate pelvic grips and diagnose labour Judge lie and presentation Palpate fetal back and auscultate fetal heart sounds	Enumerate importance of per vaginum examination in labour	
3	Female pelvis & fetal skull	Describe various planes of pelvis with important diameters Describe midpelvis with applied importance Identify important landmarks on pelvis Able to hold pelvis in anatomical position Identify the important sutures and Important diameters of fetal skull	Describe Caldwell-Moloy classification of pelvis	

		Enumerate importance of anterior and posterior fontanelles		
4	Management of stage 1 labour	Define normal labour Differentiate between true and false labour pains Enumerate the stages of labour Draw and describe a partogram Mechanism of labour Enumerate importance of enema in labour	Describe importance of fetal and maternal monitoring in 1st stage	Describe mechanism of labour in ROA
5	Management of stage 2 labour	Define stage 2 labour Describe – extension of head, crowning, restitution, ext. rotation Describe the ideal episiotomy procedure	Technique of suturing episiotomy	Describe modified Ritgen manoeuvre
6	Management of stage 3 labour	Describe modes of separation of placenta Describe active management of third stage of labour Describe controlled cord traction Enumerate signs of placental separation Describe examination of placenta	Describe bimanual massage and diagnosis of uterine atony	Describe the Placental vasculature
7	Episiotomy, instruments, suturing, care & complications	Define episiotomy & its indications Types of episiotomy	Pudendal block for episiotomy	Highlight the management of hematoma of the

		Describe the Episiotomy scissors Structures cut in episiotomy Suture materials choice for episiotomy Episiotomy care & Complications		episiotomy
8	PPH – Atonic	Define PPH & classification Causes of atonic PPH Risk factors of uterine atony Management algorithm of PPH	Know the stepwise devascularisation of uterus	Enumerate the advantages and disadvantages of uterine artery embolization
9	PPH – traumatic	Enumerate 3rd stage complications Causes of traumatic PPH High risk factors of traumatic PPH Describe the management of cervical tears	Degree of Perineal tears	Enumerate the long term complications of perineal tears
10	Drugs in labour room- oxytocin, prostaglandins , methergin	Describe pharmacology & pharmacokinetics Indications and contraindications Discovery of PGs , different PGS and its derivatives Side effects Describe oxytocin titration drip	Compare and contrast oxytocin with methergin	Compare and contrast different PGs derivatives with respect to mode of action route & side effects
11	Anti hypertensives- magnesium sulphate, nifedipine,	Describe pharmacology and pharmacokinetics Indications and	Describe alternative drugs to magnesium sulphate and nifedepine	Mention the antagonists of the above drugs

	labetolol	contraindications Side effects Mechanism of action		
12	PNC case discussion- an overview	Define normal puerperium and duration Describe involution of uterus and other genital organs Lochia with significance Minor puerperal ailments with management Define puerperal pyrexia and sepsis	Enumerate the leading questions to ask a patient PNC ward	Demonstrate the counselling of a patient in PNC wards at discharge.
13	Dystocia	Define dystocia and eutocia Describe the 'p's in dystocia Define the role of partograph in dystocia Define arrest of descent and dilatation	Enumerate the signs and symptoms of obstructed labor	Outline the management of rupture of uterus
14	Breech- causes , types, complications	Define malpresentations Enumerate the causes of breech presentation Describe the four types of breech presentation Enumerate the complications of breech delivery	Describe the role of ultrasound in breech management	Describe a star-gazing breech
15	Breech presentation - management	Describe ECV technique w.r.t. Indications, complications & adverse effects. Enumerate the pre-requisites for vaginal breech	Describe various manoeuvres used in vaginal breech delivery	Demonstrate the delivery of after coming head in breech on model

		delivery Enumerate the indications for caesarean section in breech Define spontaneous, assisted and breech extraction		
16	Occipito posterior position & DTA	Revise pelvis and skull and normal labour mechanism Enumerate pelvis types where OP position is common Demonstrate the mechanism of labor in occipito-posterior positions	Define deep transverse arrest and diagnosis of DTA	List the difficulties encountered during section for DTA
17	Transverse lie, Face & Brow	Define transverse lie Enumerate types of transverse lie and etiology Describe diagnosis of transverse lie & management in term patient Define face and brow presentation with presenting part and diameter Complications of face & brow	Demonstrate face and brow presentation on skull and pelvis model	Enumerate the complications of persistent brow & mento posterior face presentation
18	Examination of placenta & cord & placental abnormalities	Narrate the gross examination of normal placenta Identify the maternal and fetal surface Enumerate the contents of umbilical cord Enumerate the different placental and cord	Define and describe placenta accreta, increta and percreta	Know the management guidelines in placenta accreta

		anomalies		
19	Partograph & NST	Draw the Friedmans Curve with components of labor Enumerate the components of Partograph Describe each component with rationale Know the importance of alert and action line Read a partograph and interpret Define NST, describe the components of NST Describe various decelerations Describe the advantages of NST	Describe a admission test	Interpret an NST & Partograph
20	Drill of fetal distress & cord prolapse	Describe what is meant by fetal distress Diagnose fetal distress Know the drill in fetal distress: Left lateral position, oxygenation, call for help, CTG Diagnose cord prolapse Define occult and overt cord prolapse Enumerate the risk factors for cord prolapse	Know the importance of vaginal cord reposition and prevention of cord compression	Enact a labor room scenario in fetal distress
21	Examination of new-born & gross congenital abnormalities	Enumerate the organs and systems examined in a new born Describe the components of	Describe the modified Ballard scoring	Demonstrate neonatal resuscitation

		APGAR score Describe the gross criteria of term/preterm/post term baby Describe the various reflexes in newborn baby Enumerate the gross congenital anomalies identified in new born babies		
22	Caesarean section check list	Enumerate the contents of check list in caesarean section Describe the importance of each component in the checklist Describe the advantages of having a checklist Know the medicolegal implications	Know the complications avoided by following the checklist	Enact the OT Scenario of checklist
23	Caesarean section indications	Enumerate the indications Enumerate the absolute and relative indications Describe the rationale for caesarean in each indication Know the complication that may arise if caesarean section is not performed for that indication	Know the Cragin's dictum	Enumerate the indications for classical caesarean section
24	MTP	Describe MTP law- IPC , Shantilal Shah Committee and amendments Describe the rational for the law: to legalize abortions Know the legal gestational	Describe Medicinal MTP	Describe various methods for criminal abortions

		age for MTP		
		Describe the various indications for MtP		
		Know first and second trimester mtp		

VIII semester Tutorials

SLOs

Sr No	Topic	SLOs		
		Must know	Desirable to know	Nice to know
	Operative Obstetrics			
1	LSCS : Indications and instruments	Define LSCS Types of LSCS Enumerate and discuss 10 common indications of LSCS Identify various instruments used in caesarean section with uses	Rational for rare indications e.g. classical caesarean section	
2	Topic 2: LSCS operative procedure	Show files to share pre operative checklist for patient for caesarean section Describe the operative steps of caesarean section Describe the mono layer and double layer closure Intra operative and post operative complications Outline post operative care for a case of LSCS	Various types of abdominal incisions	
3	Post LSCS Pregnancy	Define VBAC Elicit detail history of	List recurrent indications for LSCS	

	VBAC & TOLAC	previous caesarean section Describe the criteria for VBAC, Describe the healing in Lower segment scar and classical scar Describe the Cragin's dictum Define scar dehiscence and scar rupture Describe the signs and symptoms of impending scar dehiscence Describe the complications of post LSCS pregnancy		
4	Writing exercise on LSCS	List 5 maternal and 3 fetal indications for Caesarean section Compare and contrast Classical and Lower segment Caesarean section Case scenario of a previous LSCS case in labour: ask about management of VBAC Write down intra and immediate postoperative complications of LSCS		
5	Forceps and Vacuum	Enumerate the indications of forceps and vacuum Identify the type of forceps and describe various parts Describe the steps of forceps application Define prerequisites for forceps and describe Outlet forceps	Describe functions of forceps	Describe History of forceps

		Enumerate complications of forceps Describe the steps of vacuum application .Tell the vacuum generated Enumerate the complications of vacuum		
	Family Welfare			
6	MTP LAW	Describe the MTP law Describe WHO, WHERE & WHEN can perform MTP Enumerate the indications of MTP Describe the legal gestational age limit for MTP Describe the importance of consent and record maintaining Describe what is legal but unsafe, legal and safe, illegal and unsafe abortion practices	Describe :IPC, Amendments in MTP law	
7	MTP first trimester	List the various methods for 1st trimester MTP List the investigations for MTP Describe the procedure of S/E for first trimester MTP List the complications of the procedure Describe the Medicinal termination with drugs, their dosage and counseling Describe the post procedure	Compare and contrast electric suction and MVA Management of complications.	Identify various parts of MVA syringe

		counseling List the advantages of manual vacuum aspirator		
8	MTP ii nd trimester PCPNDT act	List various procedures available for performing second trimester termination Describe the ethacridine lactate technique, mechanism of action, advantages, dose and complications Describe the use of various prostaglandins in second trimester terminations Describe what is hysterotomy, indications complications Enumerate components of post termination counseling Describe PCPNDT act	Mention :Implications of PCPNDT act	List hypertonic solution for 2nd trimester MTP
9	Contraception: Classification, Pearl Index, Natural methods	Define contraception and sterilization Enumerate and classify the methods of contraception Describe how to calculate efficacy and failure rate Describe the various natural methods of contraception and safe period		
10	Contraception: Barrier and injectable methods	Describe the barrier methods, types, use, indications, contraindications and side effects Describe injectable contraceptive DMPA Describe the mechanism of	Female condoms Describe intradermal implants	

		action Describe the dose, pharmacology and duration Enumerate the indications, contraindications and side effects		
11	Contraception: Hormonal methods Pills	Classify Oral contraceptives Describe the mechanism of action Describe the dose, pharmacology and duration Enumerate the indications, contraindications and side effects Enumerate the non contraceptive advantages of OCP Describe the counseling of patient and selection criteria Describe progesterone only pill, mechanism advantages and side effects	Newer regimes for COC Non hormonal oral contraceptives	
12	Contraception: Intrauterine devices	Classify IUCD Describe the mechanism of action of IUCD Describe patient selection, indications, contraindications and side effects Describe the insertion technique and removal Enumerate the factors to be included in counseling and follow up	Describe protocol of management of missing threads of IUCD	

		Describe medicated IUCD		
13	Writing exercise on contraception	Write short note on Pearl index Short note on barrier contraceptives Short note on COC Short note on IUCD Define contraception. Write classification, Mechanism of action, side effects of COC.		
14	Tubectomy	Describe selection criteria for tubectomy List various techniques of tubectomy Describe Modified Pomeroy's type of tubectomy Compare and contrast abdominal and lap TL Describe steps in tubectomy surgery both abdominal and laparoscopic Enumerate complications of tubectomy Describe the vasectomy procedure, NSV, complications and post op counseling	Describe other techniques of Abdominal TL	
	FIRST HALF OF PREGNANCY			
15	Ectopic pregnancy and Vesicular mole with specimen	List the causes of bleeding in first half of pregnancy Describe in short ectopic pregnancy and vesicular mole USG diagnostic criteria for Ectopic pregnancy and		

		vesicular mole. Describe management and follow up of both		
16	First trimester miscarriage	Define miscarriage List the investigations and diagnosis of different types of miscarriage. Describe the treatment modalities with respect to specific type of miscarriage.	Describe TORCH test implications and limitations	
17	Second trimester miscarriage	Define second trimester miscarriage Describe etiology of the same. List the investigations and diagnosis of different types of miscarriage. Describe the treatment modalities with respect to specific type of miscarriage. Define prevention strategies for the same	Describe components of FTS Describe Triple test implications and limitations	
18	Writing exercise on miscarriage	Define miscarriage, Mention types of miscarriage. Write investigations and treatment for a case of first trimester RPL Short note on Missed abortion. Short note on Septic abortion		
SECOND HALF OF PREGNANCY				
19	Antepartum Hemorrhage: clinical aspects	Define APH Enumerate causes of APH Differentiate between Placenta Previa and	Describe how to categorize hemorrhagic shock. Outline	Give details of blood component

		Abruptio clinically Describe how to assess blood loss clinically. Outline conservative management of Placenta Previa List investigations and describe management of APH at different gestational ages.	principles of managing the same	therapy
20	Preterm labor :Causes, investigation and management	Define preterm labor Enumerate the causes of preterm labor Enumerate the signs and symptoms of preterm labour Describe the investigations and management of preterm labour Describe the role and dose of steroids in preterm labor Enumerate different tocolytics Describe isoxuprine, ritodrine and nifedepine w.r.t. pharmacokinetics, dose, side effects and contraindications	Contraindications for use of tocolytics	Controversies and guidelines about steroids for prematurity
21	Drugs Oxytocin and Methergin	Describe the pharmacology, pharmacokinetics of Oxytocin List the indications, contraindications of Oxytocin use Describe Oxytocin titration drip	Describe Oxytocin challenge test and Oxytocin sensitivity test	

		Describe the pharmacology and pharmacokinetics of methyl ergometrine List indications, contraindications and side effects of methyl ergometrine Compare and contrast Oxytocin with Methergin		
22	Drugs: Prostaglandins in OBGY	Describe the different prostaglandins and derivatives, along with cyclooxygenase pathway Describe the pharmacology, pharmacokinetics of prostaglandins List the different uses of prostaglandins with respect to trimester of pregnancy, with dose and rationale Compare and contrast different prostaglandins and derivatives with respect to mode of action, route and side effects	Comment on discovery of prostaglandins	
23	Drugs: Antihypertensives and MgSO ₄	Describe the criteria for using Anti hypertensives & MgSO₄ in pregnancy List the common Anti-hypertensive used in pregnancy Describe the pharmacology, pharmacokinetics of these drugs Mention correct dosages, side effects: Nifedipine, Alphadopa, Labetelol Describe mechanism of	Other Antihypertensives :Hydralazine, Beta blockers, NTG Other anticonvulsants and their dosages	

		action of MgSO₄ in prevention of convulsions Describe Pritchard & Zuspan regimen List side effects and Toxicity levels of MgSO₄ Describe monitoring of patient on MgSO₄ List other uses of MgSO₄		
24	Writing exercise on Drugs	Write short note on: Any drug Case scenario of Preterm labour: Prevention Case scenario Pre-eclampsia: management Case scenario Eclampsia: Management		
	Gynaecology Procedures			
25	D&C, Fractional Curettage	Define dilatation and curettage and evacuation Enumerate the indications of D/C Describe the operative procedure and identify the instruments Enumerate the complications Describe what is fractional curettage Mention Rationale for fractional curettage	Tell the methods of rapid and slow dilatation Tell indications for only dilatation	Describe laminaria tents and its method of sterilisation
26	Cervical Biopsy & LEEP	Enumerate indications for cervical biopsy Mention types of cervical	Post treatment follow up of LEEP	Post treatment follow up of

		biopsy Describe the operative procedure and identify the instruments for punch biopsy and LEEP Enumerate the complications of Punch, LEEP, Cone biopsy	Cryo/LEEP	Cone biopsy
27	Hysterectomy: Indications, Types, Procedure	Enumerate types of Hysterectomy route wise Define TAH, Subtotal, Pan Hysterectomy, TAH plus USO, Radical List 8 to 10 Gynecological indications for Hysterectomy Refer to patient files and describe necessary pre-op investigations, pre operative preparation and choice of anesthesia for various types of hysterectomy Enumerate steps of Abdominal / Vaginal Hysterectomy	Instruments needed at different steps Types of abdominal incisions Selection of patient	Variations in technique like morcellation,
28	Hysterectomy: Complications	List Stepwise intraoperative complications of Abdominal and Vaginal hysterectomy List immediate post operative complications List post operative complications from day 2 to day 7 List late post operative complications Go through actual patient files to describe post	Adv of Vaginal over abdominal Risk of stump carcinoma	Techniques of vault suspension to prevent remote complication

		operative follow up and management of complications		
29	Writing Exercise on Hysterectomy	Short notes on: Indications of Abdominal hysterectomy / Vaginal hysterectomy Investigations and pre-op preparation Complications of any one type		
30	Lesions on Vulva, Bartholin's Cyst	Describe benign conditions of vulva Describe in brief causes, S/s, treatment of inflammatory lesions, ulcers, atrophy, dystrophies of vulva Describe etiology, presentation, d/d and management of Bartholin's cyst	Histological classification of vulval dystrophies	VAIN diagnosis
31	Instruments in Gynec OPD	Identify, tell the method of use, sterilization and common indications for instruments : Sim's and Cusco's speculum, AV retractor, uterine sound, sponge holder, Vulsellum, artery forceps, stitch removing scissors, Cheattle forceps etc		
32	Viva on Specimens :Basics	Identify the specimen Describe probable complaints of patient with that disease Mention signs, symptoms, investigations relevant to it Outline management for the same	Structure removed in the specimen adequate/ inadequate	Viva related to individual diagnosis

33	Viva on models in Gynaecology: Fibroids Uterus	Identify the model Describe probable complaints of patient with that disease Mention signs, symptoms, investigations relevant to it Outline management for the same	Viva related to individual diagnosis	

IX Semester Tutorials

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Cervical erosion, cervicitis, management	Differentiate between cervical erosion and cervicitis Define metaplasia Describe the etiopathogenesis of cervicitis Describe the anatomy of cervix, transformation zone and S-C junction Describe the management options in chronic cervicitis Enumerate the post op counseling of patient after cauterization	Enumerate Types and procedure of cervical cautery	Describe age related changes in SC junction
2	Vaginal infections, clinical features, management	Enumerate the different types of vaginal infection Describe the clinical features, diagnosis and treatment of candidiasis, Describe the clinical features, diagnosis and treatment of trichomoniasis Describe the clinical features, diagnosis and treatment of mixed vaginitis	Describe Senile vaginitis-diagnosis and management	Enumerate the Emsel's criteria
3	PID, causes, clinical features OPD management	Describe the protective mechanisms of female genital tract Enumerate the risk factors for causing PID Enumerate the causative organisms causing PID	Need of hospitalization	

		Enumerate the signs and symptoms of acute and chronic PID Describe the management of acute and chronic PID		
4	Writing Exercise on lower genital tract infections	Describe lower genital tract infections Define cervical ectopy, ectropion Differentiate in between candidial and trichomonilial infections Draw picture of T. vaginalis	Enumerate Tests to diagnose infections	Describe the Drugs with dose schedule
5	Amenorrohea	Define amenorrhea. Describe the clinical types of amenorrhea. Define primary amenorrhea and secondary amenorrhea. Describe the common cause of primary and secondary amenorrhea. Describe investigation in a case of primary and secondary amenorrhea. Describe cryptomenorrhoea and its common causes. Describe PCOS. Describe management of case of primary amenorrhea. Describe management of case of secondary amenorrhea. Describe management of case of PCOS.	Describe management of Hyperprolactinemia and premature ovarian failure.	Describe: Asherman's and Sheehan's syndrome
6	menorrhagia	Define menorrhagia Enumerate common causes of it Describe investigations.	Discuss the role of GNRH analogues	Discuss the role of Mirena (progesterone IUS)

		Describe medical management.		
7	Prolapse case sheet analysis with decubitus ulcer	Enumerate the etiological factors for prolapse Describe the degrees of prolapse Classify prolapse Enumerate signs and symptoms of prolapse Describe decubitus ulcer, pathogenesis and management	Enumerate the differential diagnosis of cervical ulcer	Discuss the Role of estrogen in management
8	Prolapse case sheet with conservative surgeries	enumerate the conservative surgeries of prolapse describe fothergill surgery and Shirodkar's modification of it enumerate various sling procedures with advantages and disadvantages enumerate the role of pessary in prolapse	Describe Le fortes surgery	Discuss the Role of POP-Q in management
9	Fibroid uterus case sheet analysis	Define fibroid Discuss various types of it with specific s/s Explain reasons of menstrual irregularities in fibroid. Describe various modalities of management (conservative, medical, surgical) Discuss various degenerations in fibroid	Comment on Bonneys hood surgery	Discuss the Role of uterine artery embolization
10	Carcinoma cervix case sheet analysis	Enumerate etiological/risk factors of cancer cx Describe clinical features in patients with cancer cx. Staging of cancer cervix	Discuss the role of Chemotherapy & Radiotherapy in cancer cx	Describe the Steps of Wertheim's hysterectomy

		Enlist investigations to be done in patients with cancer cx. Discuss the screening and how it is done		
11	post-menopausal bleeding evaluation, causes, management	Define menopause Define PMB Enumerate the D/D of it Discuss the evaluate each case Discuss D &C	Drug induced bleeding	Role of imaging
12	Benign ovarian tumours dermoid cyst	Classify benign ovarian tumours Differentiate clinically benign and malignant ovarian tumours Differentiate in between uterine and ovarian mass Describe a dermoid Classify dermoid Comment on the management and complications of dermoid.	Describe Functional cysts of ovary	Discuss in short Solid benign tumours, Meig, Pseudo meig syndrome
13	ovarian tumours case sheet analysis	classify ovarian tumors differentiate between benign and malignant ovarian tumors enumerate the clinical features of ovarian tumors describe the Staging of ovarian tumors enumerate differential diagnosis of ovarian tumors enumerate the complications of ovarian tumors discuss various management	Enumerate the Steps of staging laparotomy Chemotherapy in cancer ovary	Discuss tumor markers in relation to ovarian tumors

		options in ovarian tumors describe various surgeries for ovarian tumors		
14	Infertility-basics	Define infertility Enumerate its causes Discuss in detail about male and female factors Describe semen analysis with interpretation	Discuss the Ovulation induction drugs	Describe Post coital test
15	Tubal patency tests	Discuss the tubal factor in female infertility How and when to evaluate Enlist various methods of tubal patency Enumerate its complications	Discuss HSG in detail	Describe sono salpingography
16	Tests of ovulation and drugs	describe ovulation describe the procedure for testing ovulation What is preferred and reliable method Describe ovulation induction drugs Describe its complications	Discuss the Role of GNRH in ovulation	Describe in short OHSS
17	Writing exercise on infertility	Define infertility Enumerate its causes Discuss in detail about male and female factors Describe semen analysis with interpretation Describe tubal factor in female infertility Enlist various methods of tubal	Ovulation induction drugs HSG in detail Role of GNRH in ovulation	Post coital test SIS OHSS

		patency Enumerate its complications Describe ovulation and various test of ovulation Enumerate the most preferred and reliable method Discuss ovulation induction drugs		
18	Anaemia evaluation and clinical management	Define anemia(Wooden) Enlist types of anaemia describe physiological anaemia ,why it is there discuss the Clinical presentation of it and enlist the investigations for it Discuss its management as per GA, and severity	Discuss the Role of IVIS	Discuss the role FCM
19	Preeclampsia diagnosis, investigations, management	Define Preeclampsia Classify hypertensive disorders of pregnancy Describe the pathophysiology based on vasoconstriction ,endothelial dysfunction and systemic afflictions with its maternal and fetal consequences Enumerate the Clinical signs and symptoms of it Describe the relevant laboratory and imaging tests for assessment of maternal and fetal condition Describe the use of anti-hypertensive, anticonvulsants, labor management and complications. Describe Magnesium Sulphate	Discuss Pritchard's and Zuspan's regime	Discuss in short DIC,ATN

		:mechanism of action What is eclampsia and what are the complications of eclampsia?		
20	Medical disorders- heart disease, GDM case orientation	Enumerate various heart lesions Describe effects of lesion on pregnancy and vice versa Discuss physiological changes in CVS and carbohydrate metabolism in pregnancy Discuss salient features of ante, intra, post-partum management of patient with heart disease Define GDM and How to do screening of it...OGCT Describe macrosomia Discuss complications of GDM Describe metabolic disorders	Role of Forceps and AMTSL in heart disease	Discuss in short PPCM and Shoulder dystocia
21	Pelvis, skull and mechanism of labor	Describe the various planes of pelvis with important diameters Describe the midpelvis with applied importance Identify important land marks on the pelvis and able to hold pelvis in anatomical position Describe the Caldwell-Moloy classification of pelvis Identify the important sutures and mention the important diameters in fetal skull Enumerate the importance of anterior and posterior fontanelle Enumerate the events in mechanism	Describe Clinical pelvimetry	Describe in short X ray pelvimetry

		of normal labor Describe crowning, internal, external rotation and restitution		
22	Third stage management and complications	Describe the modes of separation of placenta Describe active management of stage 3 labor Describe controlled cord traction Enumerate signs of placental separation Describe the diagnosis of uterine atony, high risk factors Enumerate the third stage complications Define post-partum hemorrhage and its classification Describe the management algorithm for PPH Enumerate causes of traumatic PPH and high risk factors for traumatic PPH	Describe Surgical management of PPH	Discuss in short Manual Removal of Placenta
23	Episiotomy, Perineal tear	Define episiotomy Enlist its indications and contraindications Discuss episiotomy w.r.t. when to give, structures to be cut, types, complications. Define perineal tear, types, and management of tear	PNC ward care for both	VVF/RVF
24	Instrumental delivery	Discuss the indications, prerequisites of forceps and vacuum	Describe Prophylactic forceps	Discuss the various Types of forceps (Kiellands)

		Enumerate complications of it Describe advantages and disadvantages of both over each other		
25	Induction and augmentation of labour	Enumerate the indications of induction of labour Enumerate the indications of augmentation of labour Describe the various agents for induction of labor with dose and side effects Enumerate the contraindications for induction of labor Describe role of oxytocin in induction and augmentation of labor	Describe Bishop's score	Discuss Hyper stimulation of uterus
26	Contraceptives for table viva	Describe temporary methods of contraceptives Discuss barrier methods Describe IUCD—method of insertion with description Describe COCs –types with differences Discuss mechanism of action of each method, how and when to use, complications of it outline selection criteria of each method	Describe in brief PPIUCD	Describe the Progesterone generations in COCs
27	Gynaec instruments	Identify the instruments on the gynecology table Enumerate the uses of the given instrument Enumerate the salient features of the given instrument Enumerate the advantages of the	Describe the alternative instrument for the said procedure	

		instrument Describe the surgery in which the instrument is used		
28	Obst instruments	Identify the instruments on the obstetrics table Enumerate the uses of the given instrument Enumerate the salient features of the given instrument Enumerate the advantages of the instrument Describe the surgery in which the instrument is used	Describe the alternative instrument for the said procedure	
29	Specimens and models	Identify the specimen on the table Describe the condition in regards of S/S, investigations, management Enumerate the salient features of the given specimen/model		

ASSESSMENT

Internal Assessment overview

Internal assessment: Theory

Examination	Marks
VIII Sem Term End	40 (80 converted to 40)
VIII Sem. Viva on theory	15
Preliminary exam	80
Prelim viva on theory	15
Total	Internal assessment (150 converted to 30)

Internal assessment: Practical

Examination	Marks	Total
2nd clinical posting (MCQ)	15	15
3rd clinical posting (MCQ exam)	15	15
5th clinical posting (Ward exam)	15	15
6th clinical posting (Ward Exam)	15	15
Preliminary exam	60	30(60 converted to 30)
		Total = 90 (converted to 30)

Theory examinations:

Final MBBS OBGYN:

Examination will consist of two theory papers of two hours duration carrying maximum of 40 marks each. The pattern of theory papers shall be as follows:

Paper 1: Obstetrics including social obstetrics

1. Long Question.... 8 mks
2. Long Question....8 mks
3. Long Question 8 mks
4. Short Notes ;(4)...4 mks each

Paper 2: Gynecology, Family welfare and Demography

1. Long Question.... 8 mks
2. Long Question....8 mks
3. Long Question 8 mks
4. Short Notes (4)....4mks each

PRACTICAL: Examination will consist of

- 1) **Clinical case presentation:** 1 Obstetrics case: 40 marks
1 Gynecology case: 20 marks
- 2) **Oral (Viva) (To be added to theory)** including record of delivery cases (20+10):
Obstetrics: 10 marks
Gynecology, Family planning: 10 marks

Candidate will be considered pass in the subject only when at least fifty percent of marks are obtained separately in theory and practical examination.

Internal Assessment:

- (i) It shall be based on day to day assessment and evaluation of student assignment, preparation for seminar, clinical case presentation etc.
- (ii) Regular periodical examinations shall be conducted throughout the course.
- (iii) Day to day records will be given importance during internal assessment.
- (iv) Weightage for the internal assessment shall be 20% of the total marks i.e. 40 marks in OBGYN (20 Theory and 20 Practical)
- (v) Student must secure at least 35% marks of the total marks fixed for internal assessment in order to be eligible to appear in final university examination.

Note: Internal assessment shall relate to different ways in which students participate in the learning process. Some examples are as follows:

- (i)Preparation for the clinical posting term end examination.
- (ii)Preparation of a clinical case for discussion in ward clinics
- (iii)Clinical case study/problem solving exercise.
- (iv)Participation in Projects, seminars, Health-Expo etc.
- (v)Preparation for OSCE
- (vi)Multiple choice questions (MCQ) test after completion of a clinical posting.

Overall Syllabus/ Course content:

I Basic Sciences

- 1.Applied anatomy of, abdomen, pelvis, pelvic floor, the genito-urinary system rectum and anal canal).
- 2.Physiology of oogenesis and spermatogenesis.
- 3.Endocrinology related to male and female reproduction, hypothalamo-pituitary-ovarian axis.
- 4.Development, structure and function of placenta, umbilical cord and amniotic fluid
- 5.Fetal growth and development anatomy of fetus, fetal physiology and fetal circulation
- 6.Physiological and neuro-endocrinal changes during puberty, various disorders during adolescence, menstruation,
- 7.Normal and abnormal development, structure and function of female and male urogenital systems and the female breast.
- 8.Ovulation & Fertilization.
- 9.Anatomical and physiological changes in female genital tract during pregnancy,
- 10.Maternal adaptations to pregnancy.
- 11.Lactation

12. Pharmacology of identified drugs used during pregnancy, labour, postpartum period with reference to their mechanism of action, absorption, distribution, excretion, metabolism, transfer of the drugs across the placenta, effect of the drugs on the foetus, their excretion through breast milk.
13. Mechanism of action, excretion, metabolism of identified drugs used in Gynaecology, including chemotherapeutic drugs.
14. Hormones in Obstetrics and Gynaecology.
15. Markers in Obstetrics and Gynaecology – non neoplastic and neoplastic diseases.
16. Humoral and cellular immunology in Obstetrics and Gynaecology. (graft acceptance and rejection issues pertaining to preeclampsia, recurrent pregnancy loss and infertility)

II Obstetrics:

1. Physiology of normal pregnancy, diagnosis of pregnancy, routine antenatal care, antenatal investigations, management of common symptoms in pregnancy.
2. Normal labor, stages of labor, Mechanism of labor, disorders of labor, partogram, episiotomy, instrumental delivery.
3. Abnormal presentations and positions.
4. Third stage complications.
5. Postpartum haemorrhage.
6. Drugs prescription during pregnancy and lactation.
7. Abortion, Ectopic pregnancy and vesicular mole.
8. Hypertensive disorders in pregnancy.
9. Anaemia, Diabetes, Heart disease in pregnancy and other common medical disorders in pregnancy.
10. Antepartum haemorrhage.
11. Intrauterine Growth Restriction (IUGR).
12. Rhesus Negative Pregnancy.
13. Multifetal pregnancy.
14. Polyhydramnios and oligohydramnios.
15. Fetal Congenital malformations,

16. Antenatal intrapartum Fetal Surveillance
17. Intrauterine fetal demise
18. Normal and abnormal Puerperium,
19. Perinatal and maternal mortality in India.
20. Induction and augmentation of labour.

III Gynecology:

1. Anatomy of female genital tract supports of uterus, development and anomalies of uterus and female genital tract.
2. Physiology of menstruation, common menstrual problem.
3. Primary and Secondary amenorrhoea.
4. Leiomyomas.
5. Endometriosis, adenomyosis.
6. Infertility male and female.
7. Genital tract Prolapse.
8. Common vaginal infections and sexually transmitted infections.
9. Benign lesions of the lower genital tract.
10. Benign ovarian tumours.
11. Carcinoma Cervix.
12. Carcinoma Endometrium.
13. Carcinoma ovary.
14. Carcinoma vulva and vagina
15. Menopause and related disorders
16. Genital Tract Fistulae

IV Contraception, Neonatology and Recent Advances

1. Contraception (Male and Female): Medical termination of pregnancy: MTP law.
2. Social obstetrics: National Maternal and child health programmes.
3. Ethics and medical jurisprudence (PCPNDT Act)
4. Common neonatal problems: Physiological Jaundice, Neonatal hyper-bilirubinemia, cephal-hematoma, caput succedaneum.

Recommended books and E links :

Obstetrics :

- Dr D.C Dutta ;Textbook of Obstetrics including Perinatology and Contraception, New Central Book Agency (P Ltd), New Delhi.
- Shirish N. Daftary, Manual Of Obstetrics, B.J. Churchill Livingston.
- Mudliar and Menon,clinical obstetrics, Orient Longman.
- Manual of Practical Obstetrics- Holland and Brews, B.I. Publications , New Delhi

Reference Book :William's Obstetrics,Cunningham, McDonald & Gant

Gynaecology

- Shaw's textbook of Gynaecology
- Dutta DC,Textbook of Gynaecology for undergraduates

Reference book : Jeffcoate Principles of Gynaecology

E links :

- <http://www.fogsi.org/>
- <https://www.rcog.org.uk/>

BHARATI VIDYAPEETH UNIVERSITY MEDICAL COLLEGE, PUNE
DEPARTMENT OF OPHTHALMOLOGY
CURRICULUM 2016

OPHTHALMOLOGY

These guidelines are based on MCI recommendations.

The curriculum has been designed keeping in mind the goals and objectives to be achieved by the medical student

(I) GOAL

The broad goal of the teaching of students in ophthalmology is to provide such knowledge and skills to the student that shall enable him/her to practice as a clinical and as a primary eye care physician and also to function effectively as a community health leader to assist in the implementation of National Programme for the Prevention of Blindness and rehabilitation of the visually impaired.

(II) OBJECTIVES

(a) Knowledge

At the end of the course, the student shall have the knowledge of

1. Common problems affecting the eye
2. Principles of management of ophthalmic emergencies
3. Main systemic diseases affecting the eye
4. Effects of local and systemic diseases on patient's vision and the necessary action required to minimize the sequelae of such diseases
5. Adverse drug reactions with special reference to ophthalmic manifestations
6. Magnitude of blindness in India and its main causes
7. National programme for control of blindness and its implementation at various levels
8. Eye care education for prevention of communicable eye problems
9. Role of primary health centre in organization of eye camps
10. Role of the ophthalmic assistant / ASHA workers in providing primary ophthalmic care
11. Integration of the national programme for control of blindness with the other national health Programmes
12. Eye bank organization

(b) Skills

At the end of the course, the student shall be able to:

1. Elicit a history pertinent to general health and ocular status
2. Assist in diagnostic procedures such as visual acuity testing, examination of the eye, non contact tonometry, conjunctival smear examination, corneal staining, confrontation perimetry, direct ophthalmoscopy, and Cover test
3. Diagnose and treat common problems affecting the eye
4. Interpret ophthalmic signs in relation to common systemic disorders

5. Assist/observe therapeutic procedures such as subconjunctival injection, corneal / conjunctival foreign body removal, contact lens insertion and care, Nasolacrimal duct syringing and tarsorrhaphy
6. Provide first aid in major ophthalmic emergencies
7. Assist to organize community surveys for visual check up
8. Assist to organize primary eye care service through primary health centres
9. Use effective means of communication with the public and individual to motivate for surgery in cataract and for eye donation.

(c) Integration

The undergraduate training will provide an integrated approach towards other disciplines especially Neuro-sciences, ENT, Radiology, Pediatrics and Medicine in relation to ophthalmology

(III) COMPETENCIES:

At the end of the course, the student must demonstrate:

1. Knowledge of common eye problems in the community
2. Recognize, diagnose and manage common eye problems
3. Identify indications for referral
4. Ability to recognize visual impairment and blindness in the community and implement National programmes as applicable in the primary care setting

(IV) TEACHING SCHEDULE:

Theory - Total teaching - 100 hours

Didactic Lectures	30 hours
Tutorials/ Seminars/Integrated teaching	60 hours
Self -Directed Learning	10 hours

Clinical training schedule

The clinical training programme will be conducted in 3 phases. Clinics will be conducted for 6 days per week. Each clinic will be a 3 hour session

Phase	Term	No of weeks
I	4th	2
II	6th	4
III	7th	4

SYLLABUS

A. Theory **Didactic Lecture Topics**

TERM		SIXTH
Sr No	Topic	Subtopic
1	Introduction	➤ Outline of course and assessment patterns ➤ Anatomy
2	Physiology	➤ Physiology of vision ➤ Colour vision
3	Refractive errors – I	➤ Emmetropia ➤ Myopia
4	Refractive errors – II	➤ Hypermetropia
5	Conjunctiva	➤ Anatomy of conjunctiva ➤ Bacterial conjunctivitis ➤ Ophthalmia neonatorum ➤ Trachoma
6	Cornea – I	➤ Anatomy Of The Cornea ➤ Transparency Of Cornea ➤ Methods of examination of cornea
7	Cornea – II	➤ Bacterial Corneal Ulcers ➤ Fungal Corneal Ulcers
8	Cornea – III	➤ Viral keratitis ➤ Non infective keratitis
9	Cornea – IV	➤ Keratoplasty
10 11	Uvea – I	➤ Anatomy of the Uvea ➤ Classification of uveitis ➤ Anterior uveitis
12	Uvea – II	➤ Endophthalmitis ➤ Panophthalmitis
13	Lens & Cataract - I	➤ Anatomy of lens ➤ Classification of cataract ➤ Congenital cataract ➤ Stages of cataract ➤ Clinical features of cataract
14	Lens & Cataract -II	➤ Preoperative evaluation of a case of cataract
15	Lens & Cataract III	➤ Surgical treatment
16	Glaucoma – I	➤ Angle of anterior chamber ➤ IOP regulation ➤ Pathophysiology of glaucomatous changes ➤ Investigations in a case of glaucoma ➤ Classification of glaucoma

17	Glaucoma – II	➤ Congenital glaucoma ➤ Angle closure glaucoma
18	Glaucoma – III	➤ Open angle glaucoma, ➤ Medical management of glaucoma
19	Eye Lids - I	➤ Anatomy and functions of eyelids ➤ Blepharitis ➤ Trichiasis
20	Eye Lids - II	➤ Congenital Lid anomalies- ➤ Entropion ➤ Ectropion, ➤ Lagophthalmos ➤ Ptosis
21	Lacrimal apparatus	➤ Anatomy of the lacrimal apparatus, ➤ Causes and evaluation of watering eye ➤ Acute Dacryocystitis ➤ Chronic dacryocystitis
TERM		SEVENTH
Sr No	Topic	Subtopic
22	Retina - I	➤ Anatomy of the Retina & functions ➤ Diabetic Retinopathy
23	Retina - II	➤ CRAO ➤ CRVO ➤ HIV
24	Optic Nerve	➤ Papilloedema ➤ Papillitis ➤ Optic atrophy
25	Orbit	➤ Anatomy ➤ Spaces of orbit ➤ Proptosis ➤ Thyroid orbitopathy ➤ Orbital cellulitis
26	Ocular Injuries	➤ Classification ➤ Chemical injuries ➤ Blunt injuries - Anterior segment ➤ Blunt injuries - Posterior segment ➤ Perforating injuries
27	Squint - I	➤ Extra-ocular muscles- anatomy ➤ Actions and nerve supply ➤ Binocular vision ➤ monocular and binocular ocular movements ➤ Classification of squint Paralytic squint
28	Squint - II	➤ Concomitant squint ➤ Assessment of squint ➤ Amblyopia- causes assessment and reference ➤ Management of squint
29	Intraocular Tumours	➤ Retinoblastoma ➤ Malignant melanoma ➤ Enucleation

30	Ocular Therapeutics	➤ Routes of administration ➤ Ocular toxicity of drugs
31	Community Ophthalmology	➤ NPCB and DBCS ➤ Vision 2020 ➤ Ophthalmic camps ➤ Basics of Eye donation & Keratoplasty

Tutorials

Tutorials will be conducted in the form of different types of activities (as appropriate) such as Quiz / Panel discussions / Seminars / Case scenarios/ Short projects

Tutorial topics

6th term		
Sr No	Topic	Subtopics
1	Anatomy	➤ Ocular embryogenesis ➤ Cross section of the eyeball ➤ Cross-sections of lens and cornea
2	Colour vision	➤ Theories of colour vision ➤ Tests for colour vision
3	Neurology of vision	➤ Visual & Pupillary Pathways ➤ Pupil responses in coma and general anaesthesia ➤ Localization of lesions from the field defect
4	Binocular Vision	➤ Development and grades of binocular single vision ➤ Uses of the Synaptophore ➤ Neuroplasticity of the brain and its clinical significance
5	Refractive errors	➤ Process of Accommodation ➤ The synkinetic Near reflex ➤ Convergence and divergence ➤ Revision - Hypermetropia
6	Myopia	➤ Revision - Myopia ➤ Retinal changes in Myopia
7	Astigmatism	➤ Classification of astigmatism ➤ Ray diagrams of types of astigmatism ➤ Sturm's conoid ➤ Management of astigmatism
8	Refraction I	➤ Basics of retinoscopy ➤ Types of retinoscopies ➤ Ophthalmic uses of lenses and prisms in ophthalmology ➤ Duochrome test
9	Refraction II	➤ Wet retinoscopy ➤ Mechanism of action, onset and duration, side effects of Phenylephrine, Atropine, Tropicamide, ➤ Cyclopentolate ➤ Types of spectacles ➤ History of spectacles ➤ Types of optical aberrations
10	Contact lenses	➤ Types of CL and fitting

		➤ Care of contact lenses ➤ Complications of CL use
11	Presbyopia	➤ Definition ➤ Clinical features ➤ Treatment modalities
12	Conjunctiva	➤ Viral conjunctivitis ➤ Allergic conjunctivitis ➤ Degenerations
13	Pterygium	➤ Definition and etiopathogenesis ➤ Clinical feature ➤ Management of pterygium
14	Cornea	➤ Factors maintaining Transparency Of Cornea ➤ Corneal healing
15	Corneal degenerations	➤ Keratoconus, Clinical features, Management
16	Refractive surgeries	➤ PRK ➤ LASIK
17	Corneal ulcers	➤ Complications ➤ Management of non-healing corneal ulcer
18	Eye banking	➤ Procedure of eye donation ➤ Preservation ➤ Functions of Eyebank ➤ National Eye Donation Awareness Fortnight
19	Anterior uveitis	➤ Clinical features ➤ Differential diagnosis
20	Immunosuppressive agents used in ophthalmology	➤ Steroid uses and side effects ➤ Other immunosuppressive agents
21	Sympathetic ophthalmitis	➤ Etiopathogenesis ➤ Clinical features ➤ Treatment ➤ Prevention
22	Posterior uveitis	➤ Clinical features ➤ Types ➤ Toxoplasmosis
23	HIV and eye	➤ Ocular manifestations ➤ CMV retinitis
24	Ophthalmic Anaesthesia	➤ Mention 2 types of regional blocks for ocular surgeries ➤ Enumerate 3 complications of ophthalmic anaesthesia
25	Congenital cataract	➤ Types ➤ Diagnosis and Management
26	Cataract surgery	➤ Historical aspects ➤ SICS ➤ Phacoemulsification
27	Post operative complications of cataract	➤ Early complications ➤ Late complications ➤ Prevention and management of endophthalmitis
28	Newer IOLs	➤ Multifocal IOL ➤ Toric IOL ➤ Phakic IOLs

29	Tonometry and Gonioscopy	➤ Types of Tonometers ➤ Structures of the Angle of anterior chamber ➤ Procedure of gonioscopy.
30	Perimetry	➤ Normal visual fields ➤ Types of perimetry ➤ Automated perimetry
31	Secondary Glaucomas	➤ Types ➤ Aetiopathogenesis ➤ Lens induced Glaucoma ➤ Neovascular Glaucoma
32	Lacrimal system	➤ CNLD ➤ Probing ➤ Laser DCR
33	Tear film	➤ TBUT ➤ Schirmer's test ➤ Vital Stains in ophthalmology ➤ Clinical Meibography
34	Lacrimal sac surgeries	➤ DCT /DCR ➤ Indications ➤ Contraindications
35	Eyelid swellings	➤ Common types of lid Swellings ➤ Chalazion
36	Eyelid surgeries	➤ Ptosis ➤ Entropion correction ➤ Ectropion
7th Term		
37	Newer investigations in glaucoma evaluation	➤ ONH analysis
38	Surgical management of glaucoma	➤ Trabeculectomy ➤ Trabeculotomy ➤ Glaucoma shunts
39	Methods of examination of Retina	➤ Retinal anatomy ➤ Direct ophthalmoscopy ➤ Indirect ophthalmoscopy
40	Hypertensive retinopathy	➤ Grades of the hypertensive retinopathy ➤ Malignant hypertension
41	Retinitis pigmentosa	➤ Causes of Night blindness ➤ Fundus findings in Retinitis pigmentosa
42	Retinopathy Of Prematurity	➤ Stages of ROP ➤ Screening for ROP ➤ Management of ROP
43	Retinal Detachment	➤ Types of RD ➤ Risk factors ➤ Mechanisms of RD ➤ Signs and symptoms ➤ Modalities of treatment
44	Vitreo-Retinal	➤ Vitrectomy

	Surgeries	➤ Scleral Buckling procedures
45	Orbital cellulitis	➤ Pre and post septal orbital cellulitis ➤ Diagnostic signs of orbital cellulitis ➤ Management of acute orbital cellulitis
46	Optic atrophy	➤ Classification ➤ Toxic and nutritional optic neuropathies
47	Management of ocular tumours	➤ Types of orbitotomy
48	Orbital fractures	➤ Bones, spaces and foramina of orbit ➤ Blow out fracture of floor of orbit
49	Cavernous sinus thrombosis	➤ Venous drainage of the eye and orbit ➤ Clinical features and management of CST
50	Management of common ocular injuries	➤ Corneal foreign bodies ➤ Ophthalmia nodosa ➤ Photophthalmia ➤ Alkali burns ➤ Lacrimator gas injuries ➤ Thermal injuries
51	Intraocular Foreign body	➤ Types of FBs- extra and intra-ocular ➤ Common FB injuries in eye and orbit ➤ Investigations and management
52	Radiology in ophthalmology (Integrated teaching)	➤ BSCAN ➤ X-RAY ➤ MRI ➤ CT SCAN
53	Squint I	➤ Tests for squint assessment
54	Squint II	➤ Management of squint ➤ Recession and resection
55	Destructive ocular surgeries	➤ Types of destructive surgeries ➤ Indications/ contraindications of enucleation, evisceration and exenteration ➤ Destructive procedures on ciliary body ➤ Management of painful blind eye
56	Ethics and medicolegal aspects of Ophthalmology	➤ Case scenarios
57	Neuroophthalmology	➤ Oculomotor system and neurological disorders ➤ Demylinating disease ➤ Disorders of higher visual function
58	Low vision aids and rehabilitation of the Blind	➤ Low vision aids ➤ Blind schools ➤ Reading without sight ➤ Mobility training
59	Organisation and management of Ophthalmic camps	➤ Importance of camps ➤ Organizational logistics ➤ Mobile ophthalmic units

SLOs- LECTURES

Sr No	Topic	Subtopic	SLOs Must Know
1	Introduction	Outline of course and assessment patterns Anatomy	Embryology of eye Function of each structure of eye ball Enumerate all the bones forming the orbit and contents of orbit.
2	Physiology	Physiology of vision Colour vision	Name the types of vision Enumerate the tests for vision Enumerate the types of visual pigments Describe the bleaching cascade Draw a well labelled diagram of the visual pathway Describe basic visual field Describe the basic types of visual field defects Name 2 afferent and 3 efferent pupillary defects
3	Refractive errors – I	Emmetropia Myopia	Define emmetropia Describe the optics of the emmetropic eye Define Myopia Draw a ray diagram of myopia Classify myopia Mention 4 features of pathological myopia Discuss the clinical features and treatment modalities of myopia
4	Refractive errors – II	Hypermetropia	Define Hypermetropia Draw a ray diagram of hypermetropia Classify Hypermetropia Mention the clinical features and treatment modalities of hypermetropia
5	Conjunctiva	Anatomy of conjunctiva Bacterial conjunctivitis Ophthalmia neonatorum Trachoma	Write parts and functions of conjunctiva. Enumerate the differences between superficial and deep conjunctival vessels Classify conjunctivitis Enumerate 3 signs of each type of conjunctivitis. Mention the Etiology of bacterial conjunctivitis Describe the clinical features and management of bacterial conjunctivitis Mention the etiopathogenesis, clinical features and management of Ophthalmia neonatorum Mention the etiology, clinical features and management of viral conjunctivitis Mention the chlamydial strains affecting the eyes Describe the clinical features, classification,

			complications management and prophylaxis of trachoma Describe the clinical features and management of Inclusion conjunctivitis Enumerate the types of allergic conjunctivitis Discuss 3 symptoms and 2 signs of allergic conjunctivitis Classify 2 groups of drug used in used allergic conjunctivitis with their mechanism of action in detail
6	Cornea – I	Anatomy Of The Cornea Transparency Of Cornea Methods of examination of cornea	Draw diagram of cross section of cornea and label its 5 layers. Enumerate 5 causes of corneal transparency. Function of cornea Describe various methods of assessment of cornea
7	Cornea – II	Bacterial Corneal Ulcers Fungal Corneal Ulcers	Enumerate 5 symptoms and 7 signs of corneal ulcer. Write definition of corneal ulcer and 4 stages. Write 2 groups of drugs in management of bacterial corneal ulcer. Enumerate 5 specific features of fungal corneal ulcer. Enumerate 2 fungi causing fungal Keratitis Mention classes of antifungal drugs
8	Cornea – III	Viral keratitis Non infective keratitis	Describe 2 specific signs of viral Keratitis. Name 2 topical antiviral agents. Write etiology, clinical features and management of keratoconus Exposure Keratitis, interstitial keratitis, neuromyolytic Keratitis
9	Cornea – IV	Keratoplasty	definition of keratoplasty Types of keratoplasty Surgical steps and complications of keratoplasty
10 11	Uvea – I	Anatomy of the Uvea classification of uveitis anterior uveitis	Enumerate 3 parts of the Uvea. Discuss functions of each part. Describe the 2 methods of classification of uveitis with their subtypes. Discuss the 6 causes of uveitis. Enumerate 4 symptoms of acute anterior uveitis. Describe 10 signs of acute anterior uveitis. Classify the two groups of drugs used for treatment of acute anterior uveitis. Discuss their mechanism of action. Discuss the 4 complications of acute

			anterior uveitis.
12	Uvea – II	Endophthalmitis Panophthalmitis	Define Endophthalmitis/ Panophthalmitis Enumerate 3 etiological causes of endophthalmitis. Discuss 3 signs and symptoms of endophthalmitis. Enumerate treatment modalities Differentiate between phthisis bulbi and atrophic bulbi Define Panophthalmitis. Write its etiology clinical features and management.
13	Lens & Cataract - I	Anatomy of lens classification of cataract congenital cataract stages of cataract clinical features of cataract	Draw a diagram of cross section of the crystalline lens and label its 3 parts. Describe the 2 functions of the lens and cataractogenesis Mention the etiological classification of cataract. Mention the anatomical classification of cataract. Write etiology, clinical features and management of congenital cataract Enumerate stages of cortical cataract. Enumerate grades of nuclear sclerosis. Discuss symptoms of senile cataract
14	Lens & Cataract -III	Preoperative evaluation of a case of cataract	Discuss the ocular investigations done for cataract evaluation. Enumerate the systemic investigation done prior to cataract surgery Mention the preoperative preparation for cataract
15	Lens & Cataract - VI	Surgical treatment	Enumerate 12 steps of ECCE with PCIOL. Mention the differences between ICCE, and ECCE Advantages and disadvantages of SICS and Phacoemulsification Enumerate complications of cataract surgery Classify IOLs Mention the parts of an IOL
16	Glaucoma – I	Angle of anterior chamber IOP regulation Pathophysiology of glaucomatous changes Investigations in a case of glaucoma Classification of glaucoma	Draw a labelled diagram of angle of AC. Discuss 3 methods of secretion of aqueous humour. Discuss the circulation and drainage of Aqueous Humour. Discuss 5 factors affecting IOP Define glaucoma. Describe the various classifications of glaucoma
17	Glaucoma – II	Congenital glaucoma Angle closure glaucoma	Define buphthalmous. Write the differential diagnosis of cloudy cornea.

			Enumerate 3 signs of buphthalmos. Enumerate 2 surgical procedures for treatment of buphthalmos. Mention the D/D of acute red eye Define PACG. Describe 5 stages of ACG. Describe management of all 5 stages.
18	Glaucoma – III	Open angle glaucoma, Medical management of glaucoma	Define ocular hypertension Describe the disc changes in POAG Describe the visual field changes in POAG Classify Anti glaucoma drugs Discuss the mechanisms of action of each class Mention the Adverse drug actions Mention the types of surgeries Mention the principal of each type of surgery
19	Eye Lids - I	Anatomy and functions of eyelids Blepharitis Trichiasis	Draw and correctly label the diagram of the cross section of the upper lid. Enumerate the glands of the lids Describe the vascular supply and lymphatic drainage of the lids Enumerate 3 causes of inflammation of the lid Describe anterior blepharitis and treatment Describe posterior blepharitis and treatment Define trichiasis Enumerate causes and treatment of trichiasis
20	Eye Lids - II	Congenital Lid anomalies- Entropion Ectropion, Lagophthalmos Ptosis	Define entropion/ ectropion. Enumerate 4 types of entropion/ ectropion. Enumerate 2 commonly done surgical procedures for each Describe clinical signs and treatment of lagophthalmos Differentiate between symblepharon, ankyloblepharon Define ptosis Write the classification of Ptosis. Enumerate various tests for evaluation of Ptosis Describe 3 surgical procedures for correction of Ptosis
21	Lacrimal apparatus	Anatomy of the lacrimal apparatus, Causes and evaluation of watering eye Acute Dacryocystitis Chronic dacryocystitis	Draw and label a diagram of the Lacrimal system Mention the medical and surgical treatment of dry eye Enumerate 2 types of Dacryocystitis. Describe 2 signs of acute and chronic Dacryocystitis

			Mention 2 surgical procedures for chronic Dacryocystitis. Enumerate surgical steps of DCT and DCR. Describe etiopathogenesis of congenital nasolacrimal duct obstruction
22	Retina - I	Anatomy of the Retina & functions Diabetic Retinopathy	Draw and label correctly a diagram of the anatomy of retina. Describe the zones of the retina Mention the vascular supply and drainage of the retina. Discuss the aetiopathogenesis of Diabetic Retinopathy. Discuss the 4 stages of DR. Discuss 2 modalities of laser therapy for treatment of DR
23	Retina - II	CRAO, CRVO, HIV	Mention the etiology of vascular occlusive diseases of retina Enumerate 6 diagnostic Signs of CRAO. Enumerate 5 diagnostic Signs of CRVO
24	Optic Nerve	Papilloedema Papillitis Optic atrophy	Describe 4 parts of Optic nerve Describe the anatomy of the optic nerve head Definition of Papilloedema Enumerate 2 causes of Papilloedema Describe 4 Signs of Papilloedema on fundus Examination Define Optic Neuritis. Classify optic neuritis Write 2 symptoms and 2 diagnostic signs of Optic Neuritis. Describe 4 types of Optic Atrophy with 2 diagnostic signs of each
25	Orbit	Anatomy, Spaces of orbit, Proptosis Thyroid orbitopathy	Enumerate the spaces of the orbit Draw and label a diagram of the apex of the orbit Enumerate the contents of the orbit Draw and correctly label a diagram of the cavernous sinus with its 5 tributaries. Mention common causes of proptosis in adults Mention common causes of proptosis in children Discuss investigation of proptosis Classify thyroid orbitopathy Mention management of proptosis
26	Ocular Injuries	Ocular injuries- Classification Chemical injuries Blunt injuries - Anterior segment	Classify ocular injuries. Mention 4 miscellaneous causes of ocular injuries Describe mechanism of blunt injuries of the globe

		Blunt injuries - Posterior segment Perforating injuries	Mention two types of chemical injuries Discuss emergency treatment of chemical ocular injuries Enumerate blunt injuries of the anterior segment Mention the emergency treatment of contusion injuries Describe traumatic Hyphaema and its management Enumerate the posterior segment injuries of the globe Differentiate between perforating injuries and penetrating injuries Describe common areas for perforation of globe Mention features of occult perforation of globe
27	Squint - I	Extra-ocular muscles- anatomy Actions and nerve supply Binocular vision monocular and binocular ocular movements Classification of squint Paralytic squint	Describe the origin and insertion of 6 extra ocular muscles Mention the actions of EOMs Mention the nervous control of EOMs Mention grades of binocular single vision Define squints Classify squints Enumerate sensory and motor adaptations to squint Definition of phoria and tropia Discuss 3 signs of paralytic squint Discuss 3 etiological factors of paralytic squint.
28	Squint - II	Concomitant squint Assessment of squint Amblyopia- causes assessment and reference Management of squint	Describe the 3 diagnostic signs of concomitant squint. Differences between concomitant squint and paralytic squint. Describe 2 tests for detection of phorias. Classify amblyopia Mention test for amblyopia Enumerate treatment modalities of amblyopia
29	Intraocular Tumours	Retinoblastoma Malignant melanoma Enucleation	Write clinical features and management of retinoblastoma Write differential diagnosis of leucocoria Write clinical features and management of malignant melanoma
30	Ocular Therapeutics		Enumerate ocular drug delivery systems Write pharmacological action, indications and contraindications of each of the following drugs Mydriatics and cycloplegics Antibiotics Antibiotics

			Antifungals Anti glaucoma eye drops Tear substitutes Fluorescein dye
31	Community Ophthalmology	NPCB and DBCS Vision 2020 Ophthalmic camps Basics of Eye donation & Keratoplasty	Blindness- definition causes and prevention Vitamin A deficiency & Keratomalacia Trachoma control programme

Theory tutorials with SLOs

Sr No	Topic	SLOs
1	Anatomy	To mention the summary of ocular embryogenesis To Draw and label accurately the cross section of the eyeball To Draw and accurately label cross-section of lens and cornea
2	Colour vision	To name the theories of colour vision To name and describe various the tests for colour vision
3	Neurology of vision	Describe Visual & Pupillary Pathways Draw well labelled diagrams of the pupillary pathways To mention pupil responses in coma and general anaesthesia Localization of lesions from the field defect
4	Binocular Vision	To mention the development and grades of binocular single vision To mention uses of the Synaptophore To mention the neuroplasticity of the brain and its clinical significance
5	Refractive errors	To describe the process of Accommodation To mention the Near reflex To describe Convergence and divergence Revision - Hypermetropia
6	Myopia	Revision - Myopia To mention retinal changes in Myopia
7	Astigmatism	To mention the classification of astigmatism

		To draw ray diagrams of types of astigmatism To draw and explain Sturm's conoid To discuss the management of astigmatism
8	Retinoscopy and Refraction	To mention the basics of retinoscopy To mention the types of retinoscopies To describe the ophthalmic uses of lenses and prisms in ophthalmology To mention the use of Duochrome test
9	Refraction Mydriatics and cycloplegics	To mention drugs used in wet retinoscopy To describe mechanism of action, onset and duration, side effects of Phenylephrine Atropine Tropicamide Cyclopentolate To mention types of spectacles To mention the history of spectacles To mention types of optical aberrations
10	Contact lenses	To mention the Types of CL and fitting To describe care of contact lenses To discuss the Complications of CL use.
11	Presbyopia	To define presbyopia To discuss the clinical features and treatment modalities
12	Conjunctiva	Viral conjunctivitis Allergic conjunctivitis Degenerations
13	Pterygium	Define Pterygium Discuss the Etiopathogenesis clinical feature management of pterygium
14	Cornea	Factors maintaining Transparency Of Cornea, Corneal healing
15	Corneal dystrophies	Keratoconus

	and degenerations	Clinical features Management.
16	Refractive surgeries	PRK, LASIK,
17	Corneal ulcers	Discuss complications Management of Nonhealing corneal ulcer
18	Eye banking	Procedure of eye donation Preservation Functions of Eye bank Awareness
19	Ant uveitis	Clinical features Differential diagnosis
20	Immunosuppressive agents used in ophthalmology	Steroids uses and side effects Other immunosuppressive agents
21	Sympathetic ophthalmitis	Clinical features Treatment & Prevention
22	Posterior uveitis	Symptoms, signs Toxoplasmosis
23	HIV and eye	Ocular manifestations CMV retinitis
24	Ophthalmic Anaesthesia	Mention 2 types of regional blocks for ocular surgeries Enumerate 3 complications of ophthalmic anaesthesia
25	Congenital cataract	Types Diagnosis and Management
26	Cataract surgery	Phacoemulsification SICS
27	Post op-complications of cataract	Mention early complications Mention late complications Prevention and Management of endophthalmitis
28	Newer IOLs	Multifocal IOL ToricIOL
29	Tonometry and	Types of tonometers

	gonioscopy	Structures of the Angle of anterior chamber Procedure of gonioscopy.
30	Perimetry	Normal visual fields Types of perimetry Automated perimetry
31	Secondary Glaucomas	Enumerate 6 major causes of secondary glaucoma. Aetiopathogenesis of secondary glaucoma Lens induced Glaucoma Neovascular Glaucoma
32	Newer investigations in glaucoma evaluation	ONH analysis
33	Surgical management of glaucoma	Trabeculectomy
34	Methods of examination of Retina	Retinal anatomy Direct ophthalmoscopy Indirect ophthalmoscopy
35	Hypertensive retinopathy	Discuss the 4 grades of the hypertensive retinopathy Malignant hypertension
36	Retinitis pigmentosa	Night blindness Mention the fundus findings in Retinitis pigmentosa Inheritance pattern
37	Retinopathy Of Prematurity	Stages of ROP Screening for ROP Management of ROP
38	Retinal Detachment	Retinal Detachment, Classify 2 types of RD and its subtypes. Mention predisposing factors for RD Describe mechanisms of RD Discuss 3 symptoms and 3 signs of RD. Enumerate 3 Modalities of treatment for
39	Vitreo-Retinal Surgeries	Vitrectomy Scleral Buckle
40	Lacrimal system	CNLD

		Probing Laser DCR
41	Tests for dry eye	BUT Schirmers Stains Meibography
42	Lacrimal sac surgeries	Dct /DCR
43	Eyelid swellings	Enumerate common types of Lid swellings Describe the etiopathogenesis, clinical features and management of chalazion
44	Eyelid surgeries	Ptosis Entropion correction
45	Orbital cellulitis	Enumerate 2 types of orbital cellulitis. Describe 4 diagnostic signs of orbital cellulitis
46	Optic atrophy	Mention Types of OA Mention causes of Toxic and nutritional neuropathies
47	Management of ocular tumours	Mention types of orbitotomy
48	Orbital fractures	Mention bones spaces and foramina of orbit Describe mechanism and clinical features of Blow out fracture of floor of orbit
49	Cavernous sinus thrombosis	Discuss 5 diagnostic signs of cavernous sinuses thrombosis
50	Management of common ocular injuries	Corneal foreign body Alkali burns Tear gas injuries Photophthalmia.
51	Intraocular Foreign body	Mention types of FBs- extra and intra-ocular Discuss common FB injuries in eye and orbit Mention the Investigations and management
52	Radiology in ophthalmology	Bscan X-ray MRI CT Scan
53	Assessment of squint	Mention the tests used for squint assessment
54	Management of squint	Mention the differences between recession and resection Horizontal muscle surgery

55	Destructive ocular surgeries	Mention types of destructive surgeries Mention differences and indications/ contraindications of Exenteration, Enucleation, and Evisceration.
56	Ethics and medicolegal aspects of Ophthalmology	Case scenarios
57	Neuro-ophthalmology	Oculomotor system and neurological disorders Demyelinating disease Disorders of higher visual function
58	Low vision aids and rehabilitation of the Blind	Low vision aids Blind schools Reading without sight.
59	Organisation and management of Ophthalmic camps	Importance of camps Organizational logistics Mobile ophthalmic units

CLINICAL TRAINING PROGRAMME

Clinical Competencies to be attained at the end of each phase are:

Phase 1 – IVth term

- a. To elicit a basic ophthalmic and relevant systemic history
- b. To accurately record visual acuity for near and distance as well as colour vision
- c. To follow a given order of ocular examination
- d. To elicit pupillary reactions
- e. To estimate the Intraocular pressure
- f. To estimate the anterior chamber depth

Phase 2 – VIth term

- a. To elicit a detailed ophthalmic history
- b. To perform a basic general examination of head and neck as pertaining to ophthalmology
- c. To diagnose common cases of refractive errors, conjunctival diseases, infective keratitis, anterior uveitis, cataract, glaucoma, epiphora and lid disorders
- d. To evolve a plan of management for the common ophthalmic disorders management
- e. To perform basic minor procedures such as irrigation of the eye, application of pad and bandage of eye, fluorescein test for corneal abrasions
- f. To participate in outreach programmes for screening of school children and cataract

Phase 3 – VIIth term

- a. To diagnose and plan the management of common disorders of retina, optic nerve, orbit, squint and systemic diseases affecting the eyes
- b. To perform basic minor procedures of tonometry, sac syringing, confrontation fields
- c. To perform first aid for ocular emergencies
- d. To participate in outreach programmes for national eye donation awareness fortnight

STRUCTURED CLINICAL PROGRAMME

IV term – Basics of ophthalmic examination

Day	Topic	Subtopic	Format
Day 1	Introduction	Introduction and orientation to the course Overview of the subject Evolution of Ophthalmology Department organization and working Outreach programmes	Orientation Tour of the department
Day 2	History taking -1	Basic ophthalmic history	Interaction with patients
Day 3	History taking -2	Basic systemic history relevant to ophthalmology	Interaction with patients
Day 4	Ocular examination -1	Order of ocular examination General examination of face and periorbita	Demonstration
Day 5	Ocular examination -II	Visual acuity Colour vision Gaze testing	Demonstration
Day 6	Ocular examination - III	Assessment of ocular movements Examination of Lids, Orbit, lacrimal system	Demonstration
Day 7	Ocular examination - IV	Examination of conjunctiva	Patient interaction
Day 8	Ocular examination - V	Eliciting Pupillary reactions Perimetry by confrontation test	Demonstration Patient interaction
Day 9	Minor OPD procedures	IOP Sac syringing	Demonstration Skills lab
Day 10	Optics I	Types and identification of lenses	Demonstration
Day 11	Optics II	Clinical optics and retinoscopy	Demonstration Patient interaction
Day 12	End posting	OSCE	

VI Term

Day	Topic	SLO	Format
Day 1	History taking and examination of ocular adnexa	At the end of the clinic student should be able to Identify head posture (face turn , head tilt) Identify ptosis, chalazion , stye Identify orthophoria, squint Identify lacrimal sac swellings Identify proptosis	Case presentation Demonstration

Day 2	History taking and anterior segment examination	At the end of the clinic student should be able to Torch light examination of the eye Differentiate between superficial and deep conjunctival vessels Identify acute and chronic red eye Examine cornea (size, shape, lustre, opacity , sensations) Identify types of corneal opacities Demonstrate AC depth Identify AC reaction Examine pupil (size, shape, reaction direct and consensual and Near reflex) Examine lens (clear or cataractous)	Case presentation Demonstration Slit lamp examination
Day 3	Case presentation Cataract I	At the end of the clinic student should be able to Enumerate the causes of gradual painless progressive loss of vision Clinically classify cataract using torchlight	Case presentation Demonstration on slit lamp of Stages of cataract
Day 4	Cataract II	Examination of cataract At the end of the clinic student should be able to Identify the types of cataract (Immature , mature, hypermature) Perform the iris shadow test	Case presentation Demonstration
Day 5	Pre-operative preparation for Cataract surgery	At the end of the clinic student should be able to Enumerate local investigations (IOP, Sac syringing, A scan) Enumerate systemic investigations before cataract surgery	Case presentation Demonstration A scan biometry Sac syringing
Day 6	Surgical management of cataract	At the end of the clinic student should be able to Enumerate the differences between ICCE and ECCE Mention the steps of SICS Enumerate the differences between SICS and Phacoemulsification Mention the pre-operative preparation of cataract surgery	Case presentation Video / LIVE Cataract surgeries
Day 7	Post operative management of Cataract	At the end of the clinic student should be able to Enumerate postoperative medications and their rationale Enumerate early and late complications and its management	Case presentation Demonstration – Instillation of drops and ocular hygiene
Day 8	Case presentation History taking and	At the end of the clinic, the student should be able to	Case presentation Ppt –IOLS

	examination of case Pseudophakia	Define pseudophakia Mention the types of pseudophakia	
Day 9	Case presentation History taking and examination of case Pseudophakia	At the end of the clinic, the student should be able to Diagnose and summarize history in a case of pseudophakia Discuss early and late complications of pseudophakia	Case presentation Ppt- Surgical complications
Day 10	Case presentation History taking and examination of case Aphakia	At the end of the clinic, the student should be able to Define aphakia Mention the aetiology of aphakia Mention the management of aphakia Mention the disadvantages of aphakia	Case presentation Video Secondary IOL implantation
Day 11	Case presentation History taking and examination of case Pterygium	At the end of the clinic, the student should be able to Define pterygium Mention types of pterygium Differentiate between true and pseudo pterygium Mention surgical options for pterygium Mention postoperative complications of pterygium	Case presentation Surgery Video
Day 12	Case presentation History taking and examination of case Dacryocystitis	At the end of the clinic, the student should be able to Define dacryocystitis Mention types and clinical features of dacryocystitis Describe the tests for epiphora Mention medical and surgical management of dacryocystitis	Case presentation Surgery Video
Day 13	Case presentation History taking and examination of case Corneal ulcer I	At the end of the clinic, the student should be able to Define corneal ulcer Mention the types of corneal ulcers Mention the clinical features of bacterial , fungal and viral keratitis	Case presentation Demonstration- Corneal staining
Day 14	Case presentation History taking and examination of case Corneal ulcer II	At the end of the clinic student should be able to Mention investigations (Corneal stains, Corneal scraping) Mention medical and surgical management of corneal ulcers Mention sequelae and complications of corneal ulcer	Case presentation Demo-specular microscopy
Day 15	Case presentation History taking and examination of a case	At the end of the clinic student should be able to Define iridocyclitis	Case presentation Ppt- Differential diagnosis of Red

	of iridocyclitis	Describe clinical features of iridocyclitis Enumerate investigations for iridocyclitis Mention management and complications of iridocyclitis	eye
Day 16	Glaucoma I Case presentation History taking and examination of case Cataract and glaucoma	At the end of the clinic student should be able to Mention investigations of glaucoma Perform confrontation fields Use Amsler's grid Mention medical and surgical management of glaucoma	Case presentation Demonstration- Applanation tonometry, Automated Perimetry
Day 17	Case presentation History taking and examination of case Lid swelling and lid margin abnormalities	At the end of the clinic student should be able to Differentiate between sty, internal hordeolum and chalazion Mention types of ptosis, entropion and ectropion Describe the evaluation of ptosis, ectropion and entropion Mention management of each	Case presentation Video –Common lid surgeries
Day 18	Fundus examination	At the end of the clinic student should be able to To enumerate various methods of Fundus examination Mention the procedure, advantages & disadvantages of direct ophthalmoscopy Mention the procedure, advantages & disadvantage of indirect ophthalmoscopy Discuss fundus photography: principle, indications & advantages Know in brief about Fundus fluorescein angiography	Case presentation Demonstration- Direct and indirect ophthalmoscopy
Day 19	Ophthalmic OT	At the end of the clinic student should be able to To describe the layout of the ophthalmic OT To demonstrate wearing of surgical gloves Counsel for cataract surgery	Case presentation Demonstration- Simulation of local Anaesthesia for ophthalmic procedures
Day 20	Surgical instruments I	At the end of the clinic student should be able to Identify and mention uses of the instruments used in cataract surgery	Demonstration
Day 21	Surgical instruments II	At the end of the clinic student should be able to Identify and mention uses of the instruments	Demonstration

		used in Lacrimal sac surgery Evisceration Enucleation Squint surgery Lid surgery	
Day 22	Optics I Retinoscopy and refraction	At the end of the clinic student should be able to Describe method of Retinoscopy Perform a Subjective refraction Identify Differentiate between Concave and convex spherical and cylindrical lenses and mention their uses	Demonstration- Retinoscopy Subjective refraction
Day 23	Optics II	At the end of the clinic student should be able to Identify and mention the uses of Maddox rod Pinhole Occluder Prisms Red green filters Direct and indirect ophthalmoscope Retinoscope	Demonstration- Cover test/Maddox rod Distant direct ophthalmoscopy
Day 24	Drugs	At the end of the clinic student should be able to Enumerate various drug delivery systems Mention the mechanism of action of Cycloplegics, Antiglaucoma drugs, Antibiotics, Antifungals, Antivirals, Steroids, NSAIDS, Antiallergics, Tear substitutes Mention indications and contraindications Mention complications	Case scenarios
Day 25	Posting ending Assessment	Visual round / Spots	
Day 26	Posting ending Assessment	Table viva	

VII term

Day	Topic	SLO	Format
Day 1	Retina History taking	At the end of the clinic student should be able to Elicit a history of posterior segment eye disease	Case presentation
Day 2	Retinal vasculopathies and vitreous opacities	At the end of the clinic student should be able to Perform a basic direct ophthalmoscopy Diagnose a case of CRAO/CRVO and DR on fundus photography Discuss a management plan for diabetic retinopathy	Case presentation Demonstration of Indirect ophthalmoscopy Fundus photography FFA
Day 3	Retinal age related degenerations and ROP	At the end of the clinic student should be able to Use an Amsler's grid test Perform a photostress recovery time test Decide on referral to ROP clinic	Demonstration Case presentation
Day 4	Retinal detachment	At the end of the clinic student should be able to Elicit history suggestive of retinal detachment	Case presentation Fundus photography VR surgery demonstration
	Optic nerve	At the end of the clinic student should be able to Diagnose a case of optic neuritis and atrophy Discuss a management plan for optic neuritis	Case presentation
	Orbit	At the end of the clinic student should be able to Diagnose a case of proptosis / exophthalmos Perform exophthalmometry by straight ruler test Discuss a management plan for thyroid eye disease Differentiate between preseptal and post septal orbital cellulitis Discuss a management plan for orbital cellulitis	Case presentation Demonstration of exophthalmometry
Day 5	Trauma 1	At the end of the clinic student should be able to Elicit a detailed and relevant history in cases of Blunt ocular and orbital trauma Diagnose types of blunt anterior	Case presentation Demonstration Removal of superficial ocular foreign bodies Demonstration of

		segment trauma Determine the severity of adnexal and ocular injuries using Ocular trauma score Perform a triage for mass casualties with ocular trauma Discuss first aid management Discuss referral and modes of transport in case of ocular trauma Diagnose and outline a plan of treatment for a case of traumatic hyphema Obtain consent for examination and surgical procedures	irrigation of conjunctival sac Discussion of CT/ MRI and USG B scan features of ocular/orbital trauma
Day 6	Trauma 2 Chemical injuries Ophthalmia nodosa Photophthalmia	At the end of the clinic student should be able to Perform first aid for a case of chemical injuries of the eye Provide first aid for a case of photophthalmia Diagnose a case of ophthalmia nodosa Communicate bad news of blindness to relatives	Case presentation Video /demonstration
Day 7	Squint 1	At the end of the clinic student should be able to Perform Hirschberg's test for gaze Evaluate degree of squint Use cover tests to differentiate paralytic from comitant squint Detect suppression by Worth's 4 dot test	Case presentation Demonstration of cover tests
Day 8	Squint 2	At the end of the clinic student should be able to Assess acuity of Binocular Single Vision by Titmus Fly test Use Maddox rod for heterophoria and diplopia Perform diplopia charting Outline a plan of medical and surgical management for squint	Case presentation Demonstration of Major Amblyoscope Diplopia testing Surgical demonstration of horizontal squint surgery
Day 9	Ocular surgeries	At the end of the clinic student should be able to Wear surgical gloves Describe Layout of an ophthalmic OT Mention Sterilization of OT and instruments Define steps for prevention of endophthalmitis	Case presentation Video demonstration

Day 10	Surgical skills lab	At the end of the clinic student should be able to Mention types of needles and sutures used in ophthalmic surgeries Pass interrupted sutures	Demonstration and practice on simulator kit
Day 11	Community ophthalmology	Outreach camp	Field visit
Day 12	Community ophthalmology	Outreach camp	Field visit
Day 13	Community ophthalmology	At the end of the clinic student should be able to Classify type and degree of blindness Discuss Rehabilitation and mobility training of the blind Government concessions to visually impaired	Visit to a blind rehabilitation centre
Days 14 - 21	Anterior segment cases	Revision	Case presentations
Day 22	Optics	Revision	
Day 23	Instruments	Revision	
Day 24	Drugs	Revision	
Day 25	End of Posting Assessment	Case presentation	
Day 26	End of Posting Assessment	Table viva	

ASSESSMENT

The performance in essential components of training is to be assessed based on attendance **and** Internal assessments.

At the end of the course, the student shall appear for the summative examination conducted by the university provided he/she fulfils the eligibility criteria for appearing at the Final examination

Attendance

Attendance requirements are 75% attendance in theory and 75% in clinics in each of the terms separately i.e. 4th, 6th and 7th terms

Internal Assessment:

The internal assessment will be done in each term and will contribute proportionally to the final internal assessment.

Day-to-day internal assessment shall relate to different ways in which students participate in learning process including assignments, preparation for seminar, clinical case-presentations, preparation of clinical case for discussion, clinical case study/problem solving exercise, participation in project for health care in the community, proficiency in carrying out a practical or a skill in small research project, a written test etc.

Regular periodic examinations shall be conducted at the end of each term.

Eligibility criteria for appearing at the Final university examination in Ophthalmology

Attendance and Internal assessment marks will determine eligibility for appearing for university examination.

Attendance requirements are 75% attendance in theory and 75% in clinics in each of the terms separately i.e. 4th, 6th and 7th terms

Internal assessment requirements

Students must secure at least 35% marks (**separately in theory and clinicals**) in **each term** in order to be eligible to appear in final university examination

- i. A theory examination will be conducted at the end of each 6th and 7th terms of 100 marks each
- ii. An 'end of posting' clinical assessment shall be conducted at the end of each clinical posting in 4th and 6th terms of 50 marks each and of 100 marks at the end of the 7th term
- ii. Day to day records will be marked and added to the internal assessment.

***Internal assessment marks will not be added to the final examination marks to determine pass or fail**

UNIVERSITY EXAMINATIONS

Eligibility criteria to appear for the Professional examinations have been laid out in the previous section

Theory examination

There will be one theory paper of 2 hrs duration with a total of 40 marks divided into 2 sections of 20 marks each

OPHTHALMOLOGY THEORY PAPER

Duration 2 hours

Total marks 40

Two Sections of 20 marks each

Each section of 20 marks each will consist of
1 long question of 8 marks and

3 out of 4 short notes of 4 marks each.

Evaluation

Each answer sheet shall be evaluated by every examiner independently

Average of the marks obtained shall be used for the final score

No internal assessment marks will be added to the final score

PRACTICAL EXAMINATION IN OPHTHALMOLOGY

Total marks 40

Clinical case - 20 marks

Clinical case- 10 marks

Table viva – 10 marks to be added to theory marks

Criteria for Passing in a Subject

A candidate shall obtain 50% marks in University conducted examination separately in Theory and Clinics (includes viva voce) in order to be declared as passed in that subject.

SUGGESTED READING

Parson's Textbook of Ophthalmology -21st edition
Handbook of Ophthalmology – H.R. Padmini
Atlas of clinical ophthalmology - Samar Basak
Clinical ophthalmology - Jack Kanski
Manual of eye emergencies – Jack Kanski
Clinical examination in ophthalmology – P. K. Mukherjee
Essentials of eye banking – Anita Panda
Clinical methods in ophthalmology – K Dadapeer

Useful E-links:

www.rootatlas.com
www.emedicine.com
www.medrounds.org
www.eophtha.com
www.retinoblastoma.net
www.uniteforsight.org/eyesafety/learn.php

Radio podcasts-

<http://retinaradio.com/default.htm>
<http://study.com/academy/practice/quiz-worksheet-strabismus-characteristics-treatment.html>



DEPARTMENT OF ORTHOPAEDICS

Bharati Vidyapeeth University

Medical College . Pune

MBBS

(I) *GOAL*

Training A Student To Become A Physician Of First Contact.

(II) *OBJECTIVES*

- I) Diagnosis and Primary Treatment Of General Orthopaedic Conditions.
- Ii) Education of Society For Prevention And Primary Care In Road Traffic Accidents.
- Iii) Recognizing Need of Multi -Specialty In Trauma Services.
- Iv) Participation in National Programme For Paediatric Deformity Correction.

(III) *COMPETENCIES*

- I) Tests For Examination of Joints and Trauma Patients
- Ii) Clinical Neurovascular Signs
- Iii) Immobilization (Splints) Of Limb and Spine In Trauma Patients

(IV) TEACHING SCHEDULE**Total Teaching Hours; 280Hours****Theory - 100 Hours**

Lectures-57 Hours

Tutorials-43 Hours

Practicals (Clinical Posting)-180 Hours**BROAD TOPICS OF SYLLABUS**

1. FRACTURES
2. INFECTION IN BONES (OSTEOMYELITIS)
3. CONGENITAL ANOMALIES
4. BONE TUMOURS
5. TUBERCULOSIS (POTT'S SPINE, ETC)
6. NERVE INJURIES
7. REGIONAL ORTHOPEDIC CONDITIONS

DETAILS OF LECTURE TOPICS

VITH, VIIITH & IXTH SEMESTER

VIth SEMESTER

Number of Lectures-**21**

Number of Hours-**21 Hrs.**

Time-**February-July**

VIth SEMESTER –LECTURE SCHEDULE WITH CONTENTS

SR No.	TOPIC	CONTENTS
1	Fractures	Definition, Classifications
2	Fracture Healing	Stages Of Healing, Remodeling
3	Complications -1	Early Complications, management
4	Complications -2	Late Complications, management
5	Methods Of Treatment Of Fractures-1	Conservative Methods, plaster cast
6	Methods Of Treatment Of Fractures-2	Operative Methods, internal fixation
7	Injuries Around Shoulder- 1	Dislocations, fracture, management
8	Injuries Around Shoulder- 2	Clavicle and scapula fracture
9	Fracture Humerus	Classification And Management
10	Elbow Injuries	Types And Treatment
11	Forearm Fractures	Classification And Management
12	Wrist Injuries	Colle's Fracture, other types
13	Hand Injuries	Scaphoid Fracture
14	Epiphyseal Injuries	Classification And Management
15	Fractures Of Hip 1	Neck Of Femur Fracture
16	Fractures Of Hip 2	IT Femur Fracture
17	Fracture Pelvis And Acetabulum	Classification And Management
18	Fracture Femur	Fat Embolism
19	Knee Fractures	Tibia And Patella Fractures
20	Ankle Fractures	Classification And Management
21	Foot Fractures	Talus And Calcaneum Fracture

VI Semester –Lecture (Feb-Jul) No. Of Lecture-21

SPECIFIC LEARNING OBJECTIVES

Sr No.	Topic	Good To Know	Nice to Know
1.	Basic Definitions And Classification Of Fractures	-Definitions Of Fracture, -Dislocation, Subluxation, Non - Union, Malunion -Classification Of Fractures: Anatomical Classification, Classification Depending On The Pattern Of Fracture, Open Fracture And Closed Fracture	-Gustilo Anderson Classification -A.O. Classification Of Fractures -Definitions Of Osteoconduction, Osteoinduction
2.	Fracture Healing	-Stages Of Fracture Healing -Primary Bone Healing -Secondary Bone Healing	-Bone Grafting
3.	Complications 1	-Non Union, Malunion, Delayed Union, Avascular Necrosis, Fat Embolism	-Growth Disturbances -Myositis Ossificans
4.	Complications 2	-Infection Neurovascular Complications, Compartment Syndrome	-Sudecks Osteodystrophy -VIC
5.	Methods Of Treatment Of Fractures 1	-Techniques And Principles Of Closed Reduction And Cast	-Splints, Plaster Technique
6.	Methods Of Treatment Of Fractures 2	-Principles Of ORIF Using Intra-Medullary Devices -Principles Of External Fixator	-Locking Plates -Hybrid Fixators -Taylors Frames
7.	Injuries Around Shoulder1 - Proximal Humerus Fractures	-Classification, Mode Of Injury, Surgical Anatomy, Shoulder -Dislocation:-Types; Clinical Presentation -Mode Of Injury	-Treatment Methods And Complications -MRI-As Investigation -Recurrent Shoulder Dislocation
8.	Injuries Around Shoulder & Clavicle And Scapular Injuries	-Classification -Mechanism Of Injury -Conservative Treatment Modalities	-Clavicle Fracture Plating -AC Joint Injuries And Ligament Injuries
9.	Fracture Humerus	-Fracture Humerus -Classification Of Fractures Of Humerus Shaft -Clinical Presentation -Surgical Anatomy Of Radial Nerve -Treatment Principles	-Approach To A Fracture With Radial Nerve Injury -Iatrogenic Radial Nerve Injury

10.	Elbow Injuries - Supracondylar Fracture Humerus	-Anatomy Of Elbow Joint -Mechanism Of Injury, -Classification, Clinical Features, -Management And Complications	-Associated Injuries -Surgical Procedures
11.	Forearm Fractures	-Anatomy Of Forearm- -Mechanism Of Injury, -Clinical Features,- Compartment Syndrome -Management And Complications	-V.I.C -Surgical Procedure
12.	Wrist Injuries -Colle's	-Anatomy Of Wrist- Mechanism Of Injury, Clinical Features, -Management And Complications	-Associated Injury -Classification
13.	Hand Injuries -Scaphoid -Bennet's	-Anatomy, Mechanism Of Injury, Clinical Features, Management And Complications	-Surgical Approaches -Classification
14.	Epiphyseal Injury	-Anatomy, Clinical Feature -Classification	-Management
15.	Fractures Of Hip 1 -Intertrochanteric Fracture	-Anatomy Of Hip Joint, -Various Approaches Of Hip Joint , Blood Supply Of Head Of Femur, -Mechanism Of Injury, Clinical Features, Management	-Complications -Classification
16.	Fractures Of Hip 2 -Neck Femur	-Difference Between Intracapsular Fractures and Extracapsular Hip Fractures -Mechanism Of Injury, Classification, Clinical Features	-Complications -Surgical Procedure (THR)
17.	Fracture Pelvis And Acetabulum	-Anatomy, Mode Of Injury, Classification, Clinical Feature, Mode Of Treatment	-Complication, -Postoperative Management, -Surgical Approaches, Radiology
18.	Fracture Femur	-Anatomy, Mode Of Injury, Classification, Clinical Feature, Mode Of Treatment Interlocking Nailing	-Complication, Post -Operative Management, Implant Used
19.	Knee Fractures -Patella - Tibia	-Anatomy, Mode Of Injury, Classification, Clinical Feature, -Mode Of Treatment	-Complication, Post-Operative Management, Implant Used, CT Scan
20.	Ankle Fracture -Bimalleolus Fracture -Pilon Fracture	-Anatomy, Mode Of Injury, Classification, Clinical Feature, Mode Of Treatment	-Complication, Post-Operative Management, Movement Around Joint

21.	Foot Fracture -Talus -Calcaneum	-Anatomy, Mode Of Injury, Classification, Clinical Feature, Mode Of Treatment	-Complication, Post Operative Management, Surgical Approaches

VIIIth Semester

Number Of Lectures-19; Number Of Hours-19 hrs; Time-February-July

SR NO.	TOPIC	CONTENTS
1	Skeletal TB / Hip & Knee TB	Diagnosis And Drugs
2	TB Spine	Diagnosis And Management
3	Fracture Neck Femur-2	Diagnosis And Management
4	Fracture Of ITF / STF	Classification
5	Fracture Of Acetabulum & Fracture Of Pelvis	Diagnosis And Management
6	Hip Dislocation	Classification And Treatment
7	Fracture Of Shaft Femur / Supracondylar Femur	Anatomy And Classification
8	Fracture Of Patella / Tibial Condyle	Diagnosis And Management
9	Amputations And Prostheses	Indications And Uses
10	Fracture Of Spine / Paraplegia-1&2	Types And Primary Treatment
11	Acute Osteomyelitis	Clinical Features
12	Chronic Osteomyelitis	Radiological Features And Management
13	Knee Meniscal And Ligament Injuries	Examination And Arthroscopy
14	Arthropathies- RA / AS & Gout / Septic	Pathophysiology And Treatment
15	Hip Disorders- Perthe's	Diagnosis And Management
16	Hip Disorders- AVN / SCFE	Stages
17	Congenital Hip Dislocation & CTEV	Clinical

		Features , And Management
18	Peripheral Nerve Injuries	Principles
19	Brachial Plexus	Anatomy And Examination

VIII Semester (Feb-Jul) No. Of Lecture -19

Specific Learning Objectives:-

Sr No.	Topic	Good To Know	Nice to Know
1.	Skeletal Tuberculosis/Hip And Knee Tb	-Basic Pathophysiology Of Tuberculosis -Etiology And Spread Of Infection In Skeletal Tb - Grading - Diagnostic Modalities -Various Drug Regimens -Treatment Plan	- Classifications - Sequelae And Complications Of Hip And Knee Tb
2.	Tb Spine	-Basic Pathophysiology Of Tuberculosis - Etiology And Spread Of Infection In Spinal TB; - Batson's Plexus -Types Of Pott's Spine (Tb Spine) -Diagnostic Modalities -Various Drug Regimens - Surgical Line Of Management	- Classifications - Sequelae And Complications Of Spine Tb
3.	Fracture Neck Femur	-Clinical Presentation And Casualty Management -Blood Supply To The Head Of Femur -Difference Between Intacapsular And Extracapsular Neck Femur Fracture -Garden's And Powel's Classification; Anatomical Classification -Surgical Line Of	-Complications Of Neck Femur Fracture -Recent Advances In Management

		Management	
4.	Intertrochanteric Fracture Femur/Sub Trochanteric Fracture Femur	-Relevance In Medical Practice And Incidence -Blood Supply To The Head Of Femur -Difference Between Intracapsular And Extracapsular Neck Femur Fracture -Evan's And Boyd's Classification; Anatomical Classification -Surgical Line Of Management -Dynamic Hip Screw And Plate System: How It Works	-Complications Of It Femur Fracture -Recent Advances In Management
5.	Pelvis And Acetabulum Fractures	-Relevance In Medical Practice And Incidence -Anatomy Of The Pelvis And Acetabular Columns And Walls -Classification Systems -Emergency Management -Radiology And Various X-ray Views -Surgical Treatment	-Complications Of Pelvis And Acetabulum Fracture -Associated Neurovascular Injuries And Management -Recent Advances In Management
6.	Hip Dislocation	-Relevance In Medical Practice And Incidence -Anatomy Of The Hip Joint And Acetabular Columns And Walls -Types Of Dislocations And Presentation -Various Classifications -Emergency Management And Modalities Of Reduction -Radiology And Various X-ray Views -Surgical Treatment	-Complications Of Hip Dislocation -Neglected Hip Dislocations Sequelae -Associated Neurovascular Injuries And Management -Recent Advances In Management

7.	Fracture Shaft Femur	-Relevance In Medical Practice And Incidence -Anatomy Of The Femur And Different Muscle Attachments - Classification Systems -Emergency Management -Radiology And Various X-Ray Views -Surgical Treatment; Principle And Mechanism Of IMIL Nail	-Complications Of Shaft Femur Fracture -Associated Neurovascular Injuries And Management -Recent Advances In Management
8.	Patella Fracture	--Relevance In Medical Practice And Incidence -Anatomy Of The Patella And Different Muscle Attachments -Classification Systems -Emergency Management -Radiology And Various X-Ray Views -Surgical Treatment; Principle Of TBW	-Complications Of Patella Fracture -Associated Injuries And Management -Recent Advances In Management
9.	Amputation & Prosthesis	Indications, Ideal Stump	Options In Prosthesis, Complications, Rehabilitation
10.	Fracture Spine (Paraplegia 1 & 2)	Mode Of Injury Anatomy Of Spine And Cord Classification	A)Complication B)Neurological Recovery C) Rehabilitation
11.	Acute Osteomyelitis	A)Definition B)Anatomy Of Bones C)Classification D)Clinical Features E) Age Wise Differences In Pathology	A)Complication B) Modes Of Treatment C)Effects On Growth Of Bones
12.	Chronic Osteomyelitis	A)Definition B)Pathology C)Classification D)Clinical Feature E)Immunological Response	A)Complication B) Modes Of Treatment C)Surgical Options
13.	Knee Meniscal And Ligament Injury	A)Mechanism Of Injury B)Anatomy C)Classification D)Clinical Feature	A)Complication B)Surgical Options: Arthroscopy C)Rehabilitation Of Sports Person

14.	Rheumatoid Arthritis / Ankylosing Spondylitis ,Gout & Septic Arthritis.	A)Inflammatory Arthropathy B)Diagnosis C)Investigations D)Clinical Feature E)Genetic Predisposition	A)Medical Management B)Physiotherapy C) Surgical Management
15.	Perthe's Disease	-Causes - Pathology - Stages - Clinical Features - Treatment Principles	- Differential Diagnosis - Surgical Procedures
16.	AVN & SCFE	- Causes - Pathophysiology - Clinical Features - Treatment Plan	- Classifications - THR
17.	CDH & CTEV	- Introduction - Clinical Signs - Primary Treatment - Complications	- Age Wise Treatment - Osteotomies - Braces -Ponsetti Technique
18.	Peripheral Nerve Injury	- Anatomy - Types - Mode Of Injury - Treatment Plan	- Classifications - Surgical Treatment
19.	Brachial Plexus	- Anatomy - Mode Of Injury - Clinical Features - Treatment Options	- Types - Surgical Procedures

IXth SEMESTER –LECTURE SCHEDULE

Number Of Lectures-17

Number Of Hours-17hrs

Time-AUGUST-JANUARY

SR NO	TOPICS	CONTENTS
1	Peripheral Nerve Injury 1	Radial, Median, Ulnar Nerve Injuries
2	Peripheral Nerve Injury 2	Common Peroneal, Sciatic Nerve Injuries

3	Metabolic Bone Disease. Rickets/ Osteomalacia/ Scurvy/ Osteoporosis	Pathophysiology And Treatment
4	Congenital Hip Dislocation	Diagnosis And Treatment
5	Other Congenital Abnormalities	Patellar Dislocation, CVT
6	Hip Disorders- Perthe's	Diagnosis And Treatment
7	Hip Disorders- AVN / SCFE	Diagnosis And Treatment
8	Amputations + Jaipur Foot	Indications And Uses
9	Arthropathies- RA / AS / Gout	Diagnosis And Treatment
10	TB Spine	Diagnosis And Treatment
11	Bening Bone Tumours- Exostosis / Enchondroma / Osteoid Osteoma	X-ray, Diagnosis And Treatment
12	Malignant Bone Tumours- Ewings / OGS	X-ray, Diagnosis And Treatment
13	Carpal Tunnel / Tennis Elbow / Others	Clinical Features And Treatment
14	Acute Osteomyelitis	Clinical Features And Treatment
15	Chronic Osteomyelitis	Radiological Features And Treatment Plan
16	Pelvic Fracture	Clinical Diagnosis And Treatment
17	Fracture Shaft Femur / Fracture Supracondylar Femur	Classification And Treatment

IX Sem-Lecture (Aug-Jan) No. Of Lecture-17

Specific Learning Objectives

Sr No.	Topic	Good To Know	Nice to Know
1.	Peripheral Nerve Injuries-1	1. Anatomy Of- Brachial Plexus, Ulnar N., Median N., Radial N. 2. Sedan's Classification Of Nerve Injuries 3. Signs And Symptoms Of, a. Erb's Palsy b. Klumpke's Palsy c. Ulnar N. Palsy d. Median N. Palsy e. Radial N. Palsy 4. Principals Of Treatment Of Nerve Injuries	1. Diagnostic Modalities Like EMG/ NCV 2. Sunderland's Classification Of Nerve Injuries 3. Principals Of Tendon Transfers

2.	Peripheral Nerve Injuries-2	1. Signs And Symptoms Of, a. Ulnar N. Palsy b. Median N. Palsy c. Radial N. Palsy 2. Principals Of Treatment Of Nerve Injuries	1. Diagnostic Modalities Like EMG/ NCV 2. Sunderland's Classification Of Nerve Injuries 3. Principals Of Tendon Transfers
3.	Metabolic Bone Diseases Including Rickets, Osteomalacia, Scurvy, Osteoporosis	1. Calcium and Vit. D Metabolism 2. Signs and Symptoms Of, Rickets, Osteomalacia, Scurvy, Osteoporosis. 3. Basic X ray Finding in Rickets, Osteomalacia, Scurvy, and Osteoporosis. Principals Of Treatment Of Rickets, Osteomalacia, Scurvy, Osteoporosis	1. Detailed Blood Tests In Rickets, Osteomalacia, Scurvy, Osteoporosis 2. Renal Rickets 3. DDs Of Scurvy 4. Dexa Scan 5. Sign's Index 6. Newer Drugs For Osteoporosis Like Teraparatide Etc.
4.	Congenital Hip Dislocation/ DDH	1. Definition Of DDH 2. Aetiology Of DDH 3. Sign S And Symptoms As Per Presenting Age 4. Basic Radiological Assessment 5. Role Of USG Screening Principals Of Treatment	1. Detailed X Ray Assessment And Various ' Line' In X Ray 2. MRI Assessment 3. Role Of Arthrography 4. Osteotomies Of Femur And Pelvis
5.	Other Congenital anomalies	1. Principals Of Classification Of Congenital Anomalies 2. Basic Signs And Symptoms Of Common anomalies Like - Syndactyly - Polydactyly - Radial Club Hand - Tibial Hemimelia - Fibular Hemimelia - Cong. Pseudoarthrosis Of Tibia	1. Detailed Classification Of Congenital anomalies 2. Principals Of Treatment Of Congenital anomalies
6.	Perthe's	-Blood Supply Of Head Of Femur -Difference Of Blood Supply In Children From Adult -Etiopathogenesis	-Late Onset Perthes -Various Osteotomies Of Proximal Femur And Pelvis -Salvage Procedure

		-Stages -Clinical Feature -Management 1)Investigation 2)Treatment	
7.	SCFE &AVN	-Etiopathogenesis -Clinical Feature -Classification -Management 1)Investigation 2)Treatment	-Complication -Safe Surgical Dislocation Of Hip -Arthroscopic Treatment Of Sequelae Of SCFE -THR
8.	Amputation	Definition -Indication -Various Levels Of Amputation -Principle Of Amputation And Ideal Stump -Complication -Jaipur Foot	-Treatment Of Complication -Sach Foot -Madras Foot -Principle Of Amputation In Children
9.	<u>Arthropathies</u> <u>-Gout</u>	1) What Is Gout? 2) Commonest Joint Involvement 3) Signs & Symptoms 4) Blood Investigations 5) Differential Diagnosis 6) Treatment	1) Pseudogout 2) Mechanism Of Uric Acid

10.	Pott's Spine	1) Anatomy Of Spine 2) Incidence 3) Types Of Tuberculous Bacilli 4) Commonest Involvement Of Spinal Column 5) Signs & Symptoms 6) Psoas Abscess 4) Investigations: X-Rays, MRI 5) Treatment: Surgical Line Of Treatment 6) Complications	1) Mechanism Of Potts Spine 2) Potts Paraplegia 3) Different Surgical Approaches 4) UML & LML
11.	Bone Tumours	1. Classification Of Bone Tumours 2. Surgical Margins 3. DDs According To Location In Bone, Age Of Onset 4. Following Common Bone Tumours Will Be Discussed, a. Simple Bone Cyst b. ABC c. Exostosis d. Enchondroma e. Osteoid Osteoma	1. Staging Of Bone Tumours 2. Detailed HPE Of Individual Bone Tumour 3. Subtypes/Classification Of Individual Bone Tumour 4. Limb Salvage Surgeries 5. Chemo/ Radiotherapy For Bone Tumours.
12.	Bone Tumours	1. Classification Of Bone Tumours 2. Surgical Margins 3. DDs According To Location In Bone, Age Of Onset 4. Following Common Bone Tumours Will Be Discussed, 5. GCT 6. OGS 7. Chondrosarcoma 8. Multiple Myeloma 9. Following Points For Each Tumour To Be Discussed 10. Pathology 11. Signs And Symptoms 12. X Ray Findings 13. Principals Of Treatment	1. Staging Of Bone Tumours 2. Detailed Hpe Of Individual Bone Tumour 3. Subtypes/Classification Of Individual Bone Tumour 4. Limb Salvage Surgeries 5. Chemo/ Radiotherapy For Bone Tumours.
13.	Carpel Tunnel Syndrome	-Anatomy Of Carpel Tunnel -Etiopathogenesis -Clinical Features -Differential Diagnosis -Various Clinical Test To Detect Carpel Tunnel Syndrome -Management 1)Investigation	-Complication -Endoscopic Release -Percutaneous Release

		2)Treatment	
14.	Acute Osteomyelitis	-Definition -Classification -Etiological Agent -Pathogenesis -Clinical Features -Management 1)Investigation 2)Treatment	-Nades Principle -Role Of MRI,Bone Scan In Detecting Acute Osteomyelitis -Sub Acute Osteomyelitis
15.	Chronic Osteomyelitis	-Definition -Classification -Etiological Agent -Pathogenesis -Clinical Features -Management 1)Investigation 2)Treatment	-Antibiotic Beads -Papineau Technique -Hyperbaric Oxygen Therapy
16.	Pelvis Fracture	1) Anatomy Of Pelvis 2) Classification 3) Signs & Symptoms 4) Investigations: X-Rays, Ct Scan 5) Treatment: Operative Technique, Implants 6) Complications	1) Acetabulum Fractures 2) Different Surgical Procedures & Approaches
17.	Supracondylar Fracture Of Femur	1) Anatomy 2) Classification 3) Signs & Symptoms 4) Investigations: X-Rays, Ct Scan 5) Treatment: Operative Technique, Implants 6) Complications	1) Associated Injuries

TUTORIAL TOPICS

Semesters- **VIIIth & IXth**

Time-1hr/Week

Total Hours-**22 Hrs** For VIII Semester (**February – July**)

Total Hours-**21Hrs** For IX Semester (**August – January**)

VIII SEMESTER- TUTORIAL

Teaching Learning Methods With Specific Learning Objectives

SR NO	TOPIC	SLO	T-L METHOD	LOGISTICS
1	Implants 1	Basic Instruments:-Identification And Uses	Demo And Discussion	Instruments
2	Implants 2	Basic Implants:-Identification And Uses	Demo And Discussion	Implants
3	Implants 3	Prosthesis:-Identification And Uses	Demo And Discussion	Prosthesis
4	Tourniquet	Uses And Mechanics:-Identification And Uses	Demo And Discussion	Tourniquet
5	X - Rays 1	Upper Limb:-Identification And Management	Identification & Discussion	X-Rays & View Box
6	X - Rays 2	Lower Limb:-Identification And Management	Identification & Discussion	X-Rays & View Box
7	X - Rays 3	Spine And Pelvis:-Identification And Management	Identification & Discussion	X-Rays & View Box
8	Orthosis/ Prosthesis	Indication And Types	Discussion	Orthosis/ Prosthesis
9	Osteology (Bones) -1	Upper Limb:-Identification And Muscle attachment	Identification & Discussion	Bones
10	Osteology (Bones) -2	Lower Limb:-Identification And Muscle attachment	Identification & Discussion	Bones
11	Osteology (Bones) -3	Spine And Pelvis:-Identification And Muscle attachment	Identification & Discussion	Bones
12	Specimen	Identification And Pathology	Group Discussion	Specimen
13	HIP Examination 1	History Taking	Case Based Learning	Patient
14	HIP Examination 2	Local Examination	Case Based Learning	Patient
15	Knee Examination	History Taking And Special Test	Case Based Learning	Patient
16	Elbow Examination	History Taking , Local Examination	Case Based Learning	Patient
17	Wrist Examination	History Taking	Case Based Learning	Patient
18	Shoulder Examination	History Taking And Special Test	Case Based Learning	Patient
19	Spine Examination	History Taking , Local Examination, Special Test	Case Based Learning	Patient

20	Splint In Orthopaedics	Identification, Indications And Application	Hands On	Splints
21	Nerve Injury	Signs, Treatment Methods	Case Based Learning	Patient
22	Plaster Techniques	Material, Technique And Types	Hands On	Plaster, Demo Person

IX SEMESTER –TUTORIAL

Teaching Learning Methods With Specific Learning Objectives

Sr. No.	TOPIC	SLO	T-L Method	Logistic Used
1	Nerve Injury Examinations 1	Anatomy /Examination Upper Limb Nerves	Case/Video	Patient/CD
2	Bones-1	Anatomy Of Upper Limb/Spine Bones	Small Group Discussion	Bones
3	Bones-2	Anatomy Of Pelvis / Lower Limb Bones	Small Group Discussion	Bones
4	Instruments 1	Common Orthopedic Instruments	Small Group Discussion	Instruments
5	Instruments 2	Common Orthopedic Implants	Small Group Discussion	Implants
6	X - Rays 1	Upper Limb And Spine X-Rays	Small Group Discussion	X-Rays
7	X - Rays 2	Lower Limb And Pelvis X-Rays	Small Group Discussion	X-Rays
8	Procedure- DHS	Approach And Steps	Video	CD

9	Procedure- Nailing & Plating	Approach And Steps	Video	CD
10	Procedure - Others, Ext. Fix, K Wire Etc	Approach And Steps	Video	CD
11	Tourniquet	Mechanics And Uses	Small Group Discussion	Tourniquet
12	Compartment Syndrome / VIC	Diagnosis And Treatment	Small Group Discussion	Patient/CD
13	Orthosis/ Prosthesis-1	Upper Limb & lower Limb	Small Group Discussion	Orthosis/ Prosthesis
14	Knee Examination	History Taking And Tests	Case Based	Patient
15	Shoulder Examination	History Taking And Tests	Case Based	Patient
16	Elbow Examination	History Taking And Tests	Case Based	Patient
17	Wrist Examination	History Taking And Tests	Case Based	Patient
18	HIP Examination 1	History Taking And Tests	Case Based	Patient
19	HIP Examination 2	Investigations And Treatment	Case Based	Patient
20	Spine Examination- 1	History Taking And Tests	Case Based	Patient
21	Spine Examination- 2	Investigations And Treatment	Case Based	Patient

(V) Clinical Training Programme

IIIrd Semester (1ST Posting)

Time-Aug-Jan

Hours-3hrs/Day From, 2pm-5pm

Duration - Each Batch For 2 Weeks.

Internal Assessment - At End Of Each Batch Term.

Specific Learning Objective (SLO)

Basic History Taking

General Examination

Provisional Diagnosis On History Taking

VIth Semester (2ND Posting)

Time-Feb-July

Hours-3hrs/Day From, 9am-12pm

Duration-Each Batch For 2 Weeks.

Internal Assessment- Viva At End Of Each Batch Term.

-Theory Examination at the end of term

Specific Learning Objectives

Advanced History Taking

General Examination

Local Examination

Provisional Diagnosis

Investigations

Ward Round

Operation Theater Posting

VIIIth Semester (3RD Posting)

Time-Feb-Jul

Hours-3hrs/Day From,9am-12pm

Duration-Each Batch For 4 weeks

Internal Assessment- At End Of Each Batch Term

IXth Semester (4th Posting)

Time-August- January

Hours-3hrs/Day From,9am-12pm

Duration-Each Batch For 2 Weeks.

Internal Assessment- At End Of Each Batch Term.

Specific Learning Objectives

Thorough Examination

Provisional And Differential Diagnosis

Investigations

Primary And Definitive Treatment

Follow Up

[VI] ASSESSMENT

I) INTERNAL ASSESSMENT

- Attendance; Minimum 75% in Theory & Practical
- Internal Assessment; At the End of Each Practical Term
- Theory Examination at End Of VI Term
- Preliminary Examination (IXTH Semester)

Semester	Theory	Viva
IX	25	--

Practical (Clinical Posting) ---Total 40 Marks

Semester	Marks
III (1st Posting)	10
VI (2nd Posting)	10
VIII (3rd Posting)	10
IX (4th Posting)	10

Eligibility Criteria to Appear Final Examination

- Minimum 50% Mark in Assessment Examination

II) UNIVERSITY EXAMINATION

Theory;

30 Marks... Surgery Paper-I, Section-II

- Long Question (Traumatology) --9 Marks
- Long Question (General+Cold Orthopaedics)—9 Marks
- Short Notes Any 3 Out Of 4 (General/Trauma/Cold/Orthosis/Splints) ---12 Marks

Practical;

Separate Session In Orthopaedic

25 Marks

Case-20, Table Viva-5

Criteria For Passing

50 % Each In Theory And Practical Combined With Surgery

BHARATI VIDYAPEETH UNIVERSITY MEDICAL COLLEGE, PUNE

DEPARTMENT OF PEDIATRICS: REVISION OF CURRICULUM 2016

(I) GOAL:

The broad goal of the teaching of undergraduate students in Pediatrics is to acquire adequate knowledge and appropriate skills for optimally dealing with major health problems of children to ensure their optimal growth and development.

(II) OBJECTIVES:

(a) KNOWLEDGE: At the end of the course, the student should be able to:

- Describe the normal growth and development during foetal life, neonatal period, childhood and adolescence and outline deviations
- Describe the common pediatric disorders and emergencies in terms of epidemiology, etiopathogenesis, clinical manifestations, diagnosis, rational therapy and rehabilitation.
- State age related requirements of calories, nutrients, fluids, drugs etc. in health and disease.
- Describe preventive strategies for common infectious disorders, malnutrition, genetic and metabolic disorders, poisonings, accidents and child abuse.
- Outline national programmes relating to child health including immunization programmes.

(b) SKILLS: At the end of the course, the student should be able to:

- Take a detailed pediatric history, conduct an appropriate physical examination of children including neonates, make Clinical diagnosis, conduct common bedside investigative procedures, interpret common laboratory investigation results and plan and institute therapy.
- Take anthropometric measurements, resuscitate newborn infants at birth (ambu bag) , prepare oral rehydration solution, perform tuberculin test, administer vaccines available under current national programs, know how to perform venesection, start an intravenous saline, perform intraosseus needle insertion and provide nasogastric feeding.
- Observe diagnostic procedures such as lumbar puncture, liver and kidney biopsy, bone marrow aspiration, pleural tap, ascitic tap.

- Distinguish between normal newborn babies and those requiring special care and institute early care to all new born babies including care of preterm and low birth weight babies, provide correct guidance and counselling in breast feeding.
- Provide ambulatory care to all sick children, identify indications for specialized/inpatient care and ensure timely referral.
- **(c) COMMUNICATION**
- Able to provide Counselling of mothers regarding breast feeding, weaning, immunization and hygiene.

(d) INTEGRATION

- With Obstetrics for newborn care, PSM for Immunization and nutritional programs, pediatric surgery for common surgical problems in neonate and childhood.

(III) COMPETENCIES:

- The student is expected to demonstrate targeted history taking, basic clinical signs on general and systemic examination. Arrive at a plausible diagnosis, formulate rational differential diagnosis and plan appropriate investigations and treatment.

TEACHING SCHEDULE: Total teaching - 262 hours (MCI reqt: 280)

Semester wise Teaching- Learning methods distribution

TL activity	III SEM	IV SEM	VI SEM	VII SEM	VIII SEM	IX SEM	Hours
Lectures	-	-	14 (1 hour)	14 (1 hour)	14 (1 hour)	12 (1 hour)	54 hours
Tutorials	-	-	-	-	12 (1 hour)	10 (2 hours)	22 hours
Clinics (10 wks)	2 weeks (12 days)		2 weeks (12 days)		4 weeks (24 days)	2 weeks (12 days)	60 days x 3 hours= 180hours
Total	36 hours		50 hours	14 hours	98 hours	58 hours	256 hours

Theory lectures (1 hour each): Semester wise

Semester	No.	Lecture topic
VI	1	Normal growth in children
	2	Normal development in children
	3	Breast feeding , Lactation management
	4	Infant feeding
	5	Protein energy malnutrition
	6	Diarrhoea with dehydration
	7	Immunization Basics
	8	Introduction to newborn
	9	Acute maculopapular exanthematous illnesses
	10	Acute vesiculobullous exanthematous illnesses
	11	Diphtheria, Pertussis, Tetanus
	12	Vitamins A and C
	13	Vitamins B,D and K
	14	Normal fluid and electrolyte balance
VII	1	Nutritional anemia
	2	Hemolytic anemia- Thalassemia
	3	Hemolytic anemia- Sick cell anemia
	4	Childhood tuberculosis
	5	Short stature
	6	Hypothyroidism
	7	Approach to respiratory illnesses, ARI program
	8	Upper respiratory illnesses- Croup syndrome
	9	Lower respiratory illnesses- bronchiolitis, bronchopneumonia
	10	Lower respiratory illnesses- Pneumonia, Empyema
	11	Urinary tract infections

	12	Acute glomerulonephritis
	13	Nephrotic syndrome
	14	Acute flaccid paralysis
VIII	1	Acute bacterial meningitis
	2	Tuberculous meningitis
	3	Transitional circulation, recognition of congenital heart disease
	4	Acyanotic heart disease- VSD, ASD, PDA
	5	Cyanotic heart disease- TOF
	6	Rheumatic fever and rheumatic heart disease
	7	Acute and Chronic renal failure in children
	8	Hypertension
	9	Coagulation pathways, Lab diagnosis
	10	Approach to bleeding and coagulation disorders- ITP, Hemophilia
	11	Leukemia in childhood
	12	Developmental and behavioral disorders in children
	13	Genetics as applied to pediatrics, Down syndrome
	14	Pediatric HIV
IX	1	Accidental emergencies and common poisonings in children
	2	Types and causes of seizures, approach, Febrile seizures,
	3	Epilepsy and status epilepticus
	4	Cerebral palsy
	5	Floppy infant
	6	Juvenile rheumatoid arthritis
	7	Low birth weight, IUGR
	8	Prematurity, RDS
	9	Neonatal jaundice
	10	Causes of sick newborn, Neonatal sepsis
	11	Birth asphyxia
	12	Neonatal seizures

Theory Topics: Learning Objectives

Sr No	Sem	Hours	Topic	Syllabus	SLOs
1	6th	1	Normal Growth in children	Must know: Normal growth from conception to maturity. Anthropometry — measurement and interpretation of weight, length/height, head circumference, mid-arm circumference. Use of weighing machines, infantometer. Interpretation of Growth Charts: percentile growth curves Abnormal growth patterns- failure to thrive, short stature. Desirable to know: Growth patterns of different organ systems such as lymphoid, brain and sex organs. Normal pattern of teeth eruption. Sequence of physical maturation in adolescents	*Explain the importance of monitoring the growth of a child. *Explain the use and interpretation of growth charts *Recognize variants of growth in healthy children *Recognize abnormalities of growth that warrant further evaluation and discuss their basic causes
2.	6th	1	Normal development	Must Know: Principles of normal development. Important milestones in infancy and early childhood in the areas of gross motor, fine motor, language and personal-social development. 3-4 milestones in each of the developmental fields, age of normal appearance and the upper age of normal. Preventable causes and assessment of developmental retardation. Desirable to know: Psychological and	*Describe age-related developmental changes in children in four major domains- gross motor, fine motor, social and language. *Explain the importance of monitoring the development of a child. *Discuss tools that can be used to assess developmental progress

				behavioral problems.	
3.	6th	1	Breast feeding, Lactation management	Must know: Breastfeeding–physiology of lactation, composition of breast milk, colostrum, initiation and technique of feeding. Hazards and demerits of prelacteal feed, top milk and bottle feeding. Feeding of LBW babies. Desirable to know: Characteristics of transitional and mature milk (foremilk and hind milk). Prevention and management of lactation failure.	* Characteristics and advantages of breast milk. * Exclusive breastfeeding - Definition and benefits. *Identify the major differences between human milk and commonly available formulas. *Recognize common difficulties experienced by breastfeeding mothers, Proper technique of breast feeding
4.	6 th	1	Infant feeding	Must know- Normal requirements of protein, carbohydrates, fat, for infants and children. Infant feeding/weaning foods, method of weaning. Assessment of nutritional status of a child based on history and physical examination. Desirable to know-Definition, causes, criteria and management of obesity. Complications of obesity.	State the components of a routine diet history *State the calories/kg/day needed to support growth in infants. *Describe a diet that promotes health in children *Recognize nutritional factors that cause failure to thrive. *Recognize that chronically ill children may have special nutritional needs
5.	6th	1	PEM	Must Know- Protein energy malnutrition - Definition, classification according to IAP/Wellcome Trust, acute versus chronic malnutrition. Clinical features of marasmus and kwashiorkor. Causes and management of PEM including that of complications. Planning a diet for PEM. Severe Acute Malnutrition- WHO & IAP guidelines for detection, triage, OPD and inpatient care and discharge Desirable- age independent criteria for PEM	*Identify a child with PEM/ SAM , *Clinical features of types of PEM/SAM * Classification and grading * Complications, *Management in acute phase- Timeline * Planning a diet- calculation of proteins, calories * Assessment of readiness for discharge * Follow up plan and prevention- concept of family pot

6.	6th	1	Diarrhoea with dehydration	Must know- * Etiopathogenesis, clinical differentiation of watery and invasive diarrhea, complications of diarrheal illness. * Assessment of dehydration, treatment at home and in hospital. *Fluid and electrolyte management. Oral rehydration, composition of ORS Desirable to know- *Persistent and chronic diarrhea, lactose intolerance	*Common Causes of diarrhea in children * Assessing grade of dehydration, planning treatment *Appropriate fluid management at home and hospital * ORS- composition and administration *Electrolyte disturbances associated with dehydration *Feeding during diarrhea
7,8.	6th	2.	Immunization	Must know: National Immunization Programme. Principles of Immunization. Vaccine preservation and cold-chain. BCG, DPT, OPV, Measles, MMR, Hepatitis B; Rationale and methodology of Pulse Polio Immunization. Desirable to know: Typhoid, <i>H. influenzae</i> b, Pneumococcal, Hepatitis A, Chicken pox, Meningococcal, Rabies.	*Basic terminologies in immunization *National immunization schedule *Details of vaccines used in National Immunization program (Types, contents, efficacy storage, dose, site, route, contra-indications and adverse reactions of vaccines) *Cold chain & routes of administration of different vaccines
9.	6th	1	Introduction to newborn	Must know: *Classification according to weight and gestational age, temperature control, * Care of normal newborn in first week of life, normal variations and clinical signs in the neonate, * Recognition of birth injuries and anomalies like anorectal malformations, tracheo-oesophageal fistula, neural tube defects etc.	*Define term, preterm post term neonate. *Plot anthropometry on graphs and define AGA and SGA *Know about normal newborn care *To diagnose life threatening congenital anomalies
10.	6th	2	Acute exanthematous illnesses:	Must know: Epidemiology, basic pathology, natural history, symptoms, signs,	*Basic terminologies used for description of skin lesions

			Maculopapular Vesiculobullous	complications, investigations, differential diagnosis of measles, mumps, rubella, chickenpox, dengue fever, drug rash etc.	*Infectious & noninfectious causes of fever with rash *Clinical features, complications and treatment of measles *Common causes of Vesiculo-bullous lesions *Clinical features of chickenpox, early & late complications
11.	6th	1	Diphtheria Pertussis Tetanus	Must know: *Epidemiology, basic pathology, natural history, symptoms, signs, complications, investigations, differential diagnosis, treatment Neonatal tetanus Desirable to know: Microbiology	Pathology, clinical features and complications of Diphtheria Clinical features, complications and management of pertussis Pathogenesis, Prophylaxis and treatment of tetanus, including neonatal tetanus
12, 13.	6th	2	Vitamins A,C,D,K	Must Know: Vitamins-Recognition of vitamin deficiencies (A, D, K, C, and B-Complex). and scurvy. Hypervitaminosis A and D. Desirable: Side effects of excess of vitamins, daily requirements during newborn, childhood, lactation & pregnancy	* The consequences of common vitamin deficiencies : A,D, C, E, K and their excesses *Vitamins and minerals that may require supplementation in infants, children and adolescents. * Etiopathogenesis, clinical features, biochemical and radiological findings & management of nutritional rickets
14.	6th	1	Fluid and Electrolyte balance	Must know: Normal fluid and electrolyte composition of body fluids. Regulation of fluid and electrolyte balance esp. Sodium & Potassium. Normal maintenance fluid therapy Causes and treatment of hypo and hypernatremia, hypo & hyperkalemia. Desirable to know- Composition of different IV fluids available. Choice of fluids in different conditions	*Normal fluid and electrolyte homeostasis *Causes, diagnosis and treatment of hypo and hypernatremia * Causes, recognition and treatment of hypo and hyperkalemia
1.	7th	1	Nutritional Anemia	Must know: *Clinical approach to a child with anemia. * Causes of anemia in childhood, risk factors, classification	*Physiological anemia of infancy *Approach to anemia- clues on history and examination,

				based on etiology and morphology *Recognition, diagnosis, management and prevention of nutritional anemia including Iron deficiency and megaloblastic anemia Desirable to know: Other causes of microcytic and macrocytic anemias	*ABC of CBC- understanding peripheral smear *Iron deficiency anemia- etiology, clinical features, lab diagnosis, treatment * Megaloblastic anemia- etiology, clinical features, lab diagnosis, treatment
2,3.	7th	2	Hemolytic anemias	Must know- *Concept of hemolytic anemia, different causes, lab approach, peripheral smear. Thalassemia major, Sickle cell anemia: Clinical presentation, lab diagnosis, complications like Iron overload, sickle crises and their management. Desirable to know- G6PD induced hemolysis, Thalassemia minor,	*Identification and classification of hemolytic anemias, *Beta Thalassemia major- Clinical features, Diagnosis, Complications, Management Sickle cell anemia- Clinical features, Diagnosis, Complications, Management
4.	7 th	1	Childhood Tuberculosis	Must know- *Tuberculous infection versus disease, primary and post primary TB, diagnostic criteria in children vs adults, Technique and interpretation of Mantoux and BCG test, X-ray patterns *Routes of transmission, common clinical features, establishing diagnosis by appropriate investigations, categorization and RNTCP guidelines for treatment Desirable: drug resistance, prevention	*Pathogenesis, clinical features and complications of different types of childhood TB * Clinical and lab diagnosis, contact screening *Treatment schedules, DOTS program *Drug resistant TB – identification and management *Importance of compliance and contact screening
5,6.	7th	2	Short stature Hypothyroidism	*Must know-Etiology, diagnosis and management of short stature; physiological short stature; congenital hypothyroidism,. Neonatal screening for hypothyroidism *Desirable to know - goiter in children, hyperthyroidism	*Short stature: Definition, Plot height and weight on growth charts, Causes of short stature, Plan investigations * Hypothyroidism: Know the etiological features of hypothyroidism, Neonatal screening, Clinical Diagnosis, Plan investigations, management
7-10.	7th	4	Respiratory system	*Must know-Approach to a child with respiratory distress, stridor, and wheezing,	Etiopathogenesis, clinical features, complications, investigations, differential diagnosis and management of -

				grading severity. National ARI program Respiratory conditions- croup, pneumonia, empyema, bronchopneumonia, bronchiolitis, bronchial asthma. Acute & chronic otitis media, foreign body *Desirable to know- Causes of recurrent pneumonia, pneumothorax.	*Upper respiratory conditions- Croup syndrome, foreign body * Lower respiratory conditions - Bronchiolitis, pneumonia bronchopneumonia, empyema, foreign body * Recurrent wheezing, asthma- acute and chronic management
11.	7th	1	Urinary tract infections	Must know- *Prevalence and etiology of urinary tract infections, clinical manifestations, classification, pathogenesis, complications, diagnosis and treatment. Predisposing factors especially conditions like Posterior urethral valves, Desirable to know- surgical issues in management of complicated UTI	*Risk factors for urinary tract infections, e.g. PUV. * Upper and lower urinary tract infections- clinical features, pathogenesis and treatment * Modalities to arrive at diagnosis, including imaging studies * Complications and need for urgency of treatment
12, 13	7th	2	AGN Nephrotic syndrome	Must know- *Causes and diagnosis of hematuria. Etiopathogenesis, clinical features, diagnosis, complications and management of acute post-streptococcal glomerulonephritis and minimal change nephrotic syndrome Desirable to know- * Diagnosis and management of acute renal failure, HUS, steroid resistant nephritic syndrome	* Hematuria- Differentiating glomerular and non glomerular * PSGN- Clinical features, Complications, Treatment * Proteinuria- definition, causes, physiological vs pathological * Nephrotic Syndrome- Pathophysiology, Clinical features, Investigations, Treatment and follow up, Complications
14.	7th	1	Acute flaccid paralysis	Must Know- * Common causes of AFP- Polio, GBS. Clinical localization of the lesion causing AFP. Relevant investigations to confirm diagnosis. Desirable to know- *Transverse myelitis, traumatic neuritis	*Causes of AFP, localize the lesion causing AFP *Clinical features of Poliomyelitis. *Compare Poliomyelitis with <i>Guillain-Barre Syndrome</i> *Polio eradication strategies
1, 2.	8th	2	Meningitis- Pyogenic and	Must know- *Pyogenic and Tubercular meningitis: Pathogenesis, organisms causing meningitis. Diagnosis, CSF	*Epidemiology, Identify the clinical features and organisms

			Tubercular	pictures in different types of meningitis, Understand the value of fast diagnosis and early treatment. Complications and Sequelae Desirable to know- Newer modalities of diagnosis, Raised ICP management	causing meningitis in different ages *Modalities to confirm the diagnosis and organism * Acute complications of meningitis- how to suspect and manage them *Chronic Sequelae, Importance of brain saving therapies. * TBM- Importance of screening of contacts, drug resistance
3-6.	8th	4	CVS	Must know- *Transition from fetal to adult circulation, Recognition of congenital acyanotic and cyanotic heart disease. Hemodynamics, clinical features and management of VSD, PDA, ASD and Fallot's tetralogy (TOF). Clinical features, diagnosis, investigation, treatment and prevention of acute rheumatic fever. Common forms of rheumatic heart disease in childhood. Recognition of congestive cardiac failure in infants and children and its management Desirable to know- Eisenmengers syndrome, Infective endocarditis	*Approach- orientation to transitional circulation, recognition and management of CHD, CCF, acyanotic versus cyanotic, *Acyanotic CHD- Clinical features, complications, management of VSD, ASD, PDA, surgical indications *Cyanotic CHD: Components, hemodynamics, complications of TOF. Recognition and management of cyanotic spells. *Rheumatic fever and RHD: Causes of fever with arthritis, difference between rheumatic and rheumatoid arthritis, Criteria for rheumatic fever, Rheumatic valvular heart disease
7.	8th	1	Acute and chronic renal failure	Must know- * Acute renal failure- diagnostic criteria, etiology, clinical features, Lab findings, indications for renal replacement therapy, prognosis Chronic renal failure, ESRD - Etiology, clinical features, pathogenesis. Complications, management Desirable to know- *Renal transplant	*Different mechanisms of acute and chronic injury to kidney ARF- Establishing cause and diagnosis, fluid management CRF- Common etiology (obstructive uropathy), prevention CRF- Complications, management, monitoring Renal Replacement Therapy - Indications and types of dialysis, overview of renal transplant

8.	8th	1	Hypertension	Must know- *Hypertension in children- Etiology, pathophysiology, Types- mainly essential and secondary, clinical features, Diagnosis, prevention and treatment. Hypertensive emergencies. Desirable to know- *Intermittent hypertension	*Causes and types of hypertension in children, prevention * Evaluation of a child with persistent hypertension *Treatment modalities and goals, monitoring *Malignant hypertension, Hypertensive emergencies
9-11.	8th	3	Hemato-oncology	Must know- *Normal Hemostatic mechanisms, coagulation pathway. Evaluation of a child with bleeding- Clues on physical examination, Lab diagnosis including BT, PT, APTT, Factor assay, platelet studies. Hemophilia- Pathophysiology, clinical features, lab diagnosis, acute and chronic complications, treatment ITP- Causes of thrombocytopenia, well versus sick child, clinical features, lab diagnosis, treatment Leukemia- Epidemiology, Pathogenesis, Clinical features, diagnosis, Differentials, treatment Desirable to know- Aplastic anemia, DIC, Bone Marrow transplant	*Normal mechanisms to maintain hemostasis *Clinical features and Lab approach to a bleeding child *Blood component therapy- Packed red cells, FFP, Platelet *Hemophilia- genetics, clinical features, diagnosis, management, prevention * ITP- Causes, Clinical features, diagnosis, management * Acute Lymphoblastic Leukemia- when to suspect, difference from Aplastic anemia, diagnosis, principles of management, prognosis
12.	8th	1	Developmental disorders	Must know- *Overview of intellectual disability, attention deficit hyperactivity (ADHD) disorder, autism, learning difficulties in school. Behavioral disorders- Breath holding spells, temper tantrums, pica, psycho-	* Approach to a child with intellectual disability *Deviant development- Autism, ADHD *Learning difficulties- overview, role of special educators *Common behavioral and psychosomatic problems such as-

				somatic conversion symptoms Desirable to know- DQ/ IQ testing tools	breath holding spells, temper tantrums, *Psychosomatic problems recurrent non organic headache, abdominal pain etc. – impact of family dysfunction
13.	8th	1	Genetic	Must Know- *Basic principles of genetics, Chromosomal & single gene disorders, Down syndrome- Causes, dysmorphic features, complications, monitoring, genetic diagnosis Desirable to know- *Prenatal diagnosis	*Basics of genetic disorders, Patterns of inheritance *Down Syndrome- Causes, Importance of genetic diagnosis *Concept of dysmorphism, clinical features, other anomalies *Life threatening and long term complications, monitoring
14.	8th	1	HIV	Must know-* Immunopathogenesis of HIV infection, clinical features of HIV infection and AIDS, AIDS defining illnesses, Investigations required for diagnosis and monitoring of HIV infection Prevention of Perinatal HIV Desirable to know- * antiretroviral therapy, vaccination strategy for a HIV-infected child	*Epidemiology, etiology and transmission of HIV *Pathogenesis and clinical features in HIV/AIDS *Diagnostic evaluation and treatment strategies * Prevention of transmission, esp. perinatal National Program for HIV/ AIDS Control
1.	9 th	1	Accidental Emergencies	*Poisonings- clinical manifestations, toxicity, and general management of unknown poisoning, Kerosene, OPP. Bites- First aid and specific management of snake and scorpion bite Anticipatory guidance and Prevention of Accidents due to falls from height, driving without helmet, electrocution from low level electrical sockets, drowning ,foreign body inhalation accidental ingestion of medications used by other family members, etc.	* Recognize the acute signs and symptoms of Kerosene and OPP poisoning, acute management * Recognize the symptoms, signs of snake and scorpion bite, suggest appropriate acute management. *Anticipatory guidance regarding home safety and appropriate techniques to prevent accidental injuries.

2-5.	9th	4	CNS	Must Know- *Clinical approach to a child with convulsions. Causes and types of convulsions at different ages, including acute symptomatic seizures. Febrile convulsions - definition, simple and complex types, management Epilepsy- Diagnosis, categorization and management of partial and generalized epilepsy, epilepsy syndromes like Childhood absence, Rolandic, West. Management of status epilepticus Causes, diagnosis and multidisciplinary management of cerebral palsy. Floppy infant- Causes of central and peripheral hypotonia, diagnosis, management, value of correct diagnosis Desirable to know- *Approach to a child with coma, Newer antiepileptic drugs	*Causes of seizures at different ages *Types of seizures- focal, generalized and their subtypes *Febrile seizures- diagnosis, types, management *Epilepsy- definition, diagnosis, common antiepileptic drugs *Epilepsy syndromes- Rolandic, Childhood absence, West *Emergency management of seizures and status epilepticus. *Definition, causes and pathogenesis of cerebral palsy *Clinical features of different types of cerebral palsy *Pointers to early diagnosis, need for early referral *Multidisciplinary approach to management, co-morbidities. *Identify the components of motor unit and features of lesions in these components, know at least one cause of each *Evaluation of the level of lesion by appropriate investigations. Outline of treatment of these disorders
6.	9th	1	Juvenile Rheumatoid Arthritis	Must know-*Concept of autoimmune disorders, when to suspect, clinical features, approach to diagnosis, lab findings, differential diagnosis and treatment, complications of long term NSAIDs and steroid therapy, Desirable to know- Other autoimmune disorders like SLE, other immunosuppressive drugs	*Concept of connective tissue disorders in children * Differential diagnosis of arthritis in children Clinical features, pathogenesis and diagnosis of JRA *Classification and complications of JRA *Treatment of JRA – long term side effects of therapy*
7-12.	9th	6	Newborn	Must know- Revise normal newborn care	*Problems with LBW- Acute problems- RDS, Hypoglycemia, hypocalcaemia, HDN, Sepsis, IVH, etc. Chronic problems- metabolic syndrome,

			RDS / Birth asphyxia: Etiology, clinical features, management and prevention Neonatal jaundice: causes, diagnosis and principles of management. Neonatal infection - etiology, diagnosis, principles of management. Superficial infections, sepsis. Low birth weight babies - causes of prematurity and small-for-date baby, clinical features and differentiation. Principles of feeding and temperature regulation. Problems of prematurity and IUGR- acute and chronic. Identification of sick newborn - cyanosis, deep jaundice, respiratory distress, bleeding, refusal to feed, abdominal distension, failure to pass meconium and urine). Neonatal seizures- causes, diagnosis, management, differentiate from jitteriness.	neurodevelopmental issues. RDS- Definition, anatomy of neonatal airway, Pathophysiology, clinical features , Prevention and treatment * Birth asphyxia- Definition, APGAR score. Mechanisms and pathophysiology. Essential criteria of birth asphyxia. Clinical assessment of birth asphyxia (Sarnat staging). How to prevent birth asphyxia. Resuscitation and post resuscitation management and complications *Sepsis- What is the neonatal sepsis? Early onset and late onset sepsis. Different type of organisms causing sepsis. Clinical features/ presentation of sepsis .Investigation- septic screening and its importance. Treatment and duration of therapy. Complications of sepsis and how to manage it. *Jaundice- Identify the JAUNDICE and different causes of jaundice. Understand different type of jaundice and its pathophysiology. How to differentiate between physiological and pathological jaundice, Diagnosis and modes of treatment What is phototherapy and exchange transfusion *Neonatal seizures- common causes, diagnosis, management, role of antiepileptic drugs, prognosis.

Clinical postings: Learning Objectives

Postings: 4: Total duration:10 wks: 3rd (2), 6th (2), 8th (4), 9th (2). Each clinic will be a 3 hours session

1ST POSTING: 3rd -4th semester: 2 weeks, (12 days: 12 clinics plus Term end exam on last day)

Topic	Must Know (70%)	Good to know (20%)	Nice to know (10%)	General Competencies to be achieved
History Taking (1)	Differences in pediatric and adult history	Common pediatric symptoms	Negative history for these symptoms	Take a detailed Pediatric history.
General & Physical Examination (2)	How to take anthropometry	Normal range of vital signs in children	Demonstration of icterus, pallor, edema, clubbing and cyanosis	Include measurement and assessment of growth in patient. Accurately measure height, weight and head circumference, and plot the data on the most current age- and sex-appropriate growth chart. Conduct physical examination of children.
Systemic exam (5)	Normal RS, CVS and abdominal examination	Identify common abnormalities in these systems	Correlate symptoms and signs to arrive at system involved	
Growth & Development (2)	Key developmental milestones and growth parameters	Gross assessment of growth and development	Correlate these findings in a given patient	Obtain a routine infant diet history that includes the type, amount and frequency of milk feeding (breast vs. formula), solid foods, and dietary supplements (vitamins, iron, fluoride).
Breast Feeding & Weaning (2)	Advantages of breast feeding	Composition of breast milk	Proper technique of breast feeding	
Vit A & Vit D deficiencies (1)	Natural and dietary sources, clinical signs and symptoms of deficiency	Recommended daily allowance, investigations	Treatment modalities	Medical conduct during patient examination
Vit C deficiency(1)	Natural and dietary sources, clinical signs and symptoms of deficiency	Recommended daily allowance, investigations	Treatment modalities	
Immunization (4)	National Immunization	Additional vaccines	National programs on immunization	

	schedule, Cold chain			

2nd POSTING: VI semester: 2 weeks (12 days: 12 clinics plus term end exam on last day)

Topic (days)	Must Know (70%)	Good to know (20%)	Nice to know (10%)	General Competencies to be achieved
Respiratory System examination (2)	Common symptoms indicative of respiratory diseases- d/d upper versus lower RTI	Clinical patterns associated with these diseases- Bronchiolitis, pneumonia, asthma	Arriving at a diagnosis and differentials	Identify growth that deviates from expected patterns, based on the family growth history and the child's previous growth, and explain the initial assessment. Determine the caloric adequacy of an infant's diet. Provide nutritional advice to families regarding Breastfeeding vs. formula feeding. Addition of solids to an infant's diet. Introduction of cow's milk to an infant's diet. Healthy food choices for children and adolescents. Provide advice to families about the prevention of common nutritional deficiencies, specifically iron and calcium.
Cardiovascular System examination (1)	Common symptoms indicative of CCF and congenital heart diseases	Clinical patterns associated with these diseases	Arriving at a diagnosis and differentials	
Per abdominal examination (1)	To be able to identify Hepato/splenomegaly and free fluid in abdomen	Common illnesses associated with these features	Arriving at a diagnosis and differentials	
Central nervous system examination (1)	Common symptoms indicative of CNS affection- spasticity, seizures	Motor examination	Arriving at a diagnosis and differentials	
Newborn (2)	History taking: Able to identify a sick neonate	Common affections in newborn e.g. jaundice, Care of newborn at home	Common causes of neonatal mortality	
AGE (2)	History and clinical features to identify grades of dehydration To be able to prepare and advise ORS therapy	Home based ORT- explain to parents how to prepare and administer ORS at home.	Dysentery, persistent diarrhea, electrolyte imbalances with diarrhoea	
PEM (2)	Dietary history taking, Identify and classify SAM and MAM	To identify need of admission/ home therapy.	Initial management including complications	
Anemia(2)	Identify anemia. Appropriate history to identify the cause. Clinical signs in Nutritional anemia and Thalassemia/Sickle cell	Advise appropriate Investigations and Management of nutritional anemia	Management of thalassemia	

3rd Posting: 8th Semester: 4 weeks: (24 days: 23 days clinic plus term end exam on last day)

Topic	Must Know 70%	Good to know 20%	Nice to know 10%	General competencies to be achieved
Week 1: IMNCI	IMNCI Module: 2 months to 2 years: Danger signs , identification of severe pneumonia, severe dehydration, Severe malnutrition, meningitis, severe measles, mastoiditis etc.	Anemia, Otitis media, Feeding advise	Scabies	Recognize the need for nutritional assessment in children beyond infancy in situations when growth is inadequate or excessive
Fever with rash (3 cases)	Identify different types of rash and their causes e.g. Measles, Chicken Pox etc.	To identify serious versus non serious illness, complications and management	Preventive measures, vaccines	
Nephrotic syndrome, AGN (3 cases)	Differentiate between causes of edema and anasarca on the basis of history and examination	Identify associated Complications including steroid toxicity. Plan appropriate investigations.	Management of minimal change NS.	Know how to assess body-mass index (BMI) using the normograms. Outline the differential diagnosis and the initial evaluation of an infant or child with overweight or failure to thrive.
HepatoSplenomegaly (3 cases)	Clinical approach to Differential diagnosis (Malaria, Typhoid, Hemolytic anemia, Leukemia)	Planning investigations to arrive at a diagnosis	Complications and treatment	
Respiratory conditions (4 cases)	Differentiate –Upper versus lower respiratory affection. Localize in the respiratory tract along with type of affection. e.g. Bronchiolitis, Bronchopneumonia, Pneumonia, Croup, Empyema, Asthma	History taking for foreign body aspiration, Plan investigations to arrive at a diagnosis. Dangers signs of severe respiratory illness and its initial management Understand causes of recurrent respiratory complaints	Complications and treatment	Calculate and write orders for the fluid therapy for a child with severe dehydration include “rescue” fluid to replenish circulating volume, deficit fluid, and ongoing losses. Recognize the electrolyte disturbances, including hyponatremia,
Newborn cases (2 cases)	History taking, differentiating FT from PT, identifying sick newborn. Eliciting clinical signs like icterus	Identifying life threatening malformations, eliciting neonatal reflexes	Diffn. b/w cephalhematoma and caput succedaneum	

CNS (2 cases)	Elicit history and examination to localize in central vs peripheral nervous system	Performance of CNS examination in a young child. E.g. Cranial nerves, DTR etc.	Treatment and prevention	Hyponatremia, hyperkalemia, hypokalemia, and severe acidosis.

4th POSTING: IX semester: 2 weeks: (12 days: 11 clinics plus last day term end exam)

Topic	Must Know 70%	Good to know 20%	Nice to know 10%	General competencies to be attained
Newborn (4 cases)	Differentiation between physiological and pathological jaundice Identifying sick newborn, e.g. sepsis. Assessment of maturity	Problems of SGA and prematurity and their management e.g. KMC, feeding, preventing hypothermia and hypoglycemia. Care of eyes and cord	Prevention and management Complications of birth asphyxia Neonatal resuscitation	Take detailed pediatric history, conduct an appropriate physical and developmental examination of children including neonates, make clinical diagnosis, interpret common laboratory investigations and plan and institute therapy.
Down Syndrome (1)	Clinical features	Causes	Monitoring	Recognize emergencies including neonatal resuscitation and CPR and care to be instituted and relevant procedures performed. Observation of diagnostic and therapeutic procedures such as intravenous access, nasogastric feeding, intraosseous needle insertion, venesection, pleural tap, ascitic tap, bone marrow aspiration, lumbar puncture, liver and kidney biopsy.
CVS (2)	Ask relevant history and perform examination to differentiate between cyanotic and Acyanotic heart disease.	Identify complications and management of like CCF, Cyanotic spells, infective endocarditis, arrhythmia etc.	Indications for Surgical versus medical management	
CNS-Cerebral palsy (2)	Elicitation of history and clinical examination to diagnose the type of CP- Hemiplegic, Diplegic etc.	Able to identify co-morbidities and suggest appropriate management	Prevention	
Hepatosplenomegaly with anemia (1)	To be able to diagnose Thalassemia-/ Sickle cell anemia on the basis of history, clinical features/ Identify associated problems	Identify Complications and suggest Management	Counselling	
Respiratory system (1)	Pneumonia/ Effusion on history, clinical features	Complications and management	Recent advances	

At the end of all the clinical postings, students should achieve the following COMPETENCIES in Neonatology:

Gather history from the parents and medical record regarding the pregnancy, labor and delivery, and interpret the information.
 Demonstrate the ability to perform a physical examination of the newborn infant, noting key physical findings.
 Perform an assessment of gestational age using the Ballard Scale, describe how gestational age affects risks in the newborn period
 Provide anticipatory guidance for parents about infant care, including nutrition, expectations for developmental progress, safety.
 Recognize patterns of illness in the newborn infant, including jaundice, respiratory distress, cyanosis, and lethargy.

The student should be able to give a differential diagnosis for the following common problems in a neonate:

Clinical Problems	Common Causes	Significant Other Problems to Consider
Jitteriness or Seizures	Drug withdrawal, Hypoglycemia Perinatal asphyxia, Hypoglycemia	Intracranial hemorrhage, Inborn errors of metabolism
Jaundice	Physiologic jaundice, Hemolytic disease, ABO incompatibility, Infection, Hematoma	Biliary atresia, Inborn errors of metabolism, Hepatitis
Lethargy or Poor Feeding	Sepsis, Prematurity, Perinatal asphyxia, Respiratory distress syndrome, Transient tachypnea	Neuromuscular problems, Congenital heart disease, Pneumothorax
Respiratory Distress	Pneumonia, Meconium aspiration, Sepsis	Hypoglycemia, Polycythemia, airway obstruction
Cyanosis, Heart Disease, Pulmonary Disorders	Cyanotic congenital defects, Airway compromise, Poor lung expansion, Persistent pulmonary hypertension, Acrocyanosis	Congenital pulmonary defects, Diaphragmatic hernia
Bilious Vomiting	Intestinal atresia, Volvulus, Overfeeding	Necrotizing enterocolitis, Esophageal atresia. Sepsis
Non-bilious Vomiting	Gastroenteritis reflux, Pyloric stenosis	CNS anomalies, insults, Inborn errors of metabolism
Hypoglycemia	IDM (Infant of diabetic mother), Prematurity, Small or large for gestational age, Perinatal asphyxia	Hemolytic disease, Polycythemia
Sepsis	Bacterial infection, Viral infection	Perinatal/maternal infections, Congenital infections, e.g. TORCH
Rashes	Erythema toxicum, Mongolian spots, Hemangiomas	Nevus Flammeus
Delayed Passage of Meconium	Hirschsprung's disease, Meconium plug syndrome	Cystic fibrosis

Tutorials:

Tutorials to be conducted in the form of mix of different types of activities such as Case scenarios, group discussions, quiz panel discussions , seminars etc. not repetition of lectures!

Tutorials – 8th Sem (12x 1) + 9th Sem (10x2) = Total: 32 hours.

Tutorials –VIII semester: 12 topics (1 hour each)

Topic	Must Know (70%)	Good to know (20%)	Nice to know (10%)
PEM (2): cases- Marasmus, Kwashiorkor admitted with complications like hypoglycemia, infection etc.	Identify malnutrition by correctly measuring anthropometry, Differentiate between marasmus and Kwashiorkor. Plan a diet by calculating calories and proteins. Can identify and treat common acute complications. Can tell criteria for discharge and home based management	Prevention by explaining proper diet to the family Dietary management at home after discharge	To be able to identify malnutrition without knowing the age of the child (age independent criteria)
Immunization (2): as small group discussion, Students given topics beforehand.	Should be able to tell details of vaccines included in National immunization schedule like components, route of administration, common side effects, Components of Cold chain- icebox, arrangement in fridge, VVM etc.	Optional vaccines included under the IAP program	Vaccination in special circumstances
Growth (1): Case scenarios of failure to thrive, short stature	Should be able to identify proper and deviant growth, Anthropometry, plotting on growth charts Interpreting growth charts to diagnose growth disorders, differentiate physiological ones.	Plotting BMI to diagnose overweight and	Pointers to diagnosis of endocrine causes
Development (1): case scenarios of normal and delayed development	Should be able to identify key milestones at various ages, identify syndromic children, how to arrive at causes like congenital versus acquired insult	Tools to diagnose delayed development , How can they be helped	Other disorders like autism, ADHD
AGE (1): case scenarios of child with no, some and severe dehydration	Clinical assessment of dehydration, Management with ORS and IV fluids, Feeding advise, ORS composition, monitoring on ORS.	ORS in malnourished children, special types of ORS	How to identify Hypo and hyponatremia
Tuberculosis (1): cases of fever, weight loss with h/o contact	When to suspect TB, How to arrive at a diagnosis, Plan investigations and treatment. Pulmonary & CNS TB.	Treatment- RNTCP, DOTS	Drug resistant TB
Vit A& C, D (2): Cases – Bitot	Identify features of deficiency- importance of general	RDA in special situations	Hypervitaminosis

spots, Rickets	examination, plan treatment, RDA, natural sources.	like measles, pregnancy	

Tutorials –IX semester: 10 topics (2 hours each)

Topic	Must Know (70%)	Good to know (20%)	Nice to know (10%)
Hemolytic Anemia: case scenarios of Sick cell anemia in crisis, Thalassemia with iron overload	Able to clinically suspect hemolytic anemia, differentiate between thalassemia and sickle cell anemia, identify the complications Thalassemia & Sickle cell anemia. How to confirm diagnosis, Plan treatment	Lab diagnosis and treatment of Iron overload-role of chelation,	Prenatal Counseling
Congenital heart disease- case scenarios of VSD, PDA, TOF	Able to identify cyanosis, suspect congestive heart failure in infancy, arrive at a clinical diagnosis of congenital heart disease- acyanotic- VSD, PDA and cyanotic- TOF. Knows the x-ray picture, complications if untreated.	Management of CCF, cyanotic spells, Eisenmengers syndrome	Suspect and diagnose Infective endocarditis
Rheumatic fever case scenarios of Acute rheumatic fever, RHD- MS, MR	Knows causes of fever with arthritis, can differentiate ARF from other causes, Jones criteria, Able to diagnose valvular heart disease esp. MR, MS, complications.	Treatment modalities including secondary prevention	Management of valvular heart disease
CNS- Case scenarios of simple and complex Febrile seizures, Causes and Types of seizures, CAE, Rolandic Epilepsy, West syndrome & Status epilepticus. Common AED	How to arrive at diagnosis of febrile seizures, differentiate from meningitis, Need to differentiate between simple and complex febrile seizures. Identify hypoglycemia, hypocalcaemia, acute symptomatic seizures, common types of seizures, Common epilepsy syndromes like absence and Rolandic. Emergency management of status epilepticus- including IV Benzodiazepines. AED- Phenytoin, Phenobarbitone, Carbamazepine, valproate.	Appropriate Use of Investigational modalities like EEG and Neuroimaging in diagnosis of type and cause of epilepsy and status epilepticus	Newer Antiepileptic drugs
Renal- Case scenarios of AGN with ARF& Nephrotic syndrome with massive oedema	To know the causes of oedema and anasarca. Differentiate between AGN and NS clinically. How to confirm diagnosis, Complications, How to manage Steroid sensitive NS. Complications of long term steroid therapy, General management of AGN and ARF	Diagnosis and management of steroid resistant NS	Principles and indications of Peritoneal and hemodialysis
Fever with rash -case scenarios of Measles, Varicella, Drug rash, Rickettsial fever, Kawasaki, Hand-foot-mouth dis, meningococccemia, Steven Johnson \$, Scabies etc.	To be able to identify and clinically differentiate between these conditions. Identify common complications of these illnesses, differentiate the serious ones, plan investigations and management accordingly.	Drugs associated with Steven Johnson syndrome	Identify uncommon causes like Leukemia
RS- Asthma and Status asthmaticus case scenarios of a child with wheeze, OPD and ward based	How to identify a child with asthma, taking history of risk factors, How to grade the severity in acute attack- plan treatment- different modalities of aerosol therapy. Chronic OPD based management of child with asthma, use of	Vaccination in a child with asthma, variants like exercise induced asthma	Role of different allergens, immune modifying agents

scenarios	inhalers, spacers etc, devices,		
Neonatal resuscitation case scenarios of a baby born with mild, moderate and severe asphyxia	How to approach a baby with poor breathing, assessment and management- ABC, bag and mask ventilation, temperature control, APGAR score.	Contraindications to bag and mask	Anticipating a baby with asphyxia
Neonatal Jaundice case scenarios of physiological & prolonged physiological jaundice. Hemolytic (Rh, ABO) and sepsis causing pathological jaundice	Should be able to differentiate between physiological and pathological jaundice on the basis of history, clinical examination. Able to plan appropriate investigations to arrive at the cause and plan therapy accordingly.	Modalities and side effects of Phototherapy, Complications of untreated hyperbilirubinemia like kernicterus,	Exchange transfusion
Instruments, drugs and Xrays	Ambu bag, scalp vein, IV set, Foleys, Endotracheal and feeding tubes, suction catheter, MDI, spacer, mask, laryngoscope	Antibiotics, anticonvulsants, ORS, vaccines, IV fluids, emergency drugs	X-rays of cardiomegaly, pneumonia, rickets, scurvy, effusion

(IV) ASSESSMENT

The performance in essential components of training is to be assessed based on attendance **and** Internal assessments.

At the end of the course, the student shall appear for the summative examination conducted by the university provided he/she fulfils the eligibility criteria for appearing at the Final examination

Attendance

Attendance requirements are **80%** attendance in theory and **80%** in clinics in each of the terms separately i.e. 3rd, 6th, 7th, 8th and 9th semesters.

Internal Assessment:

The internal assessment will be done in each term and will contribute proportionally to the final internal assessment.

Day-to-day internal assessment shall relate to different ways in which students participate in learning process including assignments, preparation for seminar, clinical case-presentations, preparation of clinical case for discussion, clinical case study/problem solving exercise, participation in project for health care in the community, proficiency in carrying out a practical or a skill in small research project, a written test etc.

Regular periodic examinations shall be conducted at the end of each term.

Eligibility criteria for appearing at the Final university examination in Pediatrics

. **Attendance requirements** are **80%** attendance in theory and **80%** in clinics in each of the terms separately i.e. **3rd, 6th, 7th, 8th and 9th** terms.

Internal assessment requirements: 35%

Calculation of Internal assessment:

Posting	Theory (Max)	Practical (Max)
1 st (3 rd Sem)	20 (MCQ)	-
2 nd (6thSem)	-	10 (Table viva)
3 rd (8 th sem)		20 (Case Viva)
4 th (9 th sem)	-	20 (Case viva)
Term End Exams	40	30 (case viva)
Prelims	40	40 (Case & table viva)
TOTAL	100	120
Average marks for internal assessment (out of)	10	10

NB. Internal assessment marks will be added to the final examination marks to determine pass or fail.

UNIVERSITY EXAMINATIONS

Eligibility criteria to appear for the Professional examinations have been laid out in the previous section

Theory examination

There will be one theory paper of 2 hrs duration. A total of 40 marks will be given.

.PEDIATRICS THEORY PAPER: Total marks 40.

Duration 2 hours

Total marks 40

Short essay questions 2 (compulsory) x 10 = 20

Short answers (4 out of 5): 4 x 5 = 20 marks -

Evaluation

Each answer sheet shall be evaluated by every examiner independently

Average of the marks obtained shall be used for the final score

Internal assessment marks will be added to the final score

PRACTICAL EXAMINATION IN Pediatrics: Total marks 40

Clinical examination

Each student will be assessed as under

Long case - 1 of 30 marks

Table viva: 10

Criteria for Passing in a Subject

A candidate shall obtain **50% marks** in University conducted examination **separately in Theory and Clinics** (includes viva voce) in order to be declared as passed in that subject.

FINAL ASSESSMENT FOR PEDIATRICS:

	Theory	Practicals
Final marks in theory	Out of 40	
Viva marks in finals	Out of 10	Out of 30
Internal assessment	Out of 10	Out of 10
Total	60	40

Suggested Reading

1. **O. P. Ghai Textbook of Pediatrics**
2. Nelson Textbook of Pediatrics
3. **Clinical Methods** – Hutchison, Meherban Singh
4. Care of Newborn- Meherban Singh
5. Journals: *Pediatrics*,
Indian Pediatrics,
Indian journal of Pediatrics

Useful E-links:

www.iap.org (Indian Academy of Pediatrics)

www.aap.org (American Academy of Pediatrics)

BHARATI VIDYAPEETH DEEMED UNIVERSITY MEDICAL
COLLEGE, PUNE

DEPARTMENT OF PATHOLOGY

Revised curriculum 2016

GOAL: To provide the students with a comprehensive knowledge of the causes and pathogenesis of disease, in order to enable the student to understand morphological changes and natural history of disease.

OBJECTIVES:

a) Knowledge : At the end of the course, the student should be able to :

1. Describe the structure of a sick cell, mechanism of cell injury, inflammation and repair and to correlate structural & functional alterations.
2. Explain the mechanisms which govern the disturbances of circulation and their morphological and clinical manifestations. Describe the general principles of neoplasia, immunological and genetic disorders.
3. Describe the pathophysiology of anaemias, leukaemias and disorders of coagulation and correlate haematologic changes with their clinical manifestations. Describe the common indications and procedures of safe blood transfusion.
4. Correlates the altered morphology (Gross & microscopic) of different organ systems in common diseases to the extent needed for understanding of disease processes and their clinical significance.

b) Skills:

At the end of the course, the students should be able to:

1. Describe the principles of technical procedures of diagnostic laboratory tests in clinical pathology and haematology and interpretation of the results.
2. Perform simple bedside tests on blood and urine.
3. Draw rational schemes of investigations aimed at diagnosing & managing the cases of common diseases.
4. Carry out tissue diagnosis and clinicopathologic correlation in common systemic diseases.

c) Integration

At the end of training in pathology the student should be able to integrate the causes of disease and the relationship of different social, economic and environmental factors with the natural history of diseases most prevalent in India

COMPETENCIES

III SEMESTER:

At the end of the III semester of 6 mth duration in Pathology training the MBBS student should be able to

- Demonstrate knowledge of the structure of a sick cell, mechanism of cell injury, inflammation and repair and to correlate structural & functional alterations.
- Demonstrate knowledge of the mechanisms which govern the disturbances of circulation and their morphological and clinical manifestations.
- Demonstrate knowledge of the general principles of neoplastic, immunological and genetic disorders.

IV SEMESTER

At the end of the IV semester of 6 mth duration in Pathology training the MBBS student should be able to

- Demonstrate knowledge of the pathophysiology of anaemias, leukaemias and disorders of coagulation and correlate haematologic changes with their clinical manifestations.
- Demonstrate knowledge of the common indications and procedures of safe blood transfusion.
- Demonstrate knowledge of the altered morphology (Gross & microscopic) of common diseases of the cardiovascular, respiratory, reticuloendothelial, gastrointestinal, hepatobiliary and urinary systems and correlate the same to the extent needed for understanding of disease processes of these systems and their clinical significance.
- Demonstrate knowledge of the principles of technical procedures of common diagnostic laboratory tests in clinical pathology and haematology and interpretation of the results.
- Demonstrate knowledge of the ability to perform simple bedside tests on blood and urine.

V SEMESTER

- Demonstrate knowledge of the altered morphology (Gross & microscopic) of common diseases of the male and female genital including breast, musculoskeletal, nervous, endocrine and integumentary systems and correlate the same to the extent needed for understanding of disease processes of these systems and their clinical significance.

- Draw rational schemes of investigations aimed at diagnosing & managing the cases of common diseases of various systems.
- Carry out tissue diagnosis and clinicopathologic correlation in common systemic diseases.
- At the end of training in pathology the student should be able to integrate the causes of disease encountered in the Indian environment and the relationship of different social, economic and environmental factors with the natural history of these diseases most prevalent in India

DISTRIBUTION OF TEACHING HOURS IN PATHOLOGY

1. Minimum Teaching Hours recommended as per MCI: 300 hrs

2. Semester duration:

III Semester: 01 Aug – 29 Jan 22 weeks

(Excluding 2 weeks each for Vacation and Term ending exams)

IV Semester: 30 Jan – 31 Jul 24 weeks

(Excluding 2 weeks for Term ending Exams)

V Semester: 01 Aug – 29 Jan 16 weeks

(Excluding 10 weeks for Prelims and University exams)

3. Allotment of weekly training time semester wise as per block training programme:

III Semester: 2 lectures + 1 lecture every 4 weekly= 50 lectures = 50 hours

1 practical = 22 practicals = 44 hours

Less 1 week for mid-term exams 2 L & 1 P

Lectures= 48 hours

Practicals= 42 hours

IV Semester: 3 lectures = 72 lectures = 72 hours

1 practical = 24 practicals = 48 hours

Less 1 week for mid-term exams 3 L & 1 P

Lectures = 69 hours

Practicals= 46 hours

V Semester: 3 lectures + 1 lecture every 4 weekly= 52 lectures = 52 hours

2 practicals = 32 practicals = 64 hours

Total teaching allotted teaching hours

Theory = 175 hours

Practicals= 152 hours

Grand total allotted teaching hours = 327 hours

COURSE CONTENT

III SEMESTER

List of lectures:

General Pathology

1. Introduction to Pathology- History of medicine & importance of learning pathology
2. Introduction to Pathology –Terminology and diagnostic techniques
3. Cell injury- causes and mechanisms
4. Reversible cell injury, Intracellular accumulations
5. Irreversible cell injury- necrosis, apoptosis.
6. Irreversible cell injury- Gangrene, cellular aging
7. Disturbances of pigment metabolism
8. Disturbances of mineral metabolism
9. Amyloidosis
10. Inflammation I: Definition, general features & types of inflammation
11. Inflammation II: Acute inflammation – vascular changes and cellular events.
12. Inflammation III: Chemical mediators of inflammation
13. Inflammation IV: Morphology and Systemic effects of inflammation
14. Chronic nonspecific inflammation and Granulomatous inflammation
15. Repair – I: General
16. Repair – II: Special tissue (e.g. Bone etc.)
17. Seminar-I: Cell Injury, Inflammation and Repair
18. Clinicopathologic Correlation Exercise-Autopsy I
19. Test-I
20. Tuberculosis- I: Etiopathogenesis, patterns, primary TB
21. Tuberculosis- II: Secondary, End organ TB and lab diagnosis
22. Leprosy
23. Syphilis
24. Hyperaemia and congestion
25. Oedema
26. Thrombosis.
27. Embolism.
28. Infarction.
29. Haemorrhage & shock
30. Seminar II- Infections and circulatory disturbances
31. Clinicopathologic Correlation Exercise-Autopsy II
32. Cellular adaptations and premalignant conditions
33. Neoplasia – Definition, Nomenclature, classification.
34. Neoplasia – General features of tumours & Differences between benign & malignant tumours, epidemiology

35. Carcinogenesis-Hallmarks, oncogenes, tumour suppressor genes, common genetic alterations
36. Carcinogenesis-Radiation, chemical and biological
37. Spread of tumours, grading and staging of tumours
38. Paraneoplastic Syndromes, clinical effects of neoplasia, Lab diagnosis of cancer
39. Genetic disorders: Normal karyotype, classification, types of genetic abnormalities
40. Genetic Disorders: Down's, Klinefelters, Turner syndromes
41. Immunopathology I- Hypersensitivity disorders
42. Immunopathology II – Autoimmune diseases
43. Pathology of AIDS
44. Nutritional diseases
45. Environmental Pathology
46. Seminar- III: Neoplasia, Immunopathology
47. Problem based learning- I: Cell injury, inflammation, infections, circulatory disturbances
48. Problem based learning – II: Neoplasia, genetic disorders, immunopathology

List of Practicals

1. Introduction to department
2. Histotechniques
3. Instruments and vacutainers & Special Stains
4. Study of cells
5. Reversible cell injury (Cloudy, fatty, hyaline, mucoid)
6. Irreversible cell injury (Necrosis, apoptosis and gangrene)
7. Pigment disorders/Calcification/Amyloidosis)
8. Acute inflammation
9. Tutorial-I
10. Chronic inflammation and repair
11. Tuberculosis
12. Leprosy/ Syphilis
13. OSPE-I
14. Edema/Hyperaemia/Congestion
15. Thrombosis/Embolism/ Infarction
16. Tutorial-II
17. OSPE-II
18. Disorders of growth and benign tumours
19. Carcinomas
20. Sarcoma/Melanoma/Teratoma
21. Revision-I

IV Semester

List of Lectures

1. Feedback on III Semester and Term ending exam
2. CVS-I: Atherosclerosis
3. CVS-II: Diseases of Blood vessels(Hypertensive vascular disease, Aneurysm)
4. CVS-III: Vasculitides and Vascular tumours
5. CVS-IV: Ischaemic heart disease-Etiopathogenesis, types
6. CVS-V: Ischaemic Heart Disease- Morphology, lab diagnosis, complications
7. CVS VI: Valvular Heart Disease
8. CVS-VII: Rheumatic myocarditis, endocarditis and pericarditis
9. CVS-VIII: Bacterial endocarditis, myocarditis, Cardiomyopathy
10. RS-I: Pneumonia-Etiopathogenesis, types, Lobar
11. RS-II: Pneumonia-Interstitial, bronchopneumonia and Lung Abscess
12. RS-III: Bronchial Asthma & Bronchiectasis
13. RS-IV: Chronic bronchitis & Emphysema
14. Seminar- CVS
15. Clinicopathologic Correlation Exercise-Autopsy III
16. RS-V: Pulmonary Tuberculosis
17. RS-VI: Tumours of lung and pleura
18. RS-VII: Vascular diseases of lung and Pleural effusion
19. RS-VIII: Occupational Lung diseases, Interstitial Lung Diseases, Acute lung injury
20. Seminar-RS
21. Hemat-I: Introduction to Hematology & Haematopoiesis.
22. Hemat-II: Anaemias- General
23. Hemat-III: Iron deficiency anaemia.
24. Clinicopathologic Correlation Exercise-Autopsy IV
25. Test-RS & CVS
26. Hemat-IV: Megaloblastic Anaemia.
27. Hemat-V: Haemolytic anaemias: Pathogenesis, classification, lab diagnosis
28. Hemat VI: Haemoglobinopathies: Pathogenesis, classification, lab diagnosis
29. Hemat-VII: Haemorrhagic disorders – Classification, etiopathogenesis
30. Hemat- VIII: Haemorrhagic disorders- Lab diagnosis, ITP
31. Hemat-IX: Leukocyte disorders: General
32. Hemat- XI: Acute Leukaemias
33. Hemat XII: Chronic Leukaemias
34. Hemat XIII: Para proteinaemias
35. Hemat XIV: Aplastic Anaemia
36. Transfusion medicine – I: Blood banking and blood groups
37. Transfusion medicine – II: Types of transfusions, Indications
38. Transfusion medicine – III: Complications and management of transfusion reaction

39. Seminar-Hemat & TM
40. Clinicopathologic Correlation Exercise-Autopsy V
41. Test-Hemat & TM
42. RES-I: Non-neoplastic disorders of lymph nodes& Spleen
43. RES-II: Hodgkins Lymphoma
44. RES-III: Non Hodgkins Lymphoma
45. KUB-I: Glomerular diseases – Pathogenesis, clinical syndromes, classification
46. KUB-II: Glomerular diseases – Morphology of common subtypes
47. KUB-III: Glomerular diseases and acute renal failure
48. KUB-IV: Chronic renal failure
49. KUB-V: UTI and pyelonephritis
50. KUB-VI: Tumors of kidney and collecting system
51. KUB-VII: Renal function tests
52. Seminar-Urinary & RES
53. Clinicopathologic Correlation Exercise-Autopsy VI
54. Test-Urinary & RES
55. GIT-I: Lesions of oral cavity and salivary glands
56. GIT-II: Gastritis and Peptic Ulcer
57. GIT-III: Ulcerative lesions of G. I. T. (Typhoid, tuberculosis, amoebic and bacillary colitis).
58. GIT-IV: Ulcerative lesions of G. I. T. (Crohn's disease, ulcerative colitis)
59. GIT-V: Tumours of G. I. T.
60. Liver-I: Liver Function tests
61. Liver-II: Viral Hepatitis
62. Liver-III: Alcoholic Liver Disease
63. Liver-IV: Cirrhosis
64. Liver-V: Cholestatic Diseases & pancreatitis
65. Liver-VI: Tumours of hepatobiliary system
66. Seminar-GIT & Liver
67. Clinicopathologic Correlation Exercise-Autopsy VII
68. Test-GIT & Liver
69. Revision- Discussion Important questions

List of Practicals

1. Revision of III term specimens and slides
2. Diseases of Blood Vessels
3. Diseases of Heart
4. Tutorial- CVS
5. OSPE CVS
6. Diseases of respiratory system
7. OSPE- RS
8. Estimation of Haemoglobin
9. PBS staining

10. RBC morphology
11. Iron Deficiency anaemia and Megaloblastic anaemia
12. PBS reporting & Haemolytic anaemias
13. Total leucocyte count & WBC disorders
14. TLC and Leukaemias
15. Blood grouping- ABO & Rh
16. Spleen and Lymph nodes
17. OSPE Hemat, Spleen and LN
18. Urine examination
19. Diseases of Kidney
20. Diseases of GIT-I
21. Diseases of GIT- II
22. Diseases of liver and Gall bladder
23. Tutorial Kidney, GIT, Liver

V Semester

List of Lectures

1. Feedback on IV Semester and term ending exam
2. MGS – I: Tumors of testis
3. MGS – II: Benign Hyperplasia Prostate, Carcinoma Prostate, Carcinoma Penis
4. MGS – III: Investigations of male infertility
5. Seminar-MGS
6. Clinicopathologic Correlation Exercise-Autopsy VIII
7. Problem based learning- MGS
8. Test-MGS
9. FGS: Lesions of female genital system – uterus
10. FGS: Lesions of female genital system – cervix
11. FGS: Tumor of ovary and placenta.
12. FGS: Investigations in a case of female infertility.
13. Breast -Non neoplastic lesions of breast.
14. Breast -Neoplastic lesions of breast.
15. Seminar-FGS & Breast
16. Clinicopathologic Correlation Exercise-Autopsy IX
17. Problem based learning- FGS & Breast
18. Test-FGS & Breast
19. B & J - Inflammatory and other non-neoplastic lesions of bones,
20. B & J - Tumors of bone, cartilage.
21. B & J - Diseases of joints& muscle
22. CNS- Non neoplastic disorders of CNS and C.S.F. Examination.
23. CNS-Tumours of CNS & PNS
24. Seminar-B&J, CNS
25. Problem based learning- B&J, CNS
26. Test-B&J, CNS
27. END –Non-neoplastic disorders of thyroid
28. END -Neoplastic lesions of thyroid
29. END –Diabetes mellitus
30. END –Disorders of the adrenal gland and pituitary gland
31. Common non neoplastic dermatologic disorders
32. Tumours of the skin
33. Soft tissue tumors
34. Seminar-Diabetes mellitus
35. Seminar- Thyroid disorders
36. Clinicopathologic Correlation Exercise-Autopsy X
37. Problem based learning- Diabetes mellitus
38. Problem based learning- Thyroid disorders
39. Test-DM , endocrine disorders
40. Seminar-Skin and soft tissue tumours

41. Problem based learning- Skin and soft tissue tumours
42. Test-Skin and soft tissue disorders
43. Revision Theory III Semester
44. Revision theory III semester
45. Revision theory III semester
46. Revision theory III semester
47. Revision theory IV semester
48. Revision theory IV semester
49. Revision theory IV semester
50. Revision theory IV semester
51. Discussion on paper patterns- Paper I
52. Discussion on paper patterns- Paper II Tutorial- Skin/Bone/Soft tissue

List of Practicals

1. Revision of III and IV Semester specimens and slides
2. Diseases of male genital system
3. OSPE-MGS
4. Diseases of female genital system
5. Tutorial- Neoplasia
6. Diseases of breast
7. OSPE- FGS & Breast
8. Diseases of musculoskeletal system
9. Tutorial- CVS
10. Diseases of CNS
11. Diseases of endocrine system and skin
12. OSPE-CNS & Endocrine system
13. Revision Practical-I
14. Tutorial- Male genital system
15. Revision Practical-II
16. Tutorial – Skin/Bone/Soft tissues

List of Tutorials

1. Cell Injury
2. Inflammation
3. Infections
4. Circulatory disorders
5. Anaemias
6. Leukaemias
7. Disorders of coagulation
8. Transfusion Medicine
9. Resp system
10. LN & Spleen

11. GIT
12. Liver, gall bladder & pancreas
13. Kidney
14. Female genital system
15. Breast
16. Endocrine system

TEACHING LEARNING METHODOLOGY

III – V Semesters

Lectures

Seminars

Clinicopathological correlation exercises

Problem based learning exercises

Class Tests

Practicals

OSPEs

Tutorials

Integrated Teaching in consultation with other departments

SPECIFIC LEARNING OBJECTIVES FOR PATHOLOGY FOR

II MBBS

III Semester

THEORY (Lectures, Problem based Learning, Seminars, Clinico-pathological Autopsy discussion)

GENERAL PATHOLOGY

Sr. No.	Topic Theory	SLOs At the end of lecture student should be able to-	
		Must know	Desirable to know
1	Introduction to Pathology (History of Medicine & Importance of learning pathology)	Describe the brief history of pathology Discuss the role of pathology in clinical medicine Discuss the relevance of the curriculum of pathology in the MBBS course	-
2.	Introduction to pathology (2) (Terminology and diagnostic techniques)	Define the commonly used terms in pathology Enumerate the commonly used diagnostic techniques in pathology practice Describe the important indications for these procedures	-
3.	Cell Injury (Causes and mechanisms)	Differentiate reversible from irreversible injury Enumerate and elaborate on the causes of cell injury State the important mechanisms (role of ATP, Mitochondria, Calcium, Oxygen derived free radicals, cell membranes and DNA and proteins) of cell injury	-
4.	Reversible cell injury (Intracellular accumulations)	Describe the pathogenesis of common types of reversible cell injury and intracellular accumulations Define cellular swelling and describe the gross and microscopic changes seen in cellular swelling Define fatty, mucoid and hyaline change and describe the salient gross and microscopic changes seen in fatty change Relate these changes to the clinical presentation of such cases	-
5.	Irreversible cell injury (1) (Necrosis, apoptosis)	Define necrosis, apoptosis and necroptosis Describe the pathogenesis of apoptosis and differentiate it from necrosis Recognize the morphological types of	-

		necrosis at gross and microscopic levels	
6.	Irreversible cell injury (2) (Gangrene and cellular aging)	Recognize the morphological types of gangrene at gross and microscopic levels Discuss the clinical relevance of these entities	-
7.	Disturbances of pigment metabolism	Classify pigments that may accumulate in the body Identify various pigment accumulations grossly and microscopically Describe the pathogenesis and morphological changes in iron overload states	-
8.	Disturbances of mineral metabolism (Pathologic Calcification)	Define pathologic calcification Differentiate dystrophic from metastatic calcification Describe the clinical implications of hypercalcaemia and calcifications	-
9.	Amyloidosis	Define amyloidosis Relate morphological and functional classifications of amyloidosis Recognize amyloidosis grossly	-
10.	Inflammation (1) (Definition, general features & types of inflammation)	Identify landmark historical events in inflammation Define and enumerate causes of inflammation Describe the general properties of inflammation Differentiate acute from chronic inflammation	-
11.	Inflammation (2) (Acute inflammation – vascular changes and cellular events)	Enumerate the order of vascular and cellular events in acute inflammation Describe in detail the vascular reactions in acute inflammation Describe the stepwise cellular events in acute inflammation	-
12.	Inflammation (3) (Chemical mediators of inflammation)	Classify the principal mediators of inflammation Describe the role of the principal mediators in inflammation	-
13.	Inflammation (4) (Morphology and Systemic effects)	Classify and differentiate the various morphologic types of inflammation Define acute phase response and describe the systemic manifestations of inflammation	-
14.	Inflammation (5) Chronic inflammation and granulomatous inflammation	Define chronic inflammation Describe the role of cells and mediators in chronic inflammation Illustrate and describe a granuloma Enumerate the clinical situations in which chronic including granulomatous	-

		inflammation arise	
15.	Repair (1) General	Describe the cell cycle and types of tissues based on proliferative capacity Describe the mechanisms of repair by regeneration and deposition of connective tissue Enumerate the factors that influence tissue repair	-
16.	Repair (2) Special tissues	Describe healing of fractures in detail Enumerate clinical consequences of repair in parenchymal organs Describe common abnormalities of tissue repair	-
17.	Seminar –I: Cell Injury, Inflammation and repair	Describe the salient features and importance of cell injury, inflammation and repair and highlight the interrelationship between these processes	-
18.	Clinicopathologic correlation exercise (Autopsy-I)	Describe the clinical and investigative profile and pathologic features of the case provided Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
19.	Test-I (Cell Injury, Inflammation and repair) (MCQ based)	-	-
20.	Tuberculosis-I	Describe in detail the etiopathogenesis of tuberculosis Enumerate the clinicopathologic patterns of tuberculosis Describe and illustrate the features of primary tuberculosis	-
21.	Tuberculosis- II	Describe the spectrum and development of secondary tuberculosis Enumerate the clinical implications of systemic end organ tuberculosis Outline a plan for the diagnosis of tuberculosis	-
22.	Leprosy	Describe the pathogenesis and classification of leprosy Differentiate between tuberculoid and lepromatous leprosy	-
23.	Syphilis	Differentiate the clinicopathologic stages of syphilis Describe the features of gumma, cardiovascular and neurosyphilis Outline a plan for the diagnosis of syphilis	-
24.	Hyperaemia & congestion	Define and differentiate between hyperaemia and congestion	-

		Describe the morphologic changes in the lung, liver and spleen in these conditions	
25.	Oedema	Classify oedema into pathophysiologic types Describe morphologic changes in lung in oedema Differentiate between transudative and exudative effusions	-
26.	Thrombosis	Briefly describe the salient features of haemostasis Enumerate the Virchow's triad and discuss the relationship of the components Differentiate between venous and arterial thrombi Enumerate the clinical effects of thrombosis Describe the fate of a thrombus	Hypercoagulability states DIC
27.	Embolism	Define and enumerate the different types of embolism Describe morphologic features of pulmonary, systemic and fat embolism	-
28.	Infarction	Define and differentiate between red and white(pale) infarcts Describe morphologic features of infarction in solid organs	-
29.	Haemorrhage and shock	Define and classify shock Describe the pathogenesis of septic shock Differentiate reversible from irreversible shock	
30.	Seminar-II Infections and haemodynamic disturbances	Describe the salient features and importance of common infections such as tuberculosis, leprosy and syphilis and the importance of haemodynamic disturbances and the interrelationship between the various types.	
31.	Clinicopathologic correlation exercise- Autopsy II	Describe the clinical and investigative profile and pathologic features of the case provided Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
32.	Cellular Adaptations and Premalignant conditions	Enumerate injurious stimuli State which types of stimuli are associated with cellular adaptations Classify types of adaptations Describe the general features of each type and correlate their clinical significance with examples	-
33.	Neoplasia (Definition,	Define neoplasia	-

	nomenclature, classification)	Broadly classify tumours Identify and describe common nomenclatures in neoplasia	
34.	Neoplasia (General features of tumours, differences between benign and malignant tumours)	Enumerate and describe the important general features of tumours Differentiate between benign and malignant tumours	-
35.	Carcinogenesis-I	Enumerate the cellular and molecular hallmarks of cancer Define oncogenes and tumour suppressor genes and enumerate the common types of such genes Describe the multistep mechanism of carcinogenesis Enumerate the common genetic alterations in cancer	Genetic lesions in cancer
36.	Carcinogenesis-II	Describe salient features of Chemical carcinogenesis, Radiation carcinogenesis and Viral carcinogenesis	-
37.	Neoplasia (Spread of tumours, grading, staging)	Describe the mechanisms of spread of cancer Identify patterns of spread Define grading and staging of cancers and discuss their importance	-
38.	Neoplasia (Paraneoplastic syndromes, clinical effects of neoplasia, lab diagnosis)	Identify paraneoplastic syndromes Outline a plan to diagnose various types of cancers	-
39.	Genetic Disorders –I (Normal karyotype, classification, types of genetic abnormalities)	Define mutation and enumerate the various types Classify genetic disorders with examples Outline a plan to investigate for genetic disorders	-
40.	Genetic Disorders-II	Describe salient features of common genetic disorders such as Gaucher's disease, Turner's, Down's and Klinefelter's syndromes.	
41.	Immunopathology-I (Hypersensitivity disorders)	Define and describe general features of hypersensitivity disorders Classify hypersensitivity disorders Describe with examples the four types of hypersensitivity disorders	-
42.	Immunopathology-II (Autoimmune Diseases)	Describe the mechanisms of autoimmunity Enumerate the general features of autoimmune diseases Outline a plan for the lab diagnosis of autoimmune diseases	Morphology of SLE Principles of transplant rejection
43.	Pathology of AIDS	Describe the pathogenesis of various stages	-

		of HIV infection Enumerate the clinicopathologic features of AIDS and relate it to its natural history Enumerate the modalities and criteria for the diagnosis of HIV infection	
44.	Nutritional diseases	Describe the pathologic features of PEM Relate the pathologic features of rickets/osteomalacia to Vit D deficiency Describe the pathogenesis of obesity	-
45.	Environmental pathology	Describe pathogenesis of common environmental health problems Enumerate the harmful effects of tobacco Classify adverse drug reactions	-
46.	Seminar-III (Neoplasia and Immunopathology)	Differentiate benign and malignant tumours, discuss their pathogenesis and be able to outline a plan to diagnose and manage these tumours. They should also be able to relate immune abnormalities with hypersensitivity disorders, autoimmune diseases and AIDS.	-
47.	PBL-I	Correlate the pathophysiologic profile with the clinical features of common clinical problems related to aspects of general pathology.	-
48.	PBL-II	Correlate the pathophysiologic profile with the clinical features of common clinical problems related to aspects of general pathology	-

Practicals

Must know areas in practicals cover performance of common bedside tests in haematology and clinical pathology and identification of commonly used instruments for diagnostics, gross changes in organs and important microscopic features of common pathologic lesions, as per list attached

Sr. No.	Topic Practical	SLOs At the end of practical the student should be able to-	
		Must know	Desirable to know
1.	Introduction to department	Identify important areas of the Dept. of pathology in the college and Bharati Hospital and describe their purpose	-
2.	Histotechniques	Describe the principles of processing of tissues for histopathological examination including fixation, tissue processing and staining.	-

3.	Instruments and vacutainers	Identify common used instruments and equipment used in pathology, clinical pathology and haematology and mention their uses	-
4.	Study of cells	Identify microscopically the most common different types of cells seen in histopathology and describe their significance	-
5.	Reversible cell injury (Cloudy, fatty, hyaline, mucoid)	Identify microscopically the above changes seen in tissues and relate them to gross alterations in organs Describe the significance of these changes	-
6.	Irreversible cell injury (Necrosis and gangrene)	Identify common types of necrosis microscopically and relate them to gross changes in organs	-
7.	Pigment disorders/Calcification/Amyloidosis)	Identify common types of pigment deposits microscopically and relate them to gross changes in organs Identify amyloid microscopically, enumerate diagnostic stains for amyloid and relate them to gross changes seen	-
8.	Acute inflammation	Recognize grossly and microscopically the changes of acute inflammation in various organs	-
9.	Tutorial-I	Instruments, cell injury, pigment disorders, acute inflammation	-
10.	Chronic inflammation and repair	Recognize gross and microscopic alterations of manifestations of chronic inflammation and abnormalities of repair	-
11.	Tuberculosis	Recognize gross and microscopic alterations of manifestations of various clinicopathologic stages of tuberculosis.	-
12.	Leprosy/ Syphilis	Recognize gross and microscopic alterations of manifestations of various clinicopathologic stages of leprosy and syphilis and relate them to their clinical manifestations.	-
13.	OSPE-I (Assessment of progress)	-	-
14.	Edema/Hyperaemia/Congestion	Recognize gross and microscopic alterations of manifestations of	-

		hyperaemia, congestion and edema and appreciate their clinical significances	
15.	Thrombosis/Embolism/ Infarction	Recognize gross and microscopic alterations of manifestations of thrombosis, embolism and infarction and appreciate their clinical significances.	-
16.	Tutorial-II	Chronic inflammation, tuberculosis, leprosy, syphilis, thrombosis, congestion, hyperaemia, edema, embolism and infarction	-
17.	OSPE-II (Assessment of progress)	-	-
18.	Disorders of growth and benign tumours	Recognize gross and microscopic alterations of common disorders of growth and benign tumours and describe their clinical significances	-
19.	Carcinomas	Recognize gross and microscopic alterations of common carcinomas and describe their pattern of spread.	-
20.	Sarcoma/Melanoma/Teratoma	Recognize gross and microscopic alterations of common sarcomas, melanomas and teratomas and describe their pattern of spread.	-
21.	Revision-I(General Pathology)	-	-

IV SEMESTER

THEORY (Lectures, Problem based Learning, Seminars, Clinico-pathological Autopsy discussion)

SYSTEMIC PATHOLOGY

Sr. No.	Topic Theory	SLOs At the end of lecture student should be able to-	
		Must know	Desirable to know
1.	Feedback on III Semester and Term ending examinations	-	-
2.	CVS-I (Atherosclerosis)	List the important diseases of blood vessels and effects of vascular pathology Define atherosclerosis Enumerate the common sites of atherosclerosis and correlate with clinical	-

		effects Enumerate risk factors for its development Describe the role of major risk factors in its pathogenesis Describe gross and microscopic appearance of an atheromatous plaque	
3.	CVS-II (Atherosclerosis, Hypertensive vascular disease, aneurysm)	Enumerate complications in an atherosclerotic plaque Classify hypertension etiologically and clinically Describe the effects of hypertension on blood vessels Enumerate the clinical effects of hypertension Define an aneurysm, enumerate types and common sites of aneurysm Enlist common predisposing conditions Dissecting aneurysm: Definition, pathogenesis, clinical consequences	-
4.	CVS-III (Vasculitides and vascular tumours)	Enumerate some common types of vasculitis Enumerate the sites of development and clinical effects of thromboangiitis obliterans, Raynaud disease, varicose veins and thrombophlebitis Classify vascular tumours Haemangiomas: Common sites and types, gross and microscopic appearance	Polyarteritis nodosa
5.	CVS-IV (Ischaemic Heart Disease-I)	Enumerate the causes of IHD Enlist clinical syndromes associated with IHD Describe the pathogenesis of IHD under the following headings Role of acute plaque change, role of inflammation, role of coronary thrombosis, role of vasoconstriction Explain angina pectoris, its types and clinical presentation	-
6.	CVS-V (Ischaemic heart Disease-II)	Enlist the functional & biochemical changes in the myocardium Describe the morphology of an infarct, its extent, gross & microscopic appearance Correlate clinical features of MI with pathologic changes that occur in the myocardium Enlist lab investigations done for diagnosis of MI Enumerate the complications of MI List causes of sudden cardiac death	-
7.	CVS-VI: (Valvular	Enlist important diseases of heart valves &	-

	Heart Disease)	effects of valvular pathology Define rheumatic fever (RF) Describe the etiopathogenesis of RF with emphasis on the roles of β hemolytic streptococcal pharyngitis and autoimmunity Enlist its clinical features and extracardiac lesions of RF Enlist lesions of acute rheumatic carditis Describe the evolution of an Aschoff nodule and its gross and microscopic appearance	
8.	CVS-VII (Rheumatic Heart Disease)	Explain the development of valvular lesions (stenosis and incompetence) in RHD Explain the clinical consequences of RHD	-
9.	CVS-VIII (Endocarditis, myocarditis, pericarditis)	Enumerate the causes of endocarditis Explain formation of a bacterial vegetation and its morphology Enlist differences between acute BE and subacute BE Enlist the predisposing factors in pathogenesis of BE Enlist cardiac and extracardiac complications of BE Enumerate causes of pericarditis Describe the gross appearance of rheumatic pericarditis Enlist other causes of myocarditis Define and enumerate types of cardiomyopathy	-
10.	RS-I: PNEUMONIA-I	Define Pneumonias and enumerate the causes of pneumonias and classify pneumonia syndromes Describe their pathogenesis Recognize the gross patterns of involvement of the lungs in various types of pneumonias in specimens	Hospital acquired and aspiration pneumonias
11.	RS-II: Pneumonia-II, Lung Abscess	Distinguish the microscopic changes of lobar, broncho- and interstitial pneumonias in microscopic stained slides Clinically correlate path features and identify the complications of pneumonias Explain the mechanisms of introduction of organisms leading to lung abscess formation Relate the morphology of lung abscess with the pathogenetic mechanisms Identify clinical features and complications arising out of lung abscesses	-

12.	RS-III: Chronic Bronchitis And Emphysema	Differentiate between obstructive and restrictive lung diseases Enumerate the types of obstructive lung diseases Define chronic bronchitis Identify the primary initiating factors and describe the pathogenesis of chronic bronchitis Distinguish between pink puffers and blue bloaters and define Reid index Define emphysema Classify emphysema into its major subtypes Describe the pathogenesis of emphysema relating to the influencing factors Recognize the morphologic features of centriacinar and panacinar subtypes	Morphologic features of chronic bronchitis
13.	RS-IV: Bronchial Asthma and Bronchiectasis	Define Bronchial Asthma Briefly describe the different types of asthma and differentiate extrinsic from intrinsic asthma Describe the pathogenesis of asthma Define bronchiectasis Enumerate the various conditions associated with the development of bronchiectasis Apply this understanding to explain the clinical features and complications of this condition	Morphology of bronchial asthma Basis of diagnosis
14.	Seminar: CVS	Describe the salient features and importance of common cardiovascular lesions such as Myocardial infarction and valvular heart disease and common diseases of blood vessels	
15.	Clinicopathologic Correlation Exercise- Autopsy III	Describe the clinical and investigative profile and pathologic features of the case provided Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
16.	PBL	Correlate the pathophysiologic profile with the clinical features of common clinical problems in CVS related to aspects of its systemic pathology.	-
17.	Test	Assessment exercise	
18.	RS-V: Pulmonary Tuberculosis	Describe the pathogenesis of tuberculosis Enumerate the clinicopathologic patterns of pulmonary tuberculosis Identify the gross changes of primary,	-

		secondary, progressive pulmonary and miliary tuberculosis and describe the basic microscopic features seen Outline a plan for the investigation of a patient with suspected pulmonary tuberculosis and enumerate its complications.	
19.	RS-VI: Vascular diseases of lung, Pleural effusion and Acute Lung Injury	Describe the pathogenesis of pleural effusion and differentiate between inflammatory and non-inflammatory pleural effusions. Describe the pathogenesis of the disease and identify the diagnostic microscopic features Define pulmonary hypertension and classify the disease as per the WHO. The student should be able to describe the pathogenesis of the common forms	Definition and WHO classification of Pulmonary hypertension Pathogenesis of pulmonary hypertension
20.	RS-VII: Occupational Lung Diseases (OLD), Interstitial Lung Diseases (ILD)	Define occupational lung diseases and etiologically classify these diseases Enumerate factors affecting the development of pneumoconiosis Identify the gross changes seen in coal workers pneumoconiosis, silicosis and asbestosis Describe the complications of pneumoconiosis Classify chronic interstitial lung diseases and describe the pathogenesis of the common forms	Microscopic features of CWP, Silicosis and Asbestosis Classification of chronic ILD
21.	RS-VIII: Tumours Of Lung And Pleura	Enumerate the etiological factors and describe the pathogenesis of lung cancer Classify carcinomas of the lung Describe the gross patterns of growth of lung cancers and the diagnostic microscopic features Enumerate the paraneoplastic syndromes associated with lung cancer Identify patterns of spread of lung cancers and pathologically stage the disease	Mesotheliomas
22.	Seminar- RS	Describe the salient features and importance of common respiratory diseases	-
23.	Haemat-I: Introduction to Haematology and Hemopoiesis	State the importance and role of haematology in clinical practice Describe the pathophysiology of hematopoiesis Enumerate and illustrate the different stages of hematopoiesis	-
24.	Haemat-II: Anaemias (General)	Define anaemia Classify anaemias etiologically and	-

		morphologically Describe the signs and symptoms of anaemias Outline the laboratory approach for the diagnosis of anaemias	
25.	Haemat-III: Iron deficiency anaemia (IDA)	Define iron deficiency anaemia Enumerate the causes and clinical features of IDA Describe the pathophysiology of IDA Outline the plan for laboratory diagnosis and list the differential diagnosis of IDA	-
26.	Clinicopathologic correlation exercise- Autopsy IV	Describe the clinical and investigative profile and pathologic features of the case provided. Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
27.	Problem based learning- RS	Correlate the pathophysiologic profile with the clinical features of common clinical problems in the Respiratory system related to aspects of its systemic pathology.	
28.	Test	Assessment exercise (RS)	-
29.	Haemat-IV: Megaloblastic anaemia (MA)	Define and enumerate the causes of MA Discuss the Metabolism and Functions of vit B12 and Folic acid Describe the Pathophysiology and Clinical features of MA Plan the laboratory diagnosis of MA and discuss the differential diagnosis	-
30.	Haemat-V: Haemolytic anaemia	Define and classify HA To enumerate the mechanisms of haemolysis and describe the pathophysiology of inherited and immune haemolytic anaemias, RBC Membrane and Enzyme abnormalities Outline an approach to the lab diagnosis of different types of HA	-
31.	Haemat-VI: Haemoglobinopathies	Define and Classify Haemoglobinopathies Describe the pathophysiology of Haemoglobin abnormalities leading to excessive haemolysis Outline an approach to lab diagnosis of Thalassemia and Sickle cell disease	-
32.	Aplastic Anaemias	Describe the etio-pathogenesis of aplastic anaemia and agranulocytosis Enumerate the clinical features and carry out the lab diagnosis of the same Enlist the differential diagnosis of pancytopenia and hypoplastic marrow	-

33.	Leukocytic disorders	Define Leukocytosis, Leukopenia and Leukemoid reactions Describe the Etiopathogenesis of leukocytoses and leukopenias Enumerate the Clinical features and Laboratory investigations done for leucocytic disorders	-
34.	Acute Leukaemias	Classify acute leukaemias Describe the Morphological features of important subtypes Discuss the importance of genetics in the diagnosis and prognosis	-
35.	Chronic Leukaemias	Define and classify chronic leukaemias Enumerate the etiopathogenesis and Haematological changes in chronic leukaemias Describe the clinical course of the disorders Outline a plan to investigate these disorders	-
36.	Paraproteinemias	Classify paraproteinaemias Describe the diagnosis of Multiple myeloma and stage the disease	-
37.& 38	Haemorrhagic disorders (2 lectures)	Classify haemorrhagic disorders and describe their pathogenesis Differentiate between Purpura and coagulation factor deficiencies Describe normal coagulation and fibrinolysis Outline a plan for the lab diagnosis of Haemophilia and DIC Describe the pathophysiology, Clinical features and Lab diagnosis of ITP	-
39.	Transfusion Medicine-I (Blood groups)	Enumerate the various blood group systems present in the body Describe Rh and ABO incompatibility and its complications in pregnancy	-
40.	Transfusion Medicine-II (Blood Transfusion)	Enumerate the common indications for blood transfusion of whole blood and blood components Enlist the criteria of selection of blood donors Describe salient features of autologous blood transfusion	-
41.	Transfusion Medicine-III (Complications of blood transfusion)	Classify and describe the common complications of blood transfusion Outline a plan to investigate a blood transfusion reaction	-
42.	Seminar (Haematology &	Describe the salient features and importance of common haematological	-

	Transfusion medicine)	diseases and practice of transfusion medicine.	
43.	Clinicopathologic Correlation Exercise- Autopsy IV	Describe the clinical and investigative profile and pathologic features of the case provided Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
44.	PBL	Correlate the pathophysiologic profile with the clinical features of common clinical problems in Haematology related to aspects of its systemic pathology.	-
45.	Test (Haemat & TM):	Assessment exercise	-
46.	RES-I: Non-neoplastic disorders of lymph nodes and spleen	Describe the patterns of lymph node hyperplasia Enumerate the causes of lymph node enlargement and splenomegaly Identify the diagnostic features of common causes of lymph node enlargement	-
47.	Hodgkins Lymphoma	Define and classify Hodgkins Lymphoma Describe and illustrate the Reed Sternberg cell and its variants Enumerate the key diagnostic features of various types State the clinical course and stage the disease	-
48.	Non-Hodgkins Lymphoma (NHL)	Classify NHLs into their broad clinicopathologic groups Enumerate the salient diagnostic features of the most common types of NHLs as above State the clinical course and stage the disease	Extranodal NHLs
49.	KUB-I: Glomerular Diseases-I	Classify renal diseases Correlate the clinical features of glomerular disease with changes in the structure of glomerular filtration barrier Enumerate the differences between nephrotic and nephritic syndrome Describe the chief pathogenetic mechanisms of glomerular injury Classify glomerulonephritis Describe in detail the common types of primary GN Minimal change disease	-
50.	KUB-II: Glomerular Diseases-II	Describe in detail the common types of primary GN(continued) 2) Post streptococcal GN 3) Rapidly progressive GN & Goodpasture	-

		syndrome Enumerate the common types of secondary GN Describe the lesions of diabetic nephropathy	
51.	KUB-III: Glomerular Diseases and Acute renal failure	Describe effects of benign and malignant Hypertension on kidney Enumerate the lesions of myeloma kidney Enlist the causes of chronic GN Describe the morphology of kidney in chronic GN Enumerate the causes of acute tubular necrosis (ATN), correlate the clinical features with pathogenesis of ATN Define acute renal failure (ARF) Enumerate the causes and clinical features of ARF	-
52.	KUB-IV: Chronic Renal Failure and Tubulopathies	Define chronic renal failure (CRF) Enumerate the causes and clinical features of (CRF) Enumerate lab investigations in a case of ARF/CRF Tubular Pathology Enlist causes and routes of urinary tract infection Describe pathogenesis, gross and microscopic appearance and complications of acute pyelonephritis	-
53.	KUB-V: Urinary tract Obstruction and Pyelonephritis	Describe pathogenesis, gross and microscopic appearance, complications of chronic pyelonephritis Urinary tract obstruction Enumerate causes & effects of urinary tract obstruction Enumerate types of renal calculi Describe effects of renal calculi on the kidney Explain the terms hydronephrosis and pyonephrosis	-
54.	KUB-VI: Tumours of Kidney and Collecting System	Classify tumors of kidney Describe clinical features, peak age of incidence, risk factors for development and morphology of renal cell carcinoma Describe pathogenesis, genetics and morphology of nephroblastoma Describe risk factors for development, and morphology of tumors of the collecting system	-
55.	KUB-VII: Renal Function Tests	Enumerate renal function tests (RFT) Describe the role of urine analysis in	-

		estimating renal function Enumerate tests done in physical, chemical, microscopic, cytologic, microbiologic examination of urine Name the tests for glomerular function Name the tests for tubular function State the importance and indications for renal biopsy	
56.	Seminar-Urinary system and Reticuloendothelial system	Describe the salient features and importance of common renal diseases and diseases of lymph nodes and spleen.	-
57.	Clinicopathologic Correlation Exercise- Autopsy V	Describe the clinical and investigative profile and pathologic features of the case provided Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
58.	PBL	Correlate the pathophysiologic profile with the clinical features of common clinical problems in the urinary and reticuloendothelial systems related to aspects of its systemic pathology	-
59.	Test (Urinary system & RES)	Assessment exercise	-
60.	GIT-I: Lesions of oral cavity, salivary glands and oesophagus	Explain the pathogenesis of oral squamous cell carcinomas Recognize the sites and gross morphological changes seen in these tumours Enumerate the diagnostic microscopic features of squamous cell carcinoma Differentiate between the common causes of swellings of major salivary glands and describe features of pleomorphic adenoma Describe the pathological features of Barretts oesophagus and carcinoma oesophagus	Common non-neoplastic and neoplastic lesions of the oral cavity
61.	GIT-II: Gastritis and Peptic Ulcer	Enumerate the risk factors for peptic ulcer disease and describe the pathogenesis Describe the gross and microscopic changes occurring in peptic ulcer Differentiate a benign from malignant gastric ulcer Explain the complications of peptic ulcer disease	Overview of etiology and classification of gastritis
62.	GIT-III: Non-neoplastic conditions and Ulcers of	Etiologically classify the causes of ulcers of the intestines Describe appendicitis and enumerate the	Malabsorption syndrome

	Intestines (Typhoid, tuberculosis and bacillary dysentery)	pathological features of intestinal tuberculosis Describe the diagnostic gross and microscopic features of typhoid, amoebic ulcers and of bacillary dysentery	
63.	GIT-IV: Ulcerative lesions of G. I. T. (Crohn's disease, ulcerative colitis)	Explain the pathogenesis of Idiopathic inflammatory bowel disease Compare the clinical and morphological features of Ulcerative colitis and Crohn's disease	-
64.	GIT-V: Tumours of GIT	Classify tumours of the GIT Explain the pathogenesis of carcinomas of stomach and colon Describe the morphological features of carcinomas stomach and colon and stage the diseases	Differential diagnosis of polyps of the stomach and colorectum, polyposis syndromes Brief pathology of lymphomas, gastrointestinal stromal tumours and carcinoid tumours of GIT
65.	HBS-I: Liver function tests	Classify the different types of jaundice Enumerate and justify various laboratory investigations in jaundice Differentiate hepatocellular, hemolytic and obstructive jaundice	-
66.	HBS-II: Viral Hepatitis	Enumerate the causes of viral hepatitis and explain the pathogenesis of the common forms Define the common clinicopathologic syndromes of viral hepatitis Describe the diagnostic histopathologic changes in viral hepatitis	-
67.	HBS-III: Alcoholic liver disease	Explain the pathogenesis of alcoholic liver disease and relate it to the clinicopathologic syndromes Enumerate the diagnostic histopathologic changes in alcoholic hepatitis	-
68.	HBS-IV: Cirrhosis	Enumerate the causes of portal hypertension and explain the clinicopathologic consequences of the same Define and classify cirrhosis Differentiate micronodular from macronodular cirrhosis morphologically and in relation to its etiology Describe the salient histopathologic changes in different types of cirrhosis	-
69.	HBS-V: Cholestatic diseases &	Enumerate and differentiate between various cholestatic diseases	-

	Pancreatitis	Causes and types of gallstones and chronic cholecystitis Pathogenesis and diagnosis of acute pancreatitis	
70.	HBS-VI: Tumours of hepatobiliary system	Discuss the etiopathogenesis of carcinomas of the liver, gall bladder and pancreas Describe the gross and diagnostic microscopic changes seen in these Carcinomas	-
71.	Seminar GIT and Hepato-biliary system	Describe the salient features and importance of common diseases of the GIT and hepatobiliary system	-
72.	Clinicopathologic Correlation Exercise- Autopsy VI	Describe the clinical and investigative profile and pathologic features of the case provided Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
73.	PBL (GIT & HBS)	Correlate the pathophysiologic profile with the clinical features of common clinical problems in the GIT and hepatobiliary system related to aspects of its systemic pathology.	-
74.	Test (GIT & HBS)	Assessment exercise	-
75.	Revision- Discussion of Important Questions	-	-

PRACTICALS-IV Semester

Must know areas in practicals cover performance of common bedside tests in haematology and clinical pathology and identification of commonly used instruments for diagnostics, gross changes in organs and important microscopic features of common pathologic lesions, as per list attached

Sr. No.	Topic Practical	SLOs At the end of practical the student should be able to-	
		Must know	Desirable to know
1.	Revision of III term specimens and slides	-	-
2.	Diseases of Blood Vessels	Recognize gross and microscopic alterations of manifestations of various lesions of blood vessels and relate them to their clinical manifestations	-
3.	Diseases of Heart	Recognize gross and microscopic alterations of manifestations of various	-

		lesions of the heart and relate them to their clinical manifestations	
4.	Tutorial- CVS	-	-
5.	OSPE- CVS	Assessment of progress	-
6.	Diseases of respiratory system	Recognize gross and microscopic alterations of manifestations of various lesions of the respiratory system and relate them to their clinical manifestations	-
7.	OSPE- RS	Assessment of progress	
8.	Estimation of Haemoglobin	Estimate haemoglobin on the sample of blood provided by common methods used Describe the principles of tests for the estimation of haemoglobin and relate the significance of disorders of the same to their clinical manifestations.	-
9.	PBS staining	Stain a smear of blood by the Romanovsky method Carry out a differential leucocyte count on the smear provided Enumerate indications for examination of peripheral blood smear	-
10.	RBC morphology	Classify morphologically the type of RBC morphology seen on the stained smear provided Describe the significance of the same and relate it to the etiopathogenesis of anemias	-
11.	Iron Deficiency anaemia and Megaloblastic anaemia	Identify morphologically the type of anaemia on the stained smear provided Describe the significance of the same and relate it to the etiopathogenesis of iron deficiency and megaloblastic anemias	-
12.	PBS reporting & Haemolytic anaemias	Outline a scheme to study a peripheral blood smear and enumerate the indications for study of the same. Identify morphologically the features of hemolytic anaemia on the stained smear provided Describe the significance of the same and relate it to the etiopathogenesis anemias	-
13.	Total leucocyte count& WBC disorders	Carry out a total leucocyte count on the sample of blood provided Enumerate indications for determining TLC Enlist the causes of raised and decreased leucocyte counts	-
14.	TLC and Leukaemias	Carry out a Total leucocyte count on the sample provided Identify common acute and chronic leukaemias Enlist the main diagnostic features of each	-

		major type of leukaemia	
15.	Blood grouping- ABO & Rh	Carry out ABO and Rh grouping on the sample of blood provided Enumerate the different types of blood groups and identify common apparatus/equipment used in blood banking	-
16.	Spleen and Lymph nodes	Recognize gross and microscopic alterations of manifestations of various non-neoplastic and neoplastic lesions of lymph nodes and spleen	-
17.	OSPE Hemat, Spleen and LN:	Assessment of progress	-
18.	Urine examination	Carry out a complete routine urine examination on the sample of urine provided Enumerate the various renal function tests and indications for the same.	-
19.	Diseases of Kidney	Recognize gross and microscopic alterations of manifestations of various non-neoplastic and neoplastic lesions of the kidney	-
20.	Diseases of GIT-I	Recognize gross and microscopic alterations of manifestations of various non-neoplastic and neoplastic lesions of oral cavity including salivary glands, oesophagus and stomach	-
21.	Diseases of GIT- II	Recognize gross and microscopic alterations of manifestations of various non-neoplastic and neoplastic lesions of appendix, small and large intestines.	-
22.	Diseases of liver and Gall bladder	Recognize gross and microscopic alterations of manifestations of various non-neoplastic and neoplastic lesions of liver and gall bladder	-
23.	Tutorial Kidney, GIT, Liver	-	-

V SEMESTER

THEORY (Lectures, Problem based Learning, Seminars, Clinico-pathological Autopsy discussion)

SYSTEMIC PATHOLOGY

Sr. No.	Topic Theory	SLOs At the end of lecture student should be able to-	
		Must know	Desirable to know
1.	Feedback on IV semester and term ending examinations	-	-
2.	MGS-I: Tumours of testis	Classify testicular tumours Describe the morphology of the common testicular germ cell tumours and stage the disease	-
3.	MGS-II: Lesions of Prostate and Penis	Enumerate the clinicopathologic features of benign hyperplasia and carcinoma prostate and Carcinoma Penis	-
4.	MGS-III: Investigations in a case of male infertility	Outline a plan of investigation in a case of male infertility	-
5.	Seminar-MGS:	describe the salient features and importance of common diseases of the testis, prostate and penis	-
6.	Clinicopathologic Correlation Exercise- Autopsy VIII	Describe the clinical and investigative profile and pathologic features of the case provided Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
7.	PBL (MGS)	Correlate the pathophysiologic profile with the clinical features of common clinical problems in the Male genital system related to aspects of its systemic pathology	-
8.	Test (MGS):	Assessment exercise	-
9.	FGS-I: Tumours of Cervix	Explain the etiopathogenesis of cervical carcinoma Enumerate the salient diagnostic features of CIN and Cervical carcinoma Describe the Bethesda system of cervical cancer cytology	-
10.	FGS-II: Tumours of Uterus	Explain the etiopathogenesis of endometrial carcinoma Enumerate the salient diagnostic features	Adenomyosis and endometriosis

		of leiomyoma and endometrial carcinoma	
11.	FGS-III: Tumours of Ovary and Gestational trophoblastic disease	Classify ovarian tumours as per the WHO Describe the salient diagnostic morphological features of most common serous and mucinous tumours and germ cell tumours of the ovary, especially Teratoma and Kruckenberg's tumour.	Pathogenesis and morphology of ectopic gestation Morphology of hydatidiform mole and choriocarcinoma
12.	FGS-IV: Investigations in a case of female infertility	Outline a plan of investigation in a case of female infertility	-
13.	Breast-I: Non-neoplastic and benign neoplastic lesions of the breast	Differentiate the types of breast disorders causing swellings in the breast Describe the morphological features of fibroadenoma	Morphological features of proliferative lesions of breast and Phyllodes tumour
14.	Breast-II: Carcinoma Breast	Enumerate the risk factors of carcinoma breast and explain the etiopathogenesis Describe the morphological features of the common form of carcinoma Breast and enumerate its prognostic and predictive features	-
15.	Seminar-FGS and Breast	Describe the salient features and importance of common diseases of the female genital system and breast	-
16.	Clinicopathologic Correlation Exercise- Autopsy IX	Describe the clinical and investigative profile and pathologic features of the case provided Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
17.	PBL (FGS & Breast)	Correlate the pathophysiologic profile with the clinical features of common clinical problems in the Female genital system and breast related to aspects of its systemic pathology.	-
18.	Test (FGS and Breast)	Assessment exercise	-
19.	B & J-I: Inflammatory and other nonneoplastic lesions of bones	Broadly classify non-neoplastic diseases of bone with emphasis on metabolic disorders, osteoporosis and osteomyelitis	-
20.	B&J-II: Tumours of Bone & Cartilage	Classify bone tumours Describe the salient diagnostic features of common bone tumours as enumerated above	-
21.	B&J-III: Disorders of Joints & Muscle	Describe the pathogenesis and most important morphological features of rheumatoid arthritis, gouty arthritis Discuss the differential diagnosis of	Pathogenesis and morphological features of common inflammatory and

		neuropathies and myopathies	degenerative disorders of the joints Differential diagnosis of common disorders of peripheral nerves, neuromuscular junctions and skeletal myopathies
22.	CNS-I: Non-neoplastic disorders of the CNS and CSF examination	Enumerate the causes of intracranial haemorrhage and define common types Classify various infections of the brain Outline the role of CSF examination in diagnosis of disorders of the brain	Neurodegenerative diseases
23.	CNS-II: Tumours of the Central Nervous System & PNS	Classify tumours of the CNS & PNS Describe the morphological features of the most common tumours of the CNS & PNS as above	-
24.	Seminar-B&J and Nervous system	Describe the salient features and importance of common diseases of the Bone and joints and nervous system	-
25.	PBL (B&J and Nervous system)	Correlate the pathophysiologic profile with the clinical features of common clinical problems in the Bone and joints and nervous system related to aspects of its systemic pathology	
26.	Test (B&J and Nervous system):	Assessment exercise	-
27.	Endo-I: Nonneoplastic disorders of the thyroid	Enumerate the causes of thyroid dysfunction Discuss the differential diagnosis of diffuse and nodular goiters Outline a plan of testing in a case of thyroid dysfunction	-
28.	Endo-II: Neoplastic lesions of thyroid	Classify neoplasms of the thyroid gland Explain the etiopathogenesis of thyroid carcinoma Describe the diagnostic morphological features of papillary and follicular carcinoma thyroid	-
29.	Endo-III: Diabetes mellitus	Diagnosis and differentiate Types I and II Diabetes mellitus Explain the pathogenesis of each type Propose a line of investigation in a case of hyperglycaemia Enumerate the complications of Diabetes mellitus.	Morphology of chronic complications in major organs and their clinicopathologic correlation
30.	Endo-IV: Disorders of the adrenal Gland and pituitary	Enumerate the causes and clinical manifestations of adrenal dysfunction Briefly describe adrenal adenomas and pheochromocytoma	Common adrenal neoplasms Causes and manifestations of

		Describe pituitary adenomas and its effects	pituitary dysfunction
31.	Skin-I: Common non-neoplastic dermatologic disorders	Classify common non-neoplastic disorders of the skin Briefly describe features of psoriasis, lichen planus, eczematoid dermatitis Differentiate between the common bullous lesions of the skin	Differential diagnosis of common inflammatory dermatoses Differential diagnosis of common bullous disorders
32.	Skin-II: Tumours of skin	Classify tumors of the skin and adnexae Enumerate and illustrate the diagnostic features of squamous cell carcinomas, basal cell carcinomas and melanomas	Classification of skin tumours
33.	Soft tissue tumours	Classify soft tissue tumours Enumerate the characteristic features of each histogenetic group and discuss the pathogenesis	-
34.	Seminar-Diabetes mellitus	Describe the pathophysiology, diagnostic criteria and pattern of organ involvement and dysfunction seen in Diabetes mellitus	-
35.	Seminar-Thyroid disorders	discuss the differential diagnosis of a goiter and describe the salient features of common thyroid neoplasms and utility of thyroid function tests	-
36.	Clinicopathologic Correlation Exercise- Autopsy X	Describe the clinical and investigative profile and pathologic features of the case provided Perform a correlation of the clinical and pathologic features of the case with a view to explain the course of the diseases and determine the cause of death	-
37.	PBL (Diabetes mellitus)	Correlate the pathophysiologic profile with the clinical features of common clinical problems seen in Diabetes mellitus and relate them to aspects of its systemic pathology	-
38.	PBL (Thyroid disorders)	Correlate the pathophysiologic profile with the clinical features of common clinical problems in the Thyroid gland related to aspects of its systemic pathology.	-
39.	Test (Diabetes mellitus and Endocrine disorders):	Assessment exercise	-
40.	Seminar-Skin and soft tissue tumours	Describe the salient features and importance of common tumours of the skin and soft tissue	-
41.	PBL (Skin and soft tissue tumours)	Correlate the pathophysiologic profile with the clinical features of common clinical problems in the skin and soft tissues related to aspects of its systemic pathology	
42.	Test (Skin and soft	Assessment exercise	-

	tissue tumours)		
43.	Revision Theory III Semester	-	-
44.	Revision theory III semester	-	-
45.	Revision theory III semester	-	-
46.	Revision theory III semester	-	-
47.	Revision theory IV semester	-	-
48.	Revision theory IV semester	-	-
49.	Revision theory IV semester	-	-
50.	Revision theory IV semester	-	-
51.	Discussion on paper patterns- Paper I	-	-
52.	Discussion on paper patterns- Paper II	-	-

Practicals

Must know areas in practicals cover performance of common bedside tests in haematology and clinical pathology and identification of commonly used instruments for diagnostics, gross changes in organs and important microscopic features of common pathologic lesions, as per lists attached.

Sr. No.	Topic Practical	SLOs At the end of practical the student should be able to-	
		Must know	Desirable to know
1.	Revision of III and IV Semester specimens and slides	-	-
2.	Diseases of male genital system	Recognize gross and microscopic alterations of manifestations of various lesions of testis, prostate and penis and relate them to their clinical manifestations.	-
3.	OSPE	MGS-assessment exercise	-
4.	Diseases of female genital system	Recognize gross and microscopic alterations of manifestations of various lesions of cervix, uterus and ovaries and relate them to their clinical manifestations.	-

5.	Tutorial Neoplasia	-	
6.	Diseases of breast	Recognize gross and microscopic alterations of manifestations of various lesions of the breast and relate them to their clinical manifestations.	-
7.	OSPE FGS & Breast	Assessment exercise	-
8.	Diseases of musculoskeletal system	Recognize gross and microscopic alterations of manifestations of various lesions of bones and joints and relate them to their clinical manifestations.	-
9.	Tutorial- CVS	-	-
10.	Diseases of CNS	Recognize gross and microscopic alterations of manifestations of various lesions of the CNS and PNS and relate them to their clinical manifestations.	-
11.	Diseases of endocrine system and skin	Recognize gross and microscopic alterations of manifestations of various lesions of skin and endocrine systems and relate them to their clinical manifestations.	-
12.	OSPE-CNS & Endocrine system	Assessment exercise	-
13.	Revision Practical-I	-	-
14.	Tutorial- Male genital system	-	-
15.	Revision Practical-II	-	-
16.	Tutorial – Skin/Bone/Soft tissues	-	-

Tutorial-Topics

Sr. No.	Topic Tutorials	SLOs At the end of tutorial the student should be able to-	
		Must know	Desirable to know
1.	Cell Injury	-	-
2.	Inflammation	-	-
3.	Infections	-	-
4.	Circulatory disorders	-	-
5.	Anaemias	-	-
6.	Leukaemias	-	-
7.	Disorders of coagulation	-	-
8.	Transfusion Medicine	-	-
9.	Resp system	-	-
10.	LN & Spleen	-	-
11.	GIT	-	-
12.	Liver, gall bladder &	-	-

	pancreas		
13.	Kidney	-	-
14.	Female genital system	-	-
15.	Breast	-	-
16.	Endocrine system	-	-

EXAMINATION REGULATIONS

1. Internal Assessment

a) Theory:

Maximum marks 15 (computed from maximum 300 marks, obtained in 5 written examinations and 3 vivas as shown below)

		Written	Viva
III Semester	Mid Term	25	-
	Term Ending	50	25
IV Semester	Midterm	30	-
	Term Ending	50	25
V Semester	Preliminary Exams	80	15
	Total	235	65
	Grand Total	300 marks	

The marks obtained out of these 300 marks will be reduced proportionately to out of 15 marks.

b) Practicals

Maximum 15 marks will be computed from maximum of 150 marks obtained in three practical examinations as shown below.

III Semester	Term Ending	40 marks + 10 marks for journal
IV Semester	Term Ending	65 marks + 10 marks for journal
V Semester	Preliminary exams	20 marks + 5 marks for journal
	Total	150 marks

The marks obtained out of these 150 marks will be reduced proportionately to out of 15 marks.

The student must secure at least 50% marks separately in Theory and Practicals internal assessment examinations to be eligible to appear for the University II MBBS final examinations.

2. UNIVERSITY EXAMINATIONS

a) Theory

The Examinations will consist of two written papers each of 2 hrs duration and carry a maximum of 40 marks per paper. The distribution of marks will be as follows:

PAPER-I (General Pathology, Haematology, Transfusion Medicine)

Question No. 1

i)	Applied Question (General Pathology)	5 marks
ii)	Applied Question (Haematology)	5 marks

Question No. 2

i)	General Pathology	4 marks
ii)	General Pathology	3 marks
iii)	General Pathology	3 marks

Question No. 3

i)	Haematology	4 marks
ii)	Haematology	3 marks
iii)	Transfusion Medicine	3 marks

Question No. 4 10 marks

Short Notes on any five of six questions (2 each from General Pathology, Haematology and Transfusion medicine)

PAPER-II (SYSTEMIC PATHOLOGY, CLINICAL PATHOLOGY)

Question No. 1

i)	Applied Question (Systemic pathology)	5 marks
ii)	Applied Question (Clinical Pathology)	5 marks

Question No. 2

i)	Systemic Pathology	4 marks
ii)	Systemic Pathology	3 marks
iii)	Systemic Pathology	3 marks

Question No. 3

i)	Systemic Pathology	4 marks
ii)	Systemic Pathology	3 marks
iii)	Clinical Pathology	3 marks

Question No. 4 10 marks

Short Notes on any five of six questions (4 from Systemic Pathology, 2 from Clinical Pathology)

b) PRACTICAL EXAMINATION

Maximum marks: 25

i)	Spots (including 1 OSPE)	10 marks
ii)	Haematology	8 marks
iii)	Clinical Pathology	7 marks
Total		25 marks

c) VIVA VOCE

Instruments, Clinical charts, reagents, gross specimens 15 marks (to be added to theory marks)

The student must secure at least 50% marks separately in Theory and Practicals to be declared as passed in the Pathology examinations of II MBBS of the University.

RECOMMENDED TEXTBOOKS

Textbooks recommended for regular study

1. Basic Pathology by Kumar, Cotran and Robbins, 9th Ed
2. Textbook of Pathology by Harsh Mohan 7th Ed

Textbooks recommended for additional reading/Reference

1. Robbins & Cotran Pathologic Basis of Disease 2 volumes - 8th Ed
2. Dacie & Lewis Practical Haematology
3. Boyd's textbook of Pathology, JR Bhardwaj, Pranab Deb 10th Edition
4. Textbook of Pathology by Muir
5. Practical Pathology by Harsh Mohan
6. Walter & Israel's General Pathology
7. Oxford handbook of Clin Pathol James Carton 1st Ed 2012
8. Rapid Review of Pathology by Goljan 3rd Ed
9. Illustrated Pathology by Govan, Macfarlane & Callander
10. Wheater's Basic Pathology Text, Atlas Review of Histology
11. Robbins and Cotran Atlas of Pathology 3rd Ed Edward C Klatt
12. Lippincotts Pocket Pathology Hansel and Dintzis 2006
13. Essentials of Hematology by Shirish M Kawthakar
14. Essentials of Clinical Pathology by Shirish M Kawthalkar

PHARMACOLOGY

1. GOAL

The broad goal of the teaching of undergraduate students in Pharmacology is to inculcate a rational and scientific basis of therapeutics.

2. OBJECTIVES

a. KNOWLEDGE

At the end of the course, the student should be able to:

- understand the basis of drug handling by the body (pharmacokinetics) and clinical pharmacokinetic parameters and their clinical applications.
- understand the concepts underlying drug action like receptor, drug receptor interaction, drug interactions and adverse drug reactions with their clinical implications .
- understand the process of new drug development with ethical implications.
- describe the pharmacokinetics and pharmacodynamics (mechanism of action, action profile) of essential and commonly used drugs.
- list the indications, contraindications, interactions and adverse reactions of
- commonly used drugs.
- indicate the use of appropriate drug in a particular disease with consideration to its cost, efficacy and safety for individual needs.
- describe the pharmacokinetic basis, clinical presentation and diagnosis of toxicity of commonly used drugs with measures to prevent & treat the same.
- list the drugs of addiction and recommend the management.
- indicate need for special care while prescribing drugs for special medical situations such as pregnancy, lactation, infancy and old age.
- state the principles underlying the concept of 'Essential Drugs' and 'P drug list'

b. SKILLS

At the end of the course, the student should be able to:

- prescribe drugs for common ailments.
- recognize adverse reactions and interactions of commonly used drugs.
- evaluate experiments designed for study of effects of drugs, bioassay and interpretation of the experimental data.
- scan information on common pharmaceutical preparations and critically evaluate drug formulations.
- communicate effectively with patients to ensure understanding of the of drugs prescribed, precautions to be followed and importance of follow up to report outcomes in terms of therapeutic as well as adverse effects and ensure patient compliance.

c. COMPETENCIES

At the end of the course, the student should be able to:

- a) prescribe and safely administer appropriate therapies for common health problems in the society, based on the principles of rational drug therapy which includes scientific validity, evidence and cost effectiveness.
- b) work effectively and appropriately with colleagues in an inter-professional health care team.
- c) communicate effectively and respectfully with patients and family members in a language that they understand to ensure the understanding of the prescribed drugs and ensure patient compliance.
- d) search (including through electronic means) and critically evaluate the medical literature to update the knowledge about evolving understanding of pathophysiology of diseases and changing trends of treatment and apply the information in the care of the patient.
- e) evaluate new drugs continuously being added to the existing drug armamentarium to ensure rational selection of drugs available.
- f) be committed to excellence & ethical practice, responsive and accountable to patients, community and profession, practice with selflessness, integrity, responsibility, not deviating from rationality of treatment for any material gains.

3. INTEGRATION

Practical knowledge of use of drugs in clinical practice will be acquired through integrated teaching with pre, para and clinical departments.

Examples of Topics for Integrated teaching through faculty / student participation are:

1. Hypertension 2. Inflammation 3. TB 4.HIV 5. Antimicrobial Resistance 6. Diabetes 7.Thyroid

Utilization of available Teaching hours (Sem III, IV, V)

(MCI Requirement: Lectures = 100hrs, Practical/Tutorial=200hrs)

Semester		III	IV	V	Total Hrs
Actual Teaching wks/ sem		22	23	16	
Available Lect slots /wk		≈2	≈2	3	
Available Lect slots / sem (1hr sessions)		48	50	48	146
Lectures hrs used for lectures =100) (46 hrs used for Tut/pract)		38	27	35	100
Available hours for Tutorials/Practicals (2hrs/session)		44	46	64	154 +46 above
Tutorials conducted (54)		19	13	22	108
Total Practical sessions (46)		23	14	9	92
Practicals conducted	Experimental Ph	6	4	0	
	Applied Ph Assignments	4	1	1	
	Practical Ph Stations	12	8	8	
	Extra (Quiz/seminar)	1	1		
Total Tutorial/practical sessions (100)		42	27	29	
Total hrs for Tutorials/practicals (200)		84	58	58	200

TOTAL TEACHING HOURS- 300

Theory- 100 hours

Practical / Tutorial / Seminar etc. 200 hrs

Pharmacology UG Teaching Program

A. Lectures (107)

Sem III (38)

General Pharmacology (17)

- 1) Introduction to pharmacology & Essential Drugs.
- 2) Introduction to General Pharmacology
- 3) Routes of administration
- 4) New drug delivery systems
- 5) Drug absorption
- 6) Distribution, protein binding, volume of distribution
- 7) Biotransformation
- 8) Excretion
- 9) Bioavailability
- 10) Pharmacodynamics - I (How drugs act)
- 11) Pharmacodynamics – II (Repeated Use)
- 12) Pharmacodynamics – III (Adverse drug reactions)
- 13) Pharmacodynamics – IV (combined use of drugs)
- 14) Pharmacodynamics – V (factors affecting dose/ action)
- 15) Pharmacodynamics – VI (DRC, TI, TDM)
- 16) New drug development

17) Drug interaction

Autonomic Nervous system & Allied (8+2=10)

- 1) Introduction to A.N.S.
- 2) Cholinergic drugs – part I
- 3) Cholinergic drugs – part II
- 4) Anti-cholinergic drugs
- 5) Adrenergic drugs – part I
- 6) Adrenergic drugs – part II
- 7) Anti-adrenergic drugs – part I
- 8) Anti-adrenergic drugs – part II
- 9) Glaucoma
- 10) Skeletal Muscle Relaxants

Cardiovascular system (8+3=11)

- 1) Treatment of shock, I.V. fluids
- 2) Diuretics
- 3) Antianginal agents I
- 4) Antianginal agents II (AMI, CCBs)
- 5) Antihypertensives I
- 6) Antihypertensives II
- 7) Cardiac electrophysiology & CHF I
- 8) CHF II
- 9) Lipid lowering agents
- 10) Antiplatelet, anticoagulants, Fibrinolytics

11) Antifibrinolytics, Coagulants

Sem IV (27)

Haemopoetic system (2)

- 1) Iron
- 2) B12 & folic acid

Central Nervous system (17)

- 1) General anaesthetics - part I (Inhalational agents & pre-anaesthetic medication)
- 2) General anaesthetics - part II (I.V. anaesthetics & (& balanced Anaesthesia)
- 3) Local anaesthetics – I
- 4) Sedative hypnotics part I
- 5) Sedative hypnotics part II
- 6) Antiepileptics
- 7) Opioid analgesics part – I
- 8) Opioid analgesics part – II
- 9) Parkinsonism
- 10) Prostaglandins
- 11) Non steroidal anti – inflammatory agents – part I
- 12) Non steroidal anti – inflammatory agents – part II
- 13) Treatment of arthritis & gout
- 14) Psychopharmacology – I (Antipsychotics, Lithium))
- 15) Psychopharmacology – II (Antidepressants, Anxiolytics)
- 16) Alcohol

17) Drug dependence

Alimentary system (4)

- 1) Emetic & antiemetic drugs
- 2) Drugs affecting G.I. motility – part I (Diarrhoea)
- 3) Drugs affecting G.I. motility – part II (Constipation)
- 4) Acid Peptic diseases.

Autacoids (2)

- 1) Histamine & antihistaminic drugs
- 2) 5 – HT & treatment of Migraine

Respiratory system (2)

- 1) Treatment of cough
- 2) Bronchial asthma, COPD

Sem V (35)

Chemotherapy (21)

- 1) Introduction to chemotherapy & General concepts
- 2) Sulfonamides
- 3) Penicillins, including newer penicillins
- 4) Cephalosporins & other agents
- 5) Aminoglycosides
- 6) Quinolones,
- 7) Macrolides & other antibiotics

- 8) Broad Spectrum (Chloramphenicol & Tetracyclines)
- 9) Urinary tract infections
- 10) Treatment of tuberculosis I
- 11) Treatment of tuberculosis II
- 12) Treatment of leprosy
- 13) Treatment of amoebiasis
- 14) Treatment of malaria
- 15) Treatment of worm infestations
- 16) Treatment of fungal diseases
- 17) Antiviral agents
- 18) Antiviral agents HIV
- 19) Chemotherapy of malignancy part – I
- 20) Chemotherapy of malignancy part – II
- 21) General concepts - Part II.

Endocrinology (10)

- 1) Introduction to endocrinology & Anterior pituitary hormones
- 2) Thyroid & antithyroid drugs
- 3) DM I -Insulin
- 4) DM II -Other antidiabetic drugs
- 5) Female sex hormones
- 6) Oral contraceptives
- 7) Corticosteroids I
- 8) Corticosteroids I

- 9) Calcium & related compounds
- 10) Oxytocics & posterior pituitary hormones

Others (4)

- 1) Immunotherapy & immunosuppressants
- 2) Immunotherapy & immunosuppressants
- 3) Drugs acting on skin
- 4) Management of poisoning

B) Tutorials & Practicals (200 hrs):

Tutorial and Practical classes are conducted in the 2 hr teaching slots available for the same.

Sem III & IV Students have one 2 hr session per week which is utilized for either tutorial or practical classes.

Sem V students have 2 such sessions per week, one of which is utilized for practicals / tutorials on new topics being covered as well as for revision tutorials and tests to help students recapitulate the portion covered in Sem III & IV.

B1. Tutorials ($\approx$ 50):

Tutorials are small group discussions on the topics covered in the previous 2 -3 lecture sessions, ensured to confirm achievement of the learning objectives defined for those lectures. Learning Objectives to be achieved at the end of every tutorial class are same as those defined for respective lectures.

Each tutorial/practical class is a 2 hr session.

Sem III (19):

Gen Ph: 8

ANS & allied: 6

CVS: 5

Sem IV (13):

Haemopoetic system: 1

CNS: 11

Alimentary: 2

Autacoids: 1

Respiratory system: 1

Sem V (22):

Chemotherapy: 11

Endocrinology: 5

Others: 2

Revision Tutorials: 4

B.2 Practical Pharmacology :(≈47)**I. Experimental Pharmacology:****Sem III (6):**

- 1) Routes Display
- 2) Factors modifying drugs action.
- 3) Drug antagonism.
- 4) Skeletal muscle relaxants.
- 5) Mydriatics & Miotics.
- 6) Vasopressors & Vasodepressors

Sem IV (4):

- 7) Anti –Epileptics

- 8) Analgesics
- 9) General anaesthetics.
- 10) Local anaesthetics.

II. Applied Pharmacology Assignments (6)

Sem III (4):

- 1) Appl: Sources of Information (CIMS, MIMS, Drug today)
- 2) Appl: Drug formulations
- 3) Appl: Dosage calculations
- 4) Rational Pharmacotherapy: Ex 1

Sem IV (1):

- 5) Rational Pharmacotherapy: Ex 1

Sem V (1):

- 6) Case Study

III. Practical Pharmacology Stations (32):

These sessions are conducted to ensure and test application of knowledge for rational use of drugs, under various heads. Similar Sessions are conducted during each semester to cover the relevant aspects of drugs covered every term.

Sem III (12)

- 1) Routes
- 2) Formulations
- 3) Mechanism of action
- 4) Adverse drug reactions
- 5) Drug of Choice
- 6) Clinical Problems

- 7) Comments
- 8) Prescriptions
- 9) Dose calculations
- 10) Rational Pharmacotherapy table
- 11) Drug spots
- 12) Emergency drugs

Sem IV (8)

- 1) Mechanism of action
- 2) Adverse drug reactions
- 3) Drug of Choice
- 4) Clinical Problems
- 5) Comments
- 6) Prescriptions
- 7) Rational Pharmacotherapy table
- 8) Emergency drugs

Sem V (8)

- 1) Mechanism of action
- 2) Adverse drug reactions
- 3) Drug of Choice
- 4) Clinical Problems
- 5) Comments
- 6) Prescriptions
- 7) Rational Pharmacotherapy table

8) Emergency drugs

IV. Other sessions:

Seminars, Quiz, Drug displays, are organized periodically

Specific Learning Objectives for Lectures and Practicals

Lectures 100: Sem III 38, Sem IV 27, Sem V 35

		SLOs : Lectures: Sem III:	
		General Pharmacology (17)	
Sr No.	Topic	Must know	Desirable to know
1	1. Introduction to Pharmacology	- Definition & Scope of Pharmacology, - Definitions of Drug, role in therapeutics - Concepts of - Essential Drugs - P drug list	Sources of drugs
2	2.Introduction to General Pharmacology	Definitions of -Pharmacokinetics, -Pharmacodynamics -Pharmacotherapeutics -Toxicology Clinical importance of complete knowledge of drugs to be prescribed	
3	3.Routes of administration	Advantages and limitations with examples of following Routes: -Oral -Parenteral -Intravenous -Intramuscular -Subcutaneous -Inhalational -Sublingual -Rectal	-Routes / formulations for topical application -Intradermal

4	4.Routes II: New drug delivery systems	-New drug delivery systems with examples	
5	5.Drug absorption	- Definition & factors affecting Absorption -Importance with examples & clinical applications of - Lipid solubility - Degree of ionization, ion trapping (Phenobarbitone poisoning, Lactulose in Hepatic coma)	Methods, Clinical application & examples of - hastening absorption, - delaying absorption
6	6.Distribution	- Definition & factors affecting it - Clinical Implications with examples of: -protein binding, -volume of distribution -BBB & Placental barrier	
7	7.Biotransformation	-Definition & factors affecting it with examples -Phases with examples -Clinical Implications with examples of: - Enzyme induction - Enzyme inhibition - Enterohepatic cycling	
8	8.Excretion	-Definition & factors affecting it -Clinical Implications with examples of drugs: - mainly eliminated by filtration - drugs capable of reabsorption - drugs competing for active tubular secretion	
9	9.Bioavailability	-Definition & factors affecting it with examples -Clinical Implications of variation in bioavailability of formulations	
10	10.Ph Dynamics I: How drugs act	-Mechanisms of drug actions with examples -Concept / Definitions of Agonist, Antagonists, with examples and clinical applications - Partial agonists, -Affinity, Intrinsic activity with examples	Types of drug receptors with examples, Inverse Agonists, with examples

			-Transducer mechanisms in Drug action
11	11. Ph Dyn II: Repeated use	-Clinical Implications of repeated use of drugs with examples -Tolerance – definitions, types, mechanisms, with examples -Dependence – definitions & examples	
12	12. Ph Dyn III: Adverse effects	-Definition and classification of adverse effects of drugs with examples	
13	13. Ph Dyn IV: Combined use	-Clinical Implications of Combined use of drugs with examples: - Drug Synergism - Drug antagonism - Beneficial / harmful drug combinations	
14	14. Ph Dyn V: Factors affecting drug action, dose	-Factors affecting drug action, dose with examples	
15	15. Ph Dyn VI: DRC, TI, TDM	-Drug Efficacy Vs Potency, -Graphical depiction of - Efficacy Vs Potency - Reversible & irreversible antagonism -Therapeutic Index with implications & examples, -Therapeutic Drug Monitoring with examples of drugs needing it	
16	16. New drug development	-Phases of New drug development -Phases of clinical trials – with scope, purpose, subjects -Placebo – definition and role in clinical trials and therapeutics	
17	17. Drug Interactions	-Types of Drug Interactions with clinical implications - Beneficial drug combinations -Combinations to avoid	

		Autonomic Nervous System (8+2)	
18	1. Introduction to ANS	-Divisions and functions of Autonomic Nervous System -Homeostatic reflexes and ANS	Concept of neuro-humoral transmission
19	2. Cholinergic I	-Classification of cholinomimetic agents based on mechanism -Uses of directly acting cholinomimetic agents giving drug of choice with rationale	
20	3.Cholinergic II	-Uses of anti-cholinesterases giving drug of choice with rationale -Treatment of OPP - Drugs in Myasthenia gravis	
21	4. Anti Cholinergic	-Mechanism of action and effects of anticholinergic agents -Uses of anticholinergic agents – atropine and its substitutes - giving drug of choice with rationale -Treatment of Dhatura / Belladonna / Atropine poisoning	Uses of Atropine in combination with other drugs with rationale
22	5. Adrenergic I	-Classification of adrenergic agents based on mechanism of action -Mechanism of action, uses and adverse effects with rationale of : -Adrenaline -Noradrenaline -Dopamine	-Classification of adrenergic agents based on chemical structure -Isoprenaline
23	6. Adrenergic II	Mechanism of action, uses and adverse effects with rationale of : -Dobutamine -Salbutamol -Phenylephrine -Nasal decongestants -Anorectic agents	

24	7. Anti adrenergic I	-Classification of beta blockers -Uses with rationale of - beta blockers - cardioselective beta blockers - alpha and beta blockers	
25	8. Anti adrenergic II	- Classification, ADRs and uses of alpha blockers with rationale -Drugs for Benign prostatic hypertrophy - Drugs in Pheochromocytoma	
26	9. Glaucoma	-Definition & Types of glaucoma -Classification of drugs available for reducing IOT with their mechanism, efficacy in the two major types, adverse effects and status in Glaucoma. -Pharmacotherapy of wide and acute angle glaucoma	
27	10. Skeletal Muscle Relaxants	-Classification of Skeletal muscle relaxants (based on mechanism of action) with examples and indications with rationale -Mechanism of action, adverse effects & indications with rationale of centrally and peripherally acting agents	Dantrolene
		CVS (11)	
28	1. Diuretics	-Classification of Diuretics based on mechanism of action. -Indications with rationale of each class with examples and precautions	Acetazolamide
29	2. Shock	Pathophysiology of shock Pharmacotherapy of shock like cardiogenic, anaphylactic, hypovolemic. -Note on plasma expanders	
30	3. Angina, AMI	-Classification of Angina -Classification of drugs in management and prophylaxis of Angina with preferred drugs	

		from each class -Mechanism, adverse effects, precautions while using Nitrates in Angina	
31	2. Angina prophylaxis AMI	Mechanism, adverse effects, precautions while using drugs for - Prophylaxis of Angina - Treatment of AMI	
32	5. Hypertension I	-Classification, Mechanism of Action, Indications with rationale, adverse effects, preferred drug from the group and precautions while using the following: -ACE Inhibitors, ARBs, -Beta blockers -Calcium Channel Blockers -Diuretics -Central Sympatholytics -Nitrates -Labetalol	Role of following in management of Hypertension - Hydralazine, - alpha blockers, - Renin antagonists
33	6. Hypertension I	Pharmacotherapy of different stages of hypertension	
34	7. CHF I	Mechanism of Action, Indications with rationale, adverse effects Preferred drug from the group and precautions while using -Digoxin	
35	8.CHF II	Pharmacotherapy of CHF Pharmacotherapy of acute LVF	Note on inodilators
36	9.Lipid lowering agents	Classification, Mechanism of Action, Indications with rationale, adverse effects Preferred drug from the group and precautions while using -Statins -Fibric acid derivatives	- Nicotinic acid -Bile acid sequestrants
37	10.Drugs and Haemostasis I	Physiology of haemostasis Classification, Mechanism of Action, Indications with rationale, adverse effects and precautions while using	Styptics

		-Coagulants -Anticoagulants	
38	11.Drugs and Haemostasis II	Classification, Mechanism of Action, Indications with rationale, adverse effects and precautions while using - Antiplatelet agents -Fibrinolytics -Antifibrinolytics	

		SLOs : Lectures: Sem IV	
		Haemopoetic system (2)	
Sr No.	Topic(Core Category)	Must know	Desirable to know
39	1.Iron deficiency anemia	Iron preparations- oral & parenteral Pharmacotherapy of iron deficiency anemia	-Causes of anaemia & its symptoms -Treatment of iron poisoning -Erythropoietin
40	2. Vitamin B12 and Folic acid	Pharmacotherapy of megaloblastic anemia Treatment of Pernicious anemia	Uses of Vitamin B12 & Folic acid
		Central Nervous system (17)	
41	1.General anaesthetics - part I	Inhalational anesthetics- N ₂ O, Ether, Halothane Isoflurane Preanesthetic medications	Stages of anesthesia
42	2.General anaesthetics - part II	Intravenous anesthetics- Thiopentone, Propofol, Dissociative anesthesia, Fentanyl Balanced anesthesia	Conscious sedation
43	3.Local anaesthetics	Mechanism of Action of Lignocaine Techniques of local anesthesia- Surface, Spinal, Epidural Lignocaine + Adrenaline combination	Other local anesthetics
44	4.Sedative hypnotics part I	Barbiturates- Phenobarbitone Treatment of barbiturate poisoning	CNS neurotransmitters & Disease Sleep architecture
45	5.Sedative hypnotics part II	Mechanism of Action, Indications with rationale, adverse effects of Benzodiazepines- Diazepam Pharmacotherapy of insomnia	Non-benzodiazepine hypnotics

46	6.Anti-epileptics	Pharmacology of Phenytoin, Valproate, Carbamazepine, Phenobarbitone Pharmacotherapy of grand mal epilepsy, Petit mal epilepsy & Status epilepticus	Newer antiepileptic agents- lamotrigine, Levetiracetam, Gabapentin
47	7.Opioid analgesics part – I	Prototype Morphine: MOA, Actions (CNS & Others), Uses, ADRs, C/Is Treatment of Acute Toxicity Treatment of Addiction	
48	8.Opioid analgesics part – II	Other Opioids: Codeine (Natural) Pethidine, Fentanyl, Tramadol (Synthetic) Pentazocine, Buprenorphine (Ago/Antago) Antagonists: Naloxone, Nalmefene, Naltrexone	Opioid receptors Endogenous opioids
49	9.Parkinsonism	Types of Parkinsonism Pharmacotherapy of Parkinsonism Key drugs in management: Anticholinergics & Dopaminergics -Levodopa – Carbidopa combination	
50	10.Prostaglandins	Synthesis, Physiological actions, Pharmacological uses, Adverse effects	Individual drugs
51	11.Non steroidal anti – inflammatory agents – part I	Types of pain Prototype- Aspirin: Mechanism of Action, Pharmacological actions, Indications with rationale, adverse effects	Drug interactions of Aspirin
52	12.Non steroidal anti – inflammatory agents – part II	Other NSAIDs- Ibuprofen, Diclofenac, Piroxicam, Mefenamic acid, Paracetamol Selective Cox-2 inhibitors	Treatment of paracetamol poisoning
53	13.Treatment of arthritis & gout	Pathophysiology of arthritis with drugs used- NSAIDs, Corticosteroids, Disease modifying drugs, Biologicals Pathophysiology of gout Pharmacotherapy of acute gouty arthritis Drugs for chronic gout	
54	14.Psychopharmacology – I (Psychosis &	Antipsychotic agents- Chlorpromazine: MOA, Actions, Uses, ADRs Atypical antipsychotics- Olanzapine,	Classification of psychological disorders

	mania)	Aripiprazole, Risperidone Drugs used in Bipolar disorder with special emphasis on Lithium	
55	15.Psychopharmacology – II (Depression & Anxiety)	Pathophysiology of Depression Classification & pharmacology of Antidepressants- TCI, SSRI Treatment of Depression, Manic Depressive Psychosis	Treatment of Anxiety Neurosis
56	16.Alcohol	Treatment of Alcohol addiction, Methanol poisoning	Uses of alcohol
57	17.Drug dependence	Drug dependence & its characteristics Treatment modalities- Alcohol, Opioids	Factors leading to dependence Characteristics which favour dependence Treatment of nicotine dependence
		Alimentary System(4)	
58	1.Emetic and antiemetic drugs	Classification of antiemetic drugs Drugs used with their mechanism of action, ADRs and uses – anticholinergics, antihistaminics, prokinetics, 5HT ₃ antagonists Treatment of vomiting	Causes & act of vomiting Neuroleptics & NK1 antagonists adjuvant antiemetics
59	2.Acid Peptic Disorders	Goals of treatment of peptic ulcer Classification of anti-peptic ulcer agents Mechanism of action, effect, ADRs & uses of anti-peptic ulcer agents GERD- drugs used in treatment	Definition & pathophysiology of APD
60	3.Treatment of Diarrhoea	Understand role of - Oral rehydration solution; non specific anti-diarrhoeal agents; anti-motility drugs Pharmacotherapy of – Diarrhoea, Inflammatory bowel disease	Define diarrhoea Understand pathophysiology of Diarrhoea

61	4.Treatment of constipation	Drugs used with their mechanism of action, ADRs and uses Pharmacotherapy of Functional constipation Purgative abuse	Define Constipation Understand aetiology of constipation
		Autacoids (2)	
62	1.Histamine & antihistaminics	Autacoids- definition & examples Classification & actions of H1 antihistaminics Adverse effects & Uses of H1 antihistaminics Pharmacotherapy of vertigo	Storage & release of histamine Pharmacology of histaminic receptors
63	2.	Presentation, types & Pathophysiology of migraine Pharmacotherapy of migraine- Drugs for acute attack & prophylaxis	Serotonergic receptors & their agonists & antagonists
		Respiratory System (2)	
64	1.Cough	Treatment of cough according to cause Symptomatic treatment of Dry cough- pharyngeal demulcents, antitussives Symptomatic treatment of Wet cough- mucokinetics, mucolytics	What is cough? Causes of cough
65	2.Bronchial asthma	Etiopathology & types of asthma Classification of antiasthma drugs- Bronchodilators, corticosteroids, Leukotriene antagonists, mast cell stabilizers Pharmacotherapy of asthma- mild, moderate, severe, Status asthmaticus	Anti-IGE antibody in asthma treatment
		Sem V	
		Chemotherapy (21)	
66	1. Introduction to chemotherapy & General concepts I	Definitions- Antibiotics, antimicrobial agent, chemotherapy, MBC, MIC, post antibiotic effect Classification of antimicrobials	

		Spectrum & MOA Resistance & Suprainfection	
67	2.Sulfonamides	Explain the MOA of sulfonamides Justify use of topical sulfonamides in respective clinical conditions Name the drug combinations of sulfonamides used systemically & their clinical utility- Co-trimoxazole Mention ADR, uses & limitations of sulfonamides	Individual agents
68	3.Penicillins	Mechanism of action, Uses, ADR of penicillins Preparations of Penicillin G Semisynthetic Penicillins Beta lactamase inhibitors	
69	4.Cephalosporins & other Beta lactams	Classification of cephalosporins, spectrum, uses and ADR Third generation cephalosporins	Monobactams Carbapenems
70	5.Aminoglycosides	Common Characteristics of AGs, Gentamicin uses,MOA,ADRs	Streptomycin, Tobramycin, Amikacin, Neomycin
71	6.Chloramphenicol & Tetracyclines	MOA,ADRs & Uses of Chloramphenicol & Tetracyclines (Doxycycline)	
72	7.Quinolones	Classification, Mechanism of Action, Antimicrobial spectrum, Clinically useful fluoroquinolones, Adverse drug reactions Pharmacotherapy of Enteric fever	Resistance to Fluoroquinolones
73	8.Macrolides & Misc. Antimicrobials	Macrolides – Azithromycin (50 S, Gm +ve) Lincosamide – Clindamycin (50 S, anaerobes) AMAs for resistant gm +ve and anaerobes: (Glycopeptides: Vancomycin, Linezolid, Pristinamycin: Quinupristin/ Dalfopristin)	Topical bactericidals: Mupirocin, Bacitracin Polymyxin B, Colistin
74	9.Urinary tract infections	Terminologies & Types of UTI Antimicrobials in the treatment of Lower UTI, Upper UTI Urinary antiseptics	Urinary acidifiers and alkalinizers

75	10.Treatment of tuberculosis I	Pathology of Tuberculosis Drugs - 1st line, 2nd line, Pharmacology Role of corticosteroids in TB Chemoprophylaxis	
76	11.Treatment of tuberculosis II	Categories of TB patients MDT- why it is needed and the regimens available Pharmacotherapy- RNTCP, DOTS plus	Special cases in TB- pregnancy, HIV pts
77	12.Treatment of leprosy	Classification of leprosy Drugs used in treatment – Dapsone, Clofazimine, Rifampicin Second line drugs in resistance cases Regimens for PBL & MBL cases Lepra reaction	
78	13.Treatment of amoebiasis	Pathophysiology of amoebiasis Classification of drugs, MOA, ADR & uses- Metronidazole, Diloxanide Pharmacotherapy of intestinal & hepatic amoebiasis	Other drugs in amoebiasis
79	14.Treatment of malaria	Know Life cycle of malarial parasite in man with site of action of anti-malarial drugs. Pharmacology of - Mechanism of action, kinetics, ADRs and uses of- Chloroquine, Mefloquine, Quinine, Pyrimethamine, Sulfadoxine, Artemisinin compounds, Primaquine Pharmacotherapy of- Vivax malaria; chloroquine sensitive / Chloroquine resistant falciparum malaria; Radical cure of vivax malaria; complicated malaria	Understand the terms & agents used - Causal and Suppressive prophylaxis, Clinical cure, Radical cure, Gametocidal action.

80	15.Treatment of worm infestations	Classify helminthes Know Pharmacology of – (MOA, Kinetics, ADRs and uses)- Mebendazole, Diethyl carbamazine citrate, Niclosamide, Albendazole, Ivermectin, Praziquantel Write Pharmacotherapy of- round / hook / mixed worm infestation	Piperazine, Levamisole Pharmacotherapy of - Tropical eosinophilia/ filariasis, Cysticercosis
81	16.Treatment of fungal diseases	Classify anti-fungals - topical and systemic. Understand Pharmacology of :- Amphotericin B, Griseofulvin, Azole antifungals, Terbinafine, Topical antifungals Give Pharmacotherapy of :- Candidiasis, Dermatophytosis, Superficial fungal infections	Classify fungi and know the diseases caused by them Miscellaneous topical antifungal agents Treatment of systemic mycoses
82	17.Antiviral agents	Antiviral drugs- Anti-herpes agents - Anti-influenza drugs - Anti-hepatitis agents - Interferons Pharmacotherapy of – Herpes simplex infection - Herpes zoster - HIV infection	Classify viruses Understand diseases caused by them
83	18.Antiretroviral drugs	Anti-HIV agents- classification, MOA, ADR Pharmacotherapy of – HIV infection Prophylaxis against HIV infection	Life cycle of HIV virus
84	19.Chemotherapy of malignancy part – I	Treatment modalities for cancer Classification of anticancer agents General toxicity of anticancer drugs & ways to ameliorate them	Concept of Cell cycle kinetics
85	20.Chemotherapy of malignancy part – II	Anticancer drugs- Cyclophosphamide, Methotrexate, Antibiotics, Hormones Pulse therapy Sample regimen of cancer chemotherapy- MOPP, ABVD, VAMP	Other anticancer drugs

91	5.Female sex hormones I	Actions, uses, ADRs of Oestrogen & Progesterone SERMs & Antiestrogen Treatment of infertility Anti-progestin: Mifepristone	
92	6.Oral contraceptives	Definition of Contraception Classification of contraceptives with MOA, efficacy Oral contraceptive regimens Other uses and benefits of contraceptives Practical considerations	Other hormonal & non-hormonal contraceptives
93	7.Corticosteroids I	Mechanism of action Pharmacological actions	Adrenal glands: hormones released Synthesis & regulation of release of corticosteroids: negative feedback; stress
94	8.Corticosteroids II	Preparations with PK properties Adverse effects & ways to minimize them C/I, Uses- Replacement & Therapeutic	
95	9. Calcium & related compounds	Calcium preparations & Uses Vitamin D- Preparation & uses Role of Parathormone, Calcitonin & Bisphosphonates in osteoporosis	Calcium Homeostasis, Physiological functions of Calcium.
96	10.Drugs & Uterus Oxytocics & posterior pituitary hormones	Oxytocics (Uterine stimulants): - Oxytocin, PGs, Methylergometrine - MoA & effect, indications & precautions - Compare & contrast between oxytocics Tocolytics (Uterine relaxants): - CCBs, MgSO ₄ , β_2 agonists - MoA, indications & precautions	
		Miscellaneous (4)	

97	Skin	Pharmacotherapy of Seborrhea Scabies & Pediculosis Acne vulgaris Psoriasis	Classes of drugs acting on skin- Counterirritants, Melanizing & Demelanizing Agents Topical Steroids Topical Antimicrobials
98	Immuno- pharmacology-I	Immuno suppressants & Immuno Modulators- MOA,ADRs & Uses	
99	Immuno- pharmacology-II Vaccines & Antisera	National Immunization schedule Typhoid, Rabies & Polio vaccines Immunoglobulines in therapeutics	Other Vaccines Anti sera
100	Metals & their antagonists	BAL, Penecillamine & Disferrioxamine-Role in metal poisoning	

PRACTICALS:

1) Experimental Pharmacology-

To study the effect of drugs and to interpret experimental data

2) Drugs used for emergency conditions

3) Prescription writing- for common ailments

3) Comment on proprietary preparations

4) Spotters: questions based on drugs shown in picture

5) Mechanism of action, Drug of choice for common ailments

6) Therapeutic problems- To solve problems in drug therapy including

Prevention, treatment and monitoring of adverse drug reactions (ADR) and

Drug –Interactions

7) Identification of adverse drug reactions

8) Case studies

9) Study of drug formulations

10) Rational Drug Therapy- Choosing a 'p' drug, and 'p' treatment

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I. Experimental Pharmacology

Sr. No.	Practical	SLOs
	Sem III	
1	Factors affecting drug action	I Effect of route of administration on drug action II Effect of liver function on drug action, ○ Animals used ○ Drugs given to different groups with route of administration ○ Parameters / end point observed with inference drawn. Clinical applications of the effects observed
2	Bioavailability	Define bioavailability Draw inference about formulations A, B & C based on the information provided, regarding their relative: ○ Chemical equivalence, ○ Bioequivalence, ○ Therapeutic equivalence and clinical usefulness Clinical importance of bioavailability
3	Competitive antagonism, on isolated tissue	○ Animals / tissue and technique used ○ Drugs given with nature of tissue response ○ Parameters / end point observed with inference drawn. Clinical applications of the effects observed
4	skeletal muscle relaxants	○ Animals used ○ Drugs given to different groups with route of administration ○ Parameters / end point observed with inference drawn. Clinical applications of the effects observed
5	Vasopressors Vasodepressors	Describe the experimental setup for recording animal blood pressure to demonstrate effect of drugs on blood pressure Describe with a graph the phenomenon of ○ Tachyphylaxis, ○ Dale's vasomotor reversal, ○ Potentiation of drug action ○ Nicotinic action of acetylcholine Clinical applications of the phenomena

6	Mydriatics And Miotics	○ Animals used ○ Drugs used with route of administration ○ Parameters / end point observed with inference drawn. Clinical applications of the effects observed
	Sem IV	○
7	Evaluation Of Antiepileptics for grand and petit mal epilepsy	○ Animals used ○ Parameters observed indicating efficacy in the specific type of epilepsy ○ Drugs used with route and effect ○ Inference drawn Clinical applications of the effects observed
8	General Anesthesia: Inhalational / Intravenous	○ Animals used ○ Drugs used with route and effect ○ Parameters observed indicating efficacy as a general anaesthetic ○ Inference drawn Clinical applications of the effects observed
9	Local Anaesthesia Techniques: Surface, Ring block, Infiltration	○ Animals used with preparation required ○ Drugs used with route ○ Parameters / end point observed with inference drawn Clinical applications of the effects observed
10	Evaluation Of Analgesics: Tail pinch, Radiant heat, Ischaemia	○ Animals used (for animal experiments) ○ Technique for inducing pain ○ Drugs used with route of administration ○ Parameters / end point observed with inference drawn Clinical applications of the effects observed

II. Practical Pharmacology Stations:

	Stations	SLOs
1	Drugs used in emergency conditions	Drugs used in emergency conditions like anaphylactic shock, status epilepticus, AMI, with rationale and details of drug administration
2	Routes	Routes with advantages, limitation, examples

3	Formulations	Types of formulations with advantages, limitation, examples
4	Mechanism of Action	-Mechanism of action of drugs and their applications
5	Adverse drug reactions	Identify drugs causing a typical adverse effect, Enumerate Adverse effects of commonly used drugs
6	Drug of Choice	Choice of drugs from possible candidates with reason why it is preferred for a particular indication in a particular patient
7	Clinical Problems	From the described problems encountered in clinical use of a drug, be able to identify -the responsible drug, -probable mechanism / reason -ways to ameliorate -ways to avoid
8	Comments	Comments on market formulations of drugs with specific attention to -Indications of the combination -Mechanism of action and beneficial effect of each ingredient -Rationale for the combination
9	Prescriptions	Prescribe drugs for commonly encountered clinical conditions in a proper formal prescription format
10	Dose calculations	calculation of doses, dilutions, infusion rates of some commonly used drugs
11	Rational Pharmacotherapy Inventories	Inventory of all drugs available for a given clinical condition with their mechanisms of action, effectiveness, safety and cost to choose the most appropriate drug for a given condition & patient
12	Drug spots	Practical questions regarding clinical use of commonly required drugs

EXAMINATION REGULATIONS-

Guideline for question paper setting-

- 1) Topics from must know core – Minimum 80% marks
- 2) Topics from desirable to know core- Maximum 20% marks

I) INTERNAL ASSESSMENT:

THEORY- Maximum 15 marks computed from maximum 300 marks obtained in the 5 written examinations and 3 viva voce conducted as follows-

<u>Semester</u>	<u>Examination</u>	<u>Maximum Marks</u>	
		Written Test	Viva Voce
III	(i) Mid Term Test	25	-----
	(ii) Term-Ending	50	25
IV	(i) Midterm Test	30	---
	(ii)Term Ending	50	25
V	Preliminary	80	15
Total		235	65

The marks obtained out of 300 will be converted into out of 15 marks

PRACTICAL:

Maximum 15 marks computed from maximum 150 marks obtained in 3 practical examinations conducted as follows:

<u>Semester</u>	<u>Examination</u>	<u>Maximum Marks</u>
III	Term Ending	50
IV	Term Ending	75
V	Preliminary	25
Total		150

The marks obtained out of 150 will be converted into out of 15 marks.

A student must secure at least 50 % marks separately in theory and practical in internal assessment to be eligible to appear for the final University Examination.

II) UNIVERSITY EXAMINATION:

THEORY :

Theory examination will consist of two written papers.

Each paper would be of 2 hours duration carrying maximum 40 marks.

Various aspects of Pharmacology such as pharmacological basis, mechanism of drug action, drug treatment of common diseases, comparison between drugs, adverse effects of drugs etc. would be covered in each paper.

Distribution of Topics and Marks in each paper-

PAPER-I

Topics- (X) General Pharmacology, Autonomic Nervous System, Autacoids,
Haemopoietic System.

(Y) Central Nervous System, Alimentary system, Respiratory system, Vitamins

Q.1 Clinical Therapeutics- covering all topics of (X) and (Y) -2 sub-questions-10 marks

Q. 2 Covering topics in (X) – 3 sub-questions -----10 marks

a) 4 marks

b) 3 marks

c) 3 marks

Q. 3 Covering topics in (Y) – 3 sub-questions -----10 marks

a) 4 marks

b) 3 marks

c) 3 marks

Q.4 Short questions covering all topics (X & Y – 5 out of 6 sub questions) 10 marks

PAPER-II

Topics- (X) Chemotherapy, Immuno pharmacology, Drug acting on skin

(Y) Cardiovascular System, Diuretics, Endocrinology,

Drugs acting on uterus, Chelating agents.

Questions-

Q.1 Clinical Therapeutics- covering all topics of (X) and (Y) -2 sub-questions-10 marks

Q. 2 Covering topics in (X) – 3 sub-questions -----10 marks

a) 4 marks

b) 3 marks

c) 3 marks

Q. 3 Covering topics in (Y) – 3 sub-questions -----10 marks

a) 4 marks

b) 3 marks

c) 3 marks

Q.4 Short questions covering all topics (X & Y – 5 out of 6 sub questions) - 10 marks

PRACTICAL:

Practical examination will consist of following exercises:

Questions covering route of administration, drug formulations, dose calculations, Mechanisms of action, Adverse drug reactions, Drug of choice, Prescriptions, comment on proprietary preparations, clinical problems, therapeutic problems, spotters, viva based on experimental pharmacology & emergency drugs

Total marks	25

v) Viva voce on entire syllabus	15

(To be added to theory marks)

The candidate will be declared pass in the subject only when at least 50 % marks are obtained separately in theory and practical examination.

Pharmacology Text Books for Undergraduates-

1. Essentials of Medical Pharmacology – K.D.Tripathi
2. Pharmacology and Pharmacotherapeutics- Satoskar, Bhandarkar

Reference Books-

3. Clinical Pharmacology- Laurence
4. Principles of Pharmacology- HL Sharma & KK Sharma
5. Basic and Clinical Pharmacology- Katzung
6. Essentials of Pharmacotherapeutics- E.S. K. Barar
7. Pharmacology- P.K. Das, Bhattacharya, Sen
8. Quintessence of Medical Pharmacology- Chaudhuri
9. Pharmacology- Rang & Dale
10. Medical Pharmacology- Padmaja Udaykumar

BHARATI VIDYAPEETH DEEMED UNIVERSITY MEDICAL COLLEGE, PUNE

PHYSIOLOGY

SYLLABUS

I. GOAL

The broad goal of the teaching physiology is to provide comprehensive knowledge of normal functioning of organ systems of the body to students. This facilitates an understanding of the physiological basis of health and diseases and helps students in learning medicine.

II. OBJECTIVES

KNOWLEDGE:

At the end of the course the student will be able to:

1. Explain the normal functioning of all the organ systems of the body and their coordinated activity for total body functions.
2. Describe the contribution of each organ system to the maintenance of milieu interior.
3. Elucidate the physiological aspects of normal growth and development.
4. Describe the physiological response and adaptations to environmental stresses.
5. List the physiological principles underlying pathogenesis and treatment of some of the diseases.

SKILLS:

At the end of the course the student will be able to:

1. Perform experiments (hematology & human experiments) designed for the study of physiological phenomena and for assessment of function.
2. Analyze and interpret experimental/investigative data.
3. Perform clinical examination of various systems.

COMMUNICATION:

At the end of the course, the student will have the necessary communication skills required for history-taking of the patient & eliciting various clinical findings in the patient.

INTEGRATION:

At the end of the integrated teaching the student shall acquire an integrated knowledge of organ structure, function and its regulatory mechanisms.

III. COMPETENCIES :

At the end of the course, student will have following competencies:

1. To demonstrate knowledge of normal functioning of human body and their coordinated activity for total body functions.
2. To demonstrate the ability to perform & interpret various experiments (hematology & human) designed for the study of physiological phenomena and for assessment of function.
3. To demonstrate the ability to analyze experimental/investigative data.
4. To demonstrate the ability to perform a physical examination of various systems that is complete and relevant to disease identification.

IV. TEACHING SCHEDULE:

TOTAL TEACHING HOURS : 480

1) Theory: 200 hours

Sr. No.	Theory	No. of Lectures	Total hours
i	Didactic Lectures	214 lectures of 45 minutes duration	160
ii	Tutorials	40 tutorials of 1 hour duration each	40
		Grand Total	200

2) Practical and demonstrations: 280 hours

Sr. No.	Practical	No. of Practicals	Total hours
ii	Practicals		
	Haematology Amphibian	15	30
	Clinical & Human Physiology	45	90
	Amphibian	20	40
	Clinical problems discussion	15	30
ii	Demonstrations	20 demonstrations of 2 hours duration	40
iii	Seminars/Integrated Teaching	4 seminars + 4 Integrated Teaching	16
iv	Tests/ Quiz	4 tests & 2 quizzes	12
v	Blood bank & hospital visit	5 visits of 2 hours duration each	10
	Computer assisted teaching	6 sessions of 2 hour duration each	12
	Grand total		280

V. TEACHING LEARNING METHODOLOGY

- 1. Didactic lectures:** lectures are conducted to facilitate learning of terminology, principles and concepts. Books and resource materials are suggested to encourage self- directed learning.
- 2. Tutorials:** Tutorials are conducted in form of problem based small group discussions, questions-answer sessions, revision and reinforcement of difficult concepts. The purpose is to inculcate skills of reasoning, meaningful approaches to learning and facilitate understanding of the subject.
- 3. Practicals:** Practicals & demonstrations are conducted so as to substantiate and clarify theoretical concepts with experimental evidence, to develop skills of performing basic hematological tests important in clinical investigations & to develop skills of clinical examination.
- 4. Integrated Teaching:** Integrated teaching is conducted so that students can understand the interrelationship between anatomy, physiology & biochemistry.

VI. COURSE CONTENT:

Topics covered in :

SEMESTER – I

- 1. GENERAL PHYSIOLOGY**
- 2. MYONEURAL PHYSIOLOGY**
- 3. BLOOD**
- 4. CARDIOVASCULAR SYSTEM**
- 5. RESPIRATORY SYSTEM**
- 6. GASTROINTESTINAL TRACT**
- 7. EXCRETORY SYSTEM**
- 8. CENTRAL NERVOUS SYSTEM – PART – I**

SEMESTER – II

- 9. CENTRAL NERVOUS SYSTEM - PART - II**
- 10. SPECIAL SENSES**
- 11. ENDOCRINE SYSTEM**
- 12. REPRODUCTIVE SYSTEM**
- 13. GROWTH AND NUTRITION**

LECTURES

Semester - I

GENERAL PHYSIOLOGY

Sr. No.	TOPIC
1	Introduction, Cell & Cell Organelles
2	Transport Across Cell Membrane, passive transport & subtypes
3	Transport Across Cell Membrane, active transport & subtypes
4	Resting Membrane Potential, causes,
5	Resting Membrane Potential, Nernst's eq., Goldman's eq.
6	Action Potential, genesis, types,
7	Action Potential, properties.
8	Homeostasis, its importance, Positive feedback mechanism.
9	Homeostasis, its importance, Negative feedback mechanism.

MYONEURAL PHYSIOLOGY

Sr. No.	TOPIC
10	Structure of muscles, various types, sarcomere & its structure.
11	Molecular Basis of Muscle Contraction, Contractile proteins
12	Molecular Basis of Muscle Contraction, (Ratchet theory of muscle contraction)
13	Myoneural Junction, structure.
14	Myoneural Junction, events occurring during transmission of impulse.
15	Sarcotubular system, structure, excitation contraction coupling.
16	Physiology of smooth muscle, structure.
17	Physiology of smooth muscle, characteristics of contraction.
18	Properties of muscle (contractility, excitability, all or none law etc.)
19	Physiology of nerves, classification, various properties.
20	Degeneration & regeneration

BLOOD

Sr. No.	TOPIC
21	Composition and Functions of Blood
22	Hemopoiesis
23	WBC-Classification, structure
24	WBC-Functions
25	RBC- Erythropoiesis, Functions
26	Blood Groups – I (ABO blood group system, Land-Steiner's law).
27	Blood Groups – II (Rh system, Rh incompatibility, hemolytic disease of newborn).
28	Hemostasis – I, definition & various mechanisms (vascular spasm, platelet plug formation, coagulation)
29	Hemostasis – II Clotting factors, Coagulation- intrinsic & extrinsic mechanism
30	Hemostasis – III anticoagulants, hemorrhagic disorders
31	Reticuloendothelial System I -components
32	Reticuloendothelial System II- functions.
33	Immunity –I, definition, various types.
34	Immunity –II, cell mediated immunity, growth & development of lymphocytes, various types of T cells & their functions.
35	Immunity –III, Humoral immunity ,structure & characteristics of various immunoglobulins
36	Immunity –IV- Applied physiology

CARDIOVASCULAR SYSTEM

Sr. No.	TOPIC
37	Physiological anatomy and Properties of Heart
38	Innervation of Heart, sympathetic & parasympathetic supply.
39	Origin of Cardiac Impulse, Pacemaker potential
40	Spread of Cardiac Impulse
41	E.C.G. - various waves, their causes.
42	E.C.G. - uses of ECG, changes in various diseases.
43	Heart Rate, physiological variations, regulation of heart rate.
44	Cardiac Cycle – I, definition, cardiac cycle time, overview of atrial & ventricular events
45	Cardiac Cycle – II, details of atrial & ventricular events, pressure changes.
46	Hemodynamics, various types of blood flows.
47	Cardiac Output – I, definition, normal value, physiological variations.
48	Cardiac Output – II, determinants of cardiac output.
49	Cardiac Output – III-venous return
50	Local Blood Flow, theories of regulation of blood flow.
51	Venous system, structures & functions.
52	Blood Pressure – I, definition, various types, physiological variations.
53	Blood Pressure – II, regulation of blood pressure (short term mechanisms)
54	Blood Pressure – III, intermediate & long term mechanisms of regulation of blood pressure, hypertension.
55	Tissue Fluid formation, dynamics at arterial & at venous end, edema.
56	Tissue Fluid formation, Starling's equilibrium at mid point of capillary, edema.
57	Lymph, Mechanism of formation, functions.
58	Blood Volume, normal value, physiological variations, regulation.
59	Shock – I, definition, various types, stages
60	Shock – II, compensatory mechanisms, effect of shock on various systems
61	Coronary Circulation, anatomy, characteristics, applied physiology
62	Pulmonary Circulation, anatomy, characteristics, applied physiology
63	Cerebral Circulation, anatomy, characteristics, applied physiology
64	Muscle Blood Flow, anatomy, characteristics, applied physiology
65	CVS changes during Exercise.
66	Cardiac Failure, definition, types, causes,
67	Cardiac Failure, clinical features, treatment.
68	CVS- Clinical problems-I
69	CVS- Clinical problems-II

RESPIRATORY SYSTEM

Sr. No.	TOPIC
70	Introduction & Mechanics of Respiration-I, act of inspiration &

	expiration,
71	Mechanics of Respiration – II, various pressures, compliance.
72	Composition of Alveolar Air & Diffusion across respiratory membrane.
73	Spirometry
74	Regulation of Respiration – I, anatomy of various respiratory centers, role of various reflexes.
75	Regulation of Respiration – II, role of CO ₂ , O ₂ & H ⁺ in regulation of respiration.
76	Transport of O ₂
77	O ₂ dissociation curve, its shift to left & right
78	Transport of CO ₂ , various forms of CO ₂ transport
79	Apnoea, Hyperpnoea, Dyspnoea
80	Asphyxia, definition & causes.
81	Hypoxia, definition, types
82	Hypoxia, effects on various systems.
83	Cyanosis - causes & effect on various systems.
84	Periodic Breathing
85	Acclimatization to High Altitude - effects on various systems,
86	Acclimatization to High Altitude - acute & chronic mountain sickness.
87	Dysbarism (mechanism, clinical features & treatment)
88	O ₂ therapy & Toxicity.
89	Respiratory Changes during Exercise
90	Respiratory Changes during Exercise - O ₂ debt
91	RS- Clinical problems

GASTROINTESTINAL TRACT

Sr. No.	TOPIC
92	Introduction & Functional Anatomy of gastrointestinal tract.
93	Salivary Glands, anatomy, composition & function of saliva
94	Gastric Juice – I, anatomy, composition.
95	Gastric Juice –II, function & regulation, acid peptic disease.
96	Pancreatic Juice, anatomy, composition & function.
97	Bile & Succus Entericus, anatomy, composition & function.
98	Mastication reflex & Deglutition reflex.
99	Movements of Stomach-I
100	Movements of Stomach-applied
101	Movements of Small Intestine
102	Movements of Small Intestine- functions & applied
103	Movements of Large Intestine
104	Defecation reflex
105	Gastrointestinal Hormones, gastrin, CCK, secretin, GIP, VIP
106	GIT-Clinical problems

EXCRETORY SYSTEM

Sr. No.	TOPIC
107	Functional Anatomy & Renal Circulation
108	Glomerular Filtration, dynamics, factors affecting
109	Glomerular Filtration, - autoregulation
110	Tubular Functions – I, functions of proximal convoluted tubule.
111	Tubular Functions – II, functions of distal convoluted tubule & loop of Henley
112	Countercurrent mechanism
113	Juxta-Glomerular Apparatus - structure & functions.
114	Micturition reflex.
115	Micturition reflex- abnormalities
116	Kidney Functions & Kidney Function Tests- Overview, Clearance tests
117	Skin & Body Temperature- thermoregulation in hot climate.
118	Skin & Body Temperature-thermoregulation in cold climate.
119	Excretory system- Clinical problems

CENTRAL NERVOUS SYSTEM

Sr. No.	TOPIC
120	Introduction to CNS, parts of brain, concept of regulation.
121	Synapse – I, definition, types, events during transmission of synapse
122	Synapse - II, Properties of synapse.
123	Receptors – I, definition, types, receptor potential.
124	Receptors – II, Properties of receptors.
125	Reflex Action – I, definition, types, components of reflex arc.
126	Reflex Action – II, Properties of reflex action.
127	Ascending Tracts – I, physiology of dorsal column tracts
128	Ascending Tracts – II, physiology of spinothalamic & spinocerebellar tracts
129	Descending Tracts – I, physiology of Pyramidal tract
130	Descending Tracts – II, physiology of extra-pyramidal tract.
131	Physiology of Pain – I, Definition, types, pathway of slow pain.
132	Physiology of Pain – II, pathway of fast pain, analgesic system of the body.
133	Lesions of Spinal Cord – I, complete transection & hemisection of spinal cord
134	Lesions of Spinal Cord – II, lesions of posterior & anterior roots.
135	Thalamus – I,(anatomy, various nuclei & connections).
136	Thalamus – II, (functions & effect of lesion).
137	Cerebral Cortex – I, Histology & different lobes
138	Cerebral Cortex – II, (Physiology of frontal & pre frontal lobe, effect of lesions).

139	Cerebral Cortex – III, (Physiology of parietal, temporal lobe, effect of lesions.)
140	CNS- Clinical problems-I

Semester – II

CENTRAL NERVOUS SYSTEM

Sr. No.	TOPIC
141	Basal Ganglia, Anatomy, connections & functions, Parkinsonism.
142	Cerebellum – I, evolution, various lobes, various nuclei, connections.
143	Cerebellum – II, functions, cerebellar signs.
144	Reticular Formation, anatomy, connections & functions.
145	Sleep: Definition, characteristics of REM & NREM sleep.
146	EEG: method of recording, various waves, clinical significance.
147	Hypothalamus: anatomy, connections, functions.
148	Limbic System: anatomy, connections, functions.
149	Learning & Memory: types of learning, mechanisms of learning, types of memory, mechanisms of memory.
150	Stretch Reflex: definition, details of reflex arc, significance.
151	Regulation of Muscle Tone: spinal & supraspinal mechanisms.
152	Posture: definition, various mechanisms including Righting reflex.
153	Speech & Aphasia: Physiology of speech, role of various centres, definition of aphasia, types of aphasia.
154	Autonomic Nervous System (A.N.S.): Anatomy of sympathetic & parasympathetic system, various receptors & neurotransmitters,
155	Autonomic Nervous System -actions of sympathetic & parasympathetic nervous system, functions of sympathetic & parasympathetic nervous system.
156	C.S.F. & Blood Brain Barrier: composition & functions of CSF, structure & functions of blood brain barrier.
157	CNS- Clinical problems-II

SPECIAL SENSES

Sr. No.	TOPIC
158	Introduction; Structure of Eye; Optics
159	Errors of Refraction
160	Accommodation to near vision
161	Neurophysiology - I [Mechanism of Stimulation]
162	Neurophysiology - II [Perception]
163	Neurophysiology - III [Pathway & Lesions]
164	Colour Vision,
165	Colour Vision,- colour blindness

166	Light & Dark adaptation
167	Structure of Ear
168	Functions of Middle Ear
169	Mechanism of Hearing – I
170	Mechanism of Hearing – II
171	Auditory Pathway
172	Applied Physiology- deafness
173	Vestibular Apparatus I– structure of utricle, saccule ,semicircular canals & mechanism of stimulation
174	Vestibular Apparatus – III - vestibular pathway & applied
175	Physiology of Taste -receptors, mechanism of stimulation, pathway & applied
176	Physiology of Smell-receptors, mechanism of stimulation, pathway & applied
177	Special senses - Clinical problems

ENDOCRINE SYSTEM

Sr. No.	TOPIC
178	Introduction & Mechanism of Hormone Action-I
179	Introduction & Mechanism of Hormone Action-II
180	Anterior Pituitary – I anatomy, various pituitary hormones & their functions, concept of hypothalamic control)
181	Anterior Pituitary – II growth hormone - chemistry, actions, regulation & diseases;
182	Anterior Pituitary – III prolactin - chemistry, actions, regulation)
183	Posterior Pituitary - ADH (chemistry, actions, regulation)
184	Posterior Pituitary - oxytocin (chemistry, actions, regulation)
185	Thyroid – I (anatomy , synthesis of thyroid hormones)
186	Thyroid – II (physiological actions & regulation)
187	Thyroid – III (hypothyroidism & hyperthyroidism)
188	Parathyroid Gland -parathormone - chemistry, actions, regulation
189	Parathyroid Gland- Calcium homeostasis
190	Pancreas – I (various hormones secreted by islets , chemistry & actions of insulin)
191	Pancreas – II (chemistry, actions, regulation of glucagon, regulation of blood sugar, metabolism in diabetes mellitus)
192	Adrenal Cortex – I (layers of adrenal cortex & hormones secreted by them, chemistry, actions, regulation of mineralocorticoids)
193	Adrenal Cortex – II (chemistry, actions, regulation of glucocorticoids, Addison's disease & Cushing's syndrome).
194	Adrenal Medulla
195	Endocrine system – clinical problems

REPRODUCTIVE SYSTEM

Sr. No.	TOPIC
196	Male Reproductive System – (anatomy , concept of male puberty)
197	Male Reproductive System – (anatomy , concept of male puberty)
198	Male Reproductive System – II (spermatogenesis & its hormonal control)
199	Male Reproductive System – II (spermatogenesis & its hormonal control)
200	Female Reproductive System- I (anatomy , female puberty)
201	Female Reproductive System- I (anatomy , female puberty)
202	Female Reproductive System – II (ovarian & uterine changes in menstrual cycle)
203	Female Reproductive System – II (ovarian & uterine changes in menstrual cycle)
204	Female Reproductive System – III (hormonal control of menstrual cycle)
205	Physiology of Pregnancy (duration, physiological changes in various systems)
206	Physiology of Pregnancy (duration, physiological changes in various systems)
207	Physiology of Lactation (development of breast & role of various hormones in lactation)
208	Contraceptive Methods (temporary & permanent methods in males & females)
209	Foetal Circulation - anatomy, characteristics, changes occurring at birth)
210	Reproductive system- Clinical problems

MISCELLNEOUS TOPICS

Sr. No.	TOPIC
211	Growth, types & role of various hormones
212	Growth, types & role of various hormones
213	Nutrition – I (importance of proximate principles of food, vitamins, minerals, fiber, RDA)
214	Nutrition – II (calorific needs in various population groups, deficiency diseases).

TUTORIALS:

During tutorials; reinforcement of important theory topics is done by interactive sessions & use of various media like video clips. In addition; students are sensitized about common clinical disorders by way of ward visits.

Semester -I

GENERAL PHYSIOLOGY

Teaching hours: 02

No.	TOPIC
1.	Transport Across Cell Membrane
2.	Resting Membrane Potential, Action Potential- Video clip

MYONEURAL PHYSIOLOGY

Teaching hours: 02

No.	TOPIC
1.	Molecular Basis of Muscle Contraction , N-M transmission-models and video clip, Myoneural Junction, Myasthenia gravis –video clip
2.	Physiology of Nerves, Degeneration & regeneration

BLOOD

Teaching hours: 03

No.	TOPIC
1.	Blood Groups-ward visit to show patient of anaemia and jaundice
2.	Hemostasis
3.	Immunity

CARDIOVASCULAR SYSTEM

Teaching hours: 05

No.	TOPIC
1.	Origin and Spread of Cardiac Impulse, E.C.G., Cardiac Cycle
2.	Hemodynamics Tissue Fluid formation, Edema
3.	Cardiac Output, Blood Pressure, CVS changes during Exercise
4.	Coronary Circulation, Pulmonary Circulation, Cerebral Circulation
5.	ward visit to show patient of oedema, normal heart sounds and murmurs

RESPIRATORY SYSTEM

Teaching hours: 04

No.	TOPIC
1.	Mechanics of Respiration, Regulation of Respiration
2.	Transport of O ₂ , Transport of CO ₂ Ward visit to show patient of asthma and added respiratory sounds
3.	Hypoxia, Acclimatization to High Altitude, Dysbarism
4.	Respiratory Changes during Exercise, Asphyxia, Cyanosis, O ₂ therapy

EXCRETORY SYSTEM

Teaching hours: 02

No.	TOPIC
1.	Glomerular Filtration, Juxta-Glomerular Apparatus
2.	Tubular Functions, Micturition reflex

CENTRAL NERVOUS SYSTEM

Teaching hours: 05

No.	TOPIC
1.	Synapse, Receptors, Reflex Action
2.	Ascending Tracts, Descending Tracts, Lesions of Spinal Cord
3.	Physiology of Pain, Analgesic system,
4.	Cerebral Cortex
5.	Thalamus, Hypothalamus

Tutorials **Semester – II**

CENTRAL NERVOUS SYSTEM

Teaching hours: 05

No.	TOPIC
1.	Basal Ganglia, Cerebellum
2.	Sleep, EEG, Hypothalamus, Limbic System
3.	Stretch Reflex, Regulation of Muscle Tone
4.	Learning & Memory, Speech & Aphasia
5.	Ward visit or video clip of facial nerve paralysis, parkinsonism, hemiplegia, paraplegia, spinal shock

SPECIAL SENSES**Teaching hours: 03**

No.	TOPIC
1.	Errors of Refraction, Accommodation
2.	Neurophysiology of vision
3.	Functions of Middle Ear, Mechanism of Hearing, Auditory Pathway

ENDOCRINE SYSTEM**Teaching hours: 03**

No.	TOPIC
1.	Anterior Pituitary, Posterior Pituitary --Acromegaly, Gigantism- photographs
2.	Thyroid, Parathyroid Gland –ward visit or video clip of Myxoedema, Cretinism, Hyperthyroidism ,Tetany
3.	Pancreas, Adrenal Cortex

REPRODUCTIVE SYSTEM**Teaching hours: 03**

No.	TOPIC
1.	Male Reproductive System
2.	Menstrual cycle
3.	Physiology of Pregnancy , Physiology of Lactation -OPD visit to show physiological changes in pregnancy

GASTROINTESTINAL TRACT**Teaching hours: 03**

No.	TOPIC
1.	Gastric Juice, Pancreatic Juice
2.	Bile & Succus Entericus
3.	Movements of Stomach, Movements of Intestine – ward visit to show patient of ascites ,paralytic ileus

PRACTICALS**HAEMATOLOGY PRACTICALS:**

- 1) The microscope.
- 2) Collection of blood.

- 3) Estimation of haemoglobin content of blood.
- 4) White Blood Cell (W.B.C.) Count
- 5) White Blood Cell Count Revision
- 6) Red Blood Cell (R.B.C.) Count
- 7) Red Blood Cell Count Revision
- 8) Determination of Blood Groups.
- 9) Differential W.B.C. Count. – Preparation of smear
- 10) Differential W.B.C. Count. – Staining of smear
- 11) Differential W.B.C. Count. – Identification & counting of cells
- 12) Differential W.B.C. Count. – revision
- 13) Determination of Bleeding Time/Clotting Time.
- 14) Non-microscopic practicals – Revision
- 15) Microscopic practicals – Revision

HUMAN & CLINICAL PHYSIOLOGY:

- 1) Introduction of Clinical Examination- History taking
- 2) Introduction of Clinical Examination- General examination
- 3) Clinical Examination of Cardiovascular System- Inspection & palpation
- 4) Clinical Examination of Cardiovascular System-Percussion & Auscultation
- 5) Clinical Examination of Cardiovascular System- Revision
- 6) Determination of Arterial Blood Pressure.
- 7) Determination of Arterial Blood Pressure - Revision
- 8) Clinical Examination of the Arterial Pulse.
- 9) Estimation of Venous Pressure.
- 10) Physical Fitness Tests – Measurement of aerobic power
- 11) Physical Fitness Tests – Measurement of anaerobic power
- 12) Physical Fitness Tests – Measurement of flexibility & muscle power
- 13) Circulatory Response of Human Skin.
- 14) Clinical Examination of Respiratory System- Inspection & palpation
- 15) Clinical Examination of Respiratory System- Percussion & Auscultation
- 16) Clinical Examination of Respiratory System - Revision
- 17) Demonstration of Spirometry
- 18) Spirometry – Graph reading
- 19) Demonstration of Stethography.
- 20) Stethography – Graph reading
- 21) Artificial Respiration.
- 22) Clinical Examination of Alimentary System – Inspection & Palpation.
- 23) Clinical Examination of Alimentary System – Percussion & Auscultation
- 24) Demonstration of Ergography.
- 25) Ergography- Graph reading
- 26) Clinical Examination of Higher Functions.
- 27) Clinical Examination of III, IV, VI Cranial Nerves.
- 28) Clinical Examination of other Cranial Nerves.

- 29) Revision of Cranial Nerves.
- 30) Clinical Examination of Sensory System- I
- 31) Clinical Examination of Sensory System- II
- 32) Clinical Examination of Motor System I.
- 33) Clinical Examination of Motor System II.
- 34) Revision of Motor System
- 35) Clinical Examination of Sense of Smell.
- 36) Clinical Examination of Sense of Taste.
- 37) Tests for Hearing & Deafness.
- 38) Clinical Examination of Eyes.
- 39) Visual Reflexes.
- 40) Acuity of Vision.
- 41) Perimetry.
- 42) Colour vision.
- 43) Dark room examination of eye.
- 44) Revision of all eye practicals.
- 45) Study of body temperature in man.

LECTURE - DEMONSTRATIONS:

- 1) Determination of Erythrocyte Sedimentation Rate.
- 2) Estimation of Packed Cell Volume.
- 3) Calculation of Blood Indices.
- 4) White Blood Cells.
- 5) Red Blood Cells.
- 6) Platelets.
- 7) Reticulocyte count
- 8) Electro cardiogram.
- 9) Parts of CNS.
- 10) Anaemia.
- 11) Physiograph.
- 12) Reaction Time.
- 13) Spirometry
- 14) Stethography
- 15) Ergography
- 16) Jugular venous pressure
- 17) Central Nervous System parts
- 18) Nerve conduction studies
- 19) Electromyogram
- 20) Phonocardiography

AMPHIBIAN PRACTICALS (DEMONSTRATIONS)

- 1) Study of Instruments
- 2) Record of cardiogram of frog & effect of temperature
- 3) Properties of cardiac muscle (I).

- 4) Properties of cardiac muscle (II).
- 5) Properties of cardiac muscle (III).
- 6) Nervous regulations of Heart.
- 7) Phenomenon of Vagal Escape.
- 8) Effect of Acetylcholine on frog's Heart.
- 9) Effect of Adrenaline on frog's Heart.
- 10) Effect of dilute Nicotine on frog's Heart.
- 11) Perfusion of isolated frog's Heart.
- 12) Simple Muscle Curve.
- 13) Effect of various strengths of stimuli.
- 14) Effect of two successive stimuli of Skeletal Muscle.
- 15) Genesis of Tetanus & Fatigue of skeletal muscle.
- 16) Effect of Temperature of frog's skeletal muscle.
- 17) Effect of Load on Skeletal Muscle.
- 18) Velocity of Nerve Impulse.
- 19) Properties of Involuntary Muscle.
- 20) Decerebrate and Spinal Preparation.

List of topics and contents for integrated teaching by Anatomy, Physiology and Biochemistry department:-

Sr. No.	Topic	Anatomy Department	Physiology Department	Biochemistry Department
1.	Liver	Gross, microscopic & developmental Anatomy	Functions of liver	Liver function tests
2.	Pancreas	Gross, microscopic & developmental Anatomy	Functions of endocrine pancreas (insulin & Glucagon)	Regulation of blood sugar level
3.	Kidney	Gross, microscopic & developmental Anatomy	Functions of kidney	Kidney function tests
4.	Thyroid	Gross, microscopic & developmental Anatomy	Functions of thyroid gland	Thyroid function tests

VII. SLOs:Lectures

At the end of teaching-learning session, student will be able to:

GENERAL PHYSIOLOGY

<u>S</u> <u>r</u> <u>N</u> <u>e</u> <u>:</u>	<u>Topic</u>	<u>SLOs</u>		
		<u>Must know</u>	<u>Desirable to know</u>	<u>Nice to know</u>
1	Introduction to cell & cell organelles	Outline the structure & functions of Cell membrane (Fluid Mosaic Model), Describe structure & functions of various cell organelles (Endoplasmic reticulum, Golgi apparatus, lysosomes, peroxisomes, mitochondria, centrioles, cytoskeleton, Nucleus, Ribosomes).	Recall the differences between Plant, Animal & Human cells	
2	Transport across cell membrane	Outline the necessity of transport mechanisms. Describe various types. (Passive& active transport, their subtypes & characteristics of each subtypes, Vesicular transport & its types)	List the factors affecting simple diffusion, Explain the terms osmolality & osmolarity,	Recall diameters of various channels
3	Resting membrane potential (R.M.P.)	Define R.M.P. List normal values of RMP in different tissues, explain the technique of measurement of RMP & Genesis of RMP (Nernst's equation & Goldman's equation), contribution of Na-K pump to RMP, significance of RMP.		
4	Action Potential	Define action Potential & describe various phases, cellular basis of each phase, types of action potential & properties of action potential.	Describe the techniques to measure permeability of channels	
5	Homeostasis	Define homeostasis , list various compartments of fluid in human body, describe the concept of internal environment, negative & positive feedback mechanisms with examples	Describe feed forward mechanism	

MUSCLE PHYSIOLOGY:

Sr. No	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Structure of skeletal muscle	Define & classify muscles, Describe structure of sarcomere (various bands, actin, myosin, troponin & tropomyosin).	Describe other structural proteins.	Describe genetic abnormalities.
2	Neuromuscular junction (NMJ)	Define neuromuscular junction, describe structure in detail with diagrams, events occurring during transmission of impulse and describe cause, clinical features, treatment of myasthenia gravis.	Explain types of acetylcholine receptors & drugs acting on NMJ.	Describe Lambert Eaton syndrome.
3	Molecular basis of muscle contraction	Describe walk along theory in detail (role of sarcotubular system, cross bridge formation, power stroke single cross bridge cycling and role of ATP). Enumerate the steps in relaxation Define rigor mortis & list its cause & importance.	Describe Fenn effect.	
4	Sarcotubular system.	Describe anatomy of sarcotubular system, draw diagram of diad & triad. Explain functions of sarcotubular system.	List the differences in sarcotubular system in skeletal, cardiac, and smooth muscle.	
5	Smooth muscle	Explain structure of smooth muscle & its properties in detail.	Describe experiments to prove these properties.	
6	Physiology of nerves	Classify nerve fibers (sensory & Erlanger –Gasser) & describe their properties.		
7.	Degeneration & regeneration in nerve fibers	List the causes of degeneration, explain features of degeneration & regeneration.		

BLOOD

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Composition & functions of blood	Explain composition of blood, Constituents of plasma, functions of plasma proteins, various blood cells & their functions		
2	Blood Groups	Enumerate various blood group systems, explain the concept of Agglutinin & Agglutinin. State Landsteiner law Describe Rh blood group system & Rh incompatibility. List indications of blood transfusion & its hazards.	Bombay blood group and other blood groups	
3	Hemostasis	Define hemostasis & enlist its mechanisms. Describe each Mechanism in detail. List various anticoagulants & describe their mechanisms of action. Discuss various hemorrhagic disorders.	List the factors preventing coagulation in vivo	
5	Platelets	Describe morphology of platelets & their functions. Explain diseases of platelets.	List various platelet function tests & thrombopoiesis	
6	Immunity	Define & classify immunity. Describe development of T & B lymphocytes & their immune response. (4 types of lymphocytes & various immunoglobulins).	Describe effects of HIV infection on immunity.	Describe mechanisms of graft rejection
7	Red Blood Cells	Describe morphology of red blood cells, their functions & erythropoiesis. Define anaemia & discuss various classifications & treatment. Describe various blood indices & their abnormalities.	Describe abnormalities in morphology in various anaemias.	

CARDIO VASCULAR SYSTEM:

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Introduction to CVS	Outline structure of heart & types of blood vessels, Explain the properties of cardiac muscle	Explain the differences in Cardiac, Skeletal and smooth muscle	Classify types of circulation- (greater and lesser)
2	Innervation of heart ,Origin & spread of cardiac impulse	Outline nerve supply of heart, Describe anatomy of conducting system & development of cardiac impulse. Outline the spread of cardiac impulse Enumerate physiological causes of tachycardia & bradycardia	Enumerate pathological causes of tachycardia & Bradycardia.	Heart blocks
3	Heart rate	Recall normal value of heart rate & its physiological variations. Describe regulation of heart rate.	Describe structure of vasomotor center	
4	Electrocardiogram (ECG)	Define ECG & describe method of Einthoven's law & recording by various leads. To recall duration, amplitude & cause of each wave. Enumerate uses of ECG.	Calculate heart rate from ECG recording in all leads. Identify changes associated with ischaemia, infarct & hypertrophy of chambers.	
5	Cardiac cycle	Define cardiac cycle & normal cardiac cycle time. Enumerate & describe Atrial and ventricular events in cardiac cycle. Describe pressure & volume changes in ventricles during cardiac cycle.		
6	Cardiac output	To define cardiac output & describe physiological variations in it. Discuss factors determining cardiac output.	Explain the concept of preload and after load	
7	Blood Pressure	Define blood pressure & its types. Describe physiological variations & various regulatory mechanisms (short term, intermediate term & long term ; Short term- Baroreceptor, Chemoreceptor,	Hypertension, Hypotension	

		CNS ischemic response, , Renin Angiotensin & release of catecholamines, Intermediate- Capillary fluid shift & reverse stress relaxation, Long term- Role of Kidney, Renin- Angiotensin- Aldosterone mechanism)		
8	Haemodynamics	State types of blood flow, explain Reynolds's number, state Poiseuille's law & Laplace's law	Explain shear stress	
9	Local blood flow	List the factors affecting local blood flow, Explain oxygen demand theory & local metabolite theory of regulation of blood flow.		
10	Tissue fluid formation & edema	State Starling's forces Describe dynamics of Tissue fluid formation at arterial end, at the mid point of capillary, at venous end, define oedema, enlist causes of pitting and non-pitting oedema		
11	Blood volume & lymph	Recall normal value of blood volume. Explain factors regulating blood volume. Describe lymphatic circulation, functions of lymph & causes of lymphatic oedema.		
12	Coronary circulation	State physiologic anatomy, normal value, methods of measurement and Peculiarities of coronary circulation.	Describe ischemic heart diseases	
13	Pulmonary circulation	State physiologic anatomy, normal value, methods of measurement and peculiarities of pulmonary circulation	Describe pulmonary hypertension	
14	Cerebral circulation	State physiologic anatomy, normal value, methods of measurement and peculiarities of cerebral circulation.		
15	Muscle blood flow	State normal value & effects of exercise on it.		
16	CVS changes during exercise	Define various grades of muscular exercise. Describe effect of exercise on heart rate, blood pressure, cardiac output & circulation time.	Describe effect on other regional circulations	Describe effect of severe exercise on these

				parameters
17	Cardiac failure	State the causes of heart failure. Describe the circulatory dynamics in heart failure, Distinguish between left & right heart failure. Distinguish between compensated and decompensated heart failure. Describe the principles of treatment of heart failure.	Explain the concept of cardiac reserve.	
18	Shock	Define shock Classify shock based on its causes, Describe stages of shock, Discuss the principle of treatment of shock.		

RESPIRATORY SYSTEM

Sr N o.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Introduction and Anatomy	Outline anatomy of respiratory system, explain concept of upper & lower respiratory tract, functions of each part and Weibel's model of respiratory system.	Describe histology of different parts of respiratory tract	
2 & 3	Mechanics of respiration – I & II	Explain act of respiration, Define various volumes & capacities of lungs, describe muscles of inspiration & expiration, pump handle & bucket handle movements of ribs, role of various pressures, Outline chemistry, synthesis & functions of surfactant, describe the factors favoring expansion of lungs & factors opposing expansion of lungs, define like pneumothorax, pyothorax & pleural effusion.	Describe work of breathing	
4	Composition of alveolar air and diffusion across Respiratory membrane	State the composition of atmospheric air, inspired air & expired air. Outline the structure of respiratory membrane & factors governing the process of diffusion.		

5	Regulation of respiration (nervous & chemical)	Describe the mechanism of nervous regulation (Role of various centers & role of various reflexes).Describe mechanism of chemical regulation – role & mechanism of action of CO ₂ , O ₂ & H ⁺ ions.		
6	Transport of oxygen	State the concentration of oxygen in arterial and venous blood, forms of oxygen transport, describe Oxygen hemoglobin dissociation curve & causes of shift of curve to right and left.		
7	Transport of carbon dioxide	State the concentration of carbon dioxide in tissues, arterial and venous blood, describe the forms of carbon dioxide transport	Describe Haldane effect.	
8	Hypoxia, Asphyxia, Cynosis, Periodic breathing, Dyspnoea.	Define hypoxia, state its types and examples of each type, describe effects of hypoxia on various systems.		
9	Respiratory changes during exercise.	Describe grades of exercise, effects of exercise on pulmonary ventilation, Oxygen uptake and perfusion of lungs, explain the concept of VO _{2 max} and oxygen debt.	Describe various methods to estimate VO _{2 max}	
10	Acclimatisation to high altitude.	State oxygen content of air at various altitude, describe effect of high altitude on cardiovascular system, respiratory system, blood and cellular metabolism, and describe changes occurring in natives of high altitude, outline clinical features and treatment of acute and chronic mountain sickness.		
11	Decompression sickness.	Describe the pressures to which a diver is exposed to below sea level, describe concept of liquification of gases under high pressures, effects of quick decompression on various systems, prevention and treatment of decompression sickness,.	Describe nitrogen narcosis	

GASTROINTESTINAL TRACT

Sr. No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	GIT introduction & functional anatomy	Describe anatomy of gastrointestinal tract & histology of various parts of gastrointestinal tract, Outline innervation of gastrointestinal tract	Gastrointestinal reflexes	--
2	Salivary glands	Outline anatomy of various salivary glands, describe composition of saliva, regulation of salivary secretion & functions of saliva		--
3	Gastric juice	Outline histology of stomach & secretion of each cell type, composition & functions of gastric juice, phases of gastric juice secretion, regulation of gastric juice secretion	Explain the drugs acting on acid secretion e.g. proton pump inhibitors	
4	Pancreatic juice	Explain physiologic anatomy & histology of pancreas, describe composition, functions & regulation of pancreatic juice secretion.	Describe tests of pancreatic functions & clinical features of acute pancreatitis.	--
5	Bile & Succus entericus	Describe composition, functions & regulation of bile secretion. Describe composition, functions & regulation of succus entericus	Explain the biochemical features of hemolytic, hepatocellular & obstructive jaundice	
6	Deglutition & Mastication	Enumerate muscles of mastication, outline mastication reflex, describe various phases of deglutition	Define dysphasia	---
7	Movement of stomach	Define gastric emptying & factors affecting it, describe regulation of Gastric emptying	Enumerate the events during vomiting	---
8	Movements of small intestine	Name & describe various Small intestinal movements (Peristalsis, segmenting movements, migrating motor		---

		complexes (MMC), movements of villi)		
9	Movements of large intestine & defecation reflex	Describe functions & movements (haustrations, mass movement, gastrocolic reflex) of large intestine, describe defecation reflex in detail.	Explain diarrhea & constipation	---

EXCRETORY SYSTEM:

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Introduction to Excretory system	Describe anatomy of kidney, parts of a nephron & functions of kidney in brief, outline the peculiarities of renal circulation		
2	Glomerular Filtration Rate	Define GFR, give normal value, describe Structure & Permeability characteristics of glomerular capillary membrane, , describe the dynamics of formation & autoregulation of GFR,	Define filtration fraction & give its value.	
3	Factors affecting GFR	Describe the Factors affecting GFR : Variations in Renal blood flow Regulation of GFR: Sympathetic stimulation	Elucidate the effects of hormones on GFR	
4	Urine formation-1	Name the steps in urine formation, Describe histology of proximal convoluted tubular cells & various substances transported through it, describe functions of proximal convoluted tubules.	Reabsorption of urea Secretion of organic acids & bases, drugs	
5	Urine formation -2	Describe the structural & permeability characteristics of various parts of loop of Henle, Explain mechanisms of transport of ions across it.	Explain action of loop diuretics	
6	Urine formation -3	Describe the structural &	Explain the	

		permeability characteristics of distal convoluted tubules, collecting tubules & collecting ducts, explain functions of principal & Intercalated cells, enumerate the actions of aldosterone & ADH.	actions of chlorthiazide diuretics	
7.	Counter current mechanism	Enlist the differences between cortical & juxtamedullary nephrons, explain the need for concentration of urine & counter current mechanism, (counter-current exchanger & counter-current multiplier system).		
8.	Juxta-Glomerular apparatus (J-G apparatus)	Describe anatomy of J-G apparatus, Stimuli for secretion of renin, Renin-angiotensin aldosterone mechanism, Applied aspects		
9.	Tests of kidney function	Describe various tests of assessing kidney functions (examination of urine, examination of blood urea & serum creatinine, various imaging techniques).		
10	Thermoregulation	Explain the concept of homeothermic animal, outline the mechanisms of heat lost & heat gain in the body, describe adjustments in hot climate & adjustments in cold climate,	Describe heat exhaustion & heat stroke	
11	Skin	Explain the structure & functions of skin		

CENTRAL NERVOUS SYSTEM:

No.	TOPIC	MUST KNOW	GOOD TO KNOW	NICE TO KNOW
1.	Introduction to Central Nervous System (CNS)	Describe various parts of CNS & their functions, outline structure & functions of spinal Cord.		Contributi on of various scientists

2.	Synapse - I	Define synapse, enumerate its types & events in synaptic transmission	Describe electrical synapses	
3.	Synapse - II	Describe properties of synapse (fatigue, summation, delay, inhibition)		
4.	Receptors - I	Define & classify receptors		
5.	Receptors - II	Describe properties of receptors		
6.	Reflex Action - I	Define reflex action, classify various reflexes		
7.	Reflex Action - II	Describe various properties of reflexes in detail		
8.	Ascending Tracts - I	Classify sensory tracts of spinal cord, describe origin, course, termination & effects of lesions of dorsal column tract.		
9.	Ascending Tracts – II	Describe origin, course, termination, functions & effects of lesions of spinothalamic tract and spinocerebeller tracts,	Compare and contrast between dorsal column and spinothalamic tracts.	
10.	Descending Tracts – I	Classify descending tracts, describe origin, course, termination, functions & effects of lesions of pyramidal tracts.		
11.	Descending Tracts – II	Describe origin, course, termination, functions & effects of lesions of extrapyramidal tracts,	compare and contrast between pyramidal and extrapyramidal tracts	
12.	Physiology of Pain – I	Define pain, outline various types & characteristics of pain, describe pain pathways (neospinothalamic tract & paleospinothalamic tract)		
13.	Physiology of Pain – II	Describe analgesic system of body, explain spinal & supraspinal mechanisms of pain control	Enumerate various drugs used to relieve pain.	
14.	Lesions of Spinal Cord – I & II	Classify lesions of spinal cord, outline their causes, describe clinical features of		

		each		
15.	Thalamus - I	Classify various thalamic nuclei (Anatomical & functional). describe afferent & efferent connections of thalamus.	---	---
16.	Thalamus - II	Enumerate various functions of thalamus. enumerate the features of thalamic syndrome		---
17.	Cerebral Cortex - I	Outline the anatomy of cerebral cortex, describe, Brodmann's areas & histology of various lobes		
18.	Cerebral Cortex - II	Describe various areas & functions of frontal & prefrontal lobe.		
19.	Cerebral Cortex - III	Describe various areas & functions of temporal & occipital lobe Applied	Explain the features of Kluver Bucy syndrome	
20.	Basal Ganglia	Describe anatomy of basal ganglia, describe various circuits, neurotransmitters & functions of basal ganglia. Explain causes, clinical features & treatment of Parkinson's disease.	Comparison between cerebellum and basal ganglia	Other abnormalities
21.	Cerebellum - I	Describe the parts of cerebellum as per evolution & anatomy. Describe histology & connections of cerebellum		
22.	Cerebellum - II	Explain various functions & effects of damage to cerebellum.		
23.	Reticular Formation	Describe anatomy of reticular formation (ARAS & DRAS) & functions of each		
24.	Sleep	Classify sleep (REM & NREM), describe characteristics of each type, theories of sleep.	Explain disorders of sleep	
25.	Electroencephalography	Define EEG, describe	Procedure of	

	m (EEG)	various types of waves & characteristics of each wave Enumerate the uses of EEG	recording	
26.	Hypothalamus	Enumerate various nuclei of hypothalamus, enlist afferent & efferent connections of hypothalamus, describe vegetative, endocrine, behavioral & other functions of hypothalamus, explain in detail role of hypothalamus in feeding and satiety.	Describe afferent & efferent connections of individual hypothalamic nuclei	---
27.	Limbic System	List the anatomical structures comprising the limbic system, describe the functions of limbic system including its role in reward and punishment.	Enumerate neurohormones involved in depression and psychosis. Individual functions of i)Hippocampus ii) Amygdala	To know Kluver-Bucy syndrome
28.	Learning & Memory	Define learning & memory, explain conditioned reflex, classify memory & explain mechanism of different types of memory	Explain anterograde and retrograde amnesia	
29.	Stretch Reflex	Explain structure of muscle spindle in detail with help of diagram, describe stretch reflex in detail & its importance		
30.	Regulation of Muscle Tone	Define muscle tone, explain spinal & supraspinal (role of cerebellum, basal ganglia, R.F. etc.) in control of muscle tone		
31.	Posture	Define posture, enumerate various postural reflexes (stimulus, receptors, centre, response)		
32.	Speech & Aphasia	Define speech, explain concept of language input (visual & auditory) & language output i. Formation of thoughts	Define aphasia, explain causes & types).	

		ii. Vocalization or writing) enumerate speech centers & mechanism of speech)		
33.	A.N.S.	Describe the anatomical organization of the parasympathetic and sympathetic nervous system. List the different types of adrenergic & cholinergic receptors. Tabulate the receptor mediated biological effects of different adrenergic receptors in different organs. List some common disorders of autonomic functions. List some common clinical tests of autonomic nervous functions.		
34.	Cerebrospinal fluid (CSF) & Blood Brain Barrier (BBB)	Describe composition, Site of formation, Rate of formation, Circulation & functions of CSF, Describe anatomical components, permeability & functions of BBB	Hydrocephalus	

SLOs: PRACTICALS

Haematology

At the end of hematology practicals, student should be able to :

Sr. No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Study of microscope	Explain all parts of microscope	Explain magnifying power of optical system	
2.	Estimation of Haemoglobin	Estimate hemoglobin by Sahli's method	Enumerate other methods of estimation of hemoglobin	
3.	W.B.C. Count	Estimate white blood cell count of his own blood	List causes of leucopenia & leukocytosis	
4. .	R.B.C. Count	Estimate red blood cell count of his own blood	List causes of anaemia	
5.	Differential W.B.C. Count	Prepare & stain a smear, identify neutrophils, lymphocytes, eosinophils, monocytes & basophils.		
6.	Estimation of Blood Groups	Estimate his own blood group	Enumerate indications & hazards of blood transfusion	
7.	Estimation of Bleeding time & Clotting Time	Estimate bleeding time & clotting time	Describe hemorrhagic disorders	

SLOs – HUMAN PRACTICALS

At the end of human practicals, student should be able to –

Sr. No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Spirometry	Recall normal values of various lung volumes & capacities in Indian male & female	List indications for Lung function tests	Calculate Breathing reserve timed vital Capacity
2	Perimetry	Define perimetry, state the importance & its interpretation, identify various abnormalities	Name newer methods of perimetry	
3	ECG	Define ECG, state its Significance, calculate amplitude & duration of each waves, identify various abnormalities	Recall origin and spread of cardiac impulse	Explain vector analysis
4	Physical fitness tests	Classify various physical fitness tests & perform them, recall their interpretation & Limitations.	Explain the phenomenon of oxygen debt	
5	Ergography	Define fatigue, enumerate various sites of fatigue, calculate work done by intact voluntary muscle during continuous activity, activity with intermittent rest & activity with venous occlusion	Enumerate factors delaying fatigue.	
6.	Recording of arterial pulse & Respiration rate by using student Physiograph	Identify various waves in arterial pulse tracing, explain the respiratory record.	Explain working of transducers (Biosensors-optocoupler & thermister) of pulse & respiration respectively	diagnose abnormalities of pulse tracing, explain modern methods of recordings

				used in ICU
7.	Recording Phonocardiogram (PCG) by using Phonocardiograph	Define phonocardiogram, outline characteristics of 1 st , 2 nd , 3 rd & 4 th sounds, explain measurement of time, frequency & amplitude of heart sounds	Working of transducer (Biosensors-piezoelectric) of Phonocardiograph	Identify murmurs

CLINICAL PRACTICALS

At the end of clinical practicals, student should be able to –

Sr No.	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Introduction to clinical examination	Take history of patient, explain methods of examination, describe parts & method of using stethoscope		
2	Cardiovascular system	List symptoms related to cardiovascular system, perform examination of cardiovascular system under following headings: Inspection, Palpation, Percussion, Auscultation	Describe various murmurs	List causes of cardiomegaly
3	Determination of arterial blood pressure (BP)	State principle of Sphygmomanometer & its parts. Estimation of blood pressure by palpatory method & auscultatory method,	Enlist physiological variations in BP Define & give causes of hypotension &	

		korotkoff sounds Oscillatory method	hypertension	
4	Clinical examination of arterial pulse	Perform examination of pulse under the following headings: rate, rhythm, volume, force, tension, condition of vessel wall, equality on both sides & pulses at other sites	List physiological factors affecting pulse, define bradycardia, tachycardia & their causes.	Define sinus arrhythmia
5	Examination of venous pressure	Examine venous pressure by Gaertner's method & Sir Thomas lewis method	List physiological variations in venous pressure	Describe jugular pulse tracing
6	Respiratory system	List symptoms related to respiratory system, perform examination of respiratory system under following headings: Inspection, Palpation, Percussion, Auscultation	List muscles of quiet & forced respiration, list causes of abnormal sounds like rhonchi & crepitation	Explain mechanisms of tactile vocal fremitus & vocal resonance
7	Artificial respiration in man	Perform following manual methods of artificial respiration - Schafer's method Sylvester's method Holger Neilson's method	List advantages and disadvantages of each method	Enumerate the instrumental methods of artificial respiration
8	Clinical examination of abdomen	List symptoms related to examination of abdomen, perform examination of abdomen under following headings : inspection, palpation, percussion , auscultation	Demonstrate the Regions of abdomen, enumerate causes of free fluid in peritoneal cavity	Enlist causes of enlarged liver, spleen & kidney and
9	Clinical examination of higher functions	Perform the tests to assess higher functions	Enlist levels of consciousness	Explain the concept of IQ

10	Clinical examination of III,IV,VI cranial nerves	Perform examination of III,IV,VI cranial nerves as regards their sensory, motor & reflex functions	Explain the nerve supply of extraocular muscles	Define diplopia, squint, nystagmus
11	Clinical examination of other cranial nerves	Examine V,VII,IX,X,XI & XII cranial nerves as regards their sensory and motor functions	Enlist the differences between supranuclear & infranuclear facial nerve palsy	
12	Clinical examination of sensory system	Describe symptoms related to sensory system, examine various sensations & outline the tracts carrying them	Define analgesia, hyperalgesia, anaesthesia & parasthesia	Enumerate the causes of trophic ulcer
13	Clinical examination of motor system - I	Describe symptoms related to motor system, examine nutrition, tone, power & coordination of muscles	Define atrophy, hypertrophy, compare UMN & LMN lesions	
14	Clinical examination of motor system II	Elicit superficial and deep reflexes, define various abnormal movements, posture & gait	Explain importance of Babinski's sign	Explain the mechanism of Jendrassik's maneuver
15	Examination of taste sensation	Describe primary tastes, location of taste buds on the tongue, Pathway of taste sensation, examine sensation of taste	Define umami taste & abnormalities of taste sensations	
16	Examination of sense of smell	Describe primary odours, structure of olfactory cells, olfactory pathway Abnormality	Describe the differences between human & animals as regards sensation of smell	
17	Test for hearing & deafness	Perform Rinne's, Weber's & Schwabach's test of deafness & their inference, describe auditory pathway	Compare audiometry with deafness tests	

		Describe causes & characteristics of conductive & sensory neural deafness.		
18	Visual reflexes	Elicit light, accommodation Cilio-spinal Reflexes	Outline pathways of these reflexes	Describe Argyll-Robertson pupil
19	Acuity of vision	Define visual acuity & explain factors affecting it. Examine near vision by Jaeger's chart & distant vision by Snellen's chart, outline various errors of refraction & their correction		Enlist modern methods of estimating visual acuity.
20	Colour vision	Examine colour vision by Ishihara chart Outline theory of colour vision & types of colour blindness Different tests Abnormalities & Importance	List other methods of examining colour vision.	---
21	Dark room examination of eye	Observe retina of a rabbit using ophthalmoscope, observe retinoscopy outline structure of retina Significance	Describe importance of examination of retina in various diseases	---
22	Body temperature	Keep record of body temperature, outline what is core temperature & shell temperature, describe mechanisms of regulation of body temperature & types of fever	Identify patterns of body temperature in various fevers	---

SLOs - LECTURE DEMONSTRATIONS

At the end of lecture-demonstration, students will be able to -

Sr. No	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1	Anaemia	Define anaemia, describe morphological & etiological classification, observe various types of RBCs under the microscope	Recall values of blood indices in normal persons & patients of various anaemias	Outline treatment of anemia
2	Erythrocytic Sedimentation Rate	Explain the procedure, various methods, normal value, factors affecting & clinical significance	Outline advantages & disadvantages of each method	
3	Packed Cell Volume	Explain the procedure, normal value & clinical significance	Describe microhaematocrit	
4	Platelets	Describe morphology, normal count, life span, fate, thrombopoiesis, functions (hemostatic & non hemostatic) & diseases of platelets	Identify platelets in a slide of peripheral smear	
5	Red Blood Cells (RBC)	Describe morphology, normal count, life span, fate, erythropoiesis & functions of RBCs	Outline factors affecting erythropoiesis	
6	White Blood Cells (WBC)	Identify various WBCs in peripheral smear. Describe morphology, normal count, life span, fate & functions of WBCs.	Outline the process of leucopoiesis	

SLOs - EXPERIMENTAL PRACTICALS

	Topic	SLOs		
		Must know	Desirable to know	Nice to know
1.	Simple Muscle Curve (SMC) in frog's skeletal muscle-nerve preparation	Identify graph of SMC. Draw diagram of SMC, describe periods of SMC & Causes of latent period	List causes of shatter curve and its cause	
2.	Effect of temperature on isolated skeletal muscle nerve preparation of frog	Identify graph of effect of temperature on frog's cardiac muscle. Describe the effect if warm and cold saline on frog's skeletal muscle.	Describe the reasons for the effects	
3	Effect of two successive stimuli on isolated skeletal muscle nerve preparation of frog	Identify the graph of effect of two successive stimuli. Describe the properties proved by this graph. (refractory period, beneficial effect).	Describe types of summations	
4	Genesis of Tetanus in frog's skeletal muscle-nerve preparation	Define tetanus & clonus? Identify graph of tetanus	Explain the differences between skeletal & cardiac muscles regarding genesis	
5	Effect of various strength of stimuli in frog's skeletal muscle-nerve preparation	Identify graph of various strength of stimuli, Define: Threshold Stimulus, subthreshold	Explain what is meant by motor unit, state all or none law	

		Stimulus Maximal &supramaximal Stimulus		
6	Effect of free load & after load on frog's skeletal muscle	Identify graph of free loading & after loading. State frank starling's law?	Define optimum load.	
7	Fatigue in frog's skeletal muscle- nerve preparation	Identify graph of fatigue. Enumerate characteristics of graph of fatigue. Describe factors affecting fatigue.	Enlist causes of fatigue in intact animal	
8	Velocity of nerve impulse in frog's skeletal muscle- nerve preparation	Calculate the velocity of nerve with the help of graph	Enumerate factors affecting velocity of nerve impulse	
9	Normal cardiogram of frog	Identify record of normal cardiogram at various speeds.	Enumerate differences between human & frog's heart	
10	Effect of temperature on cardiogram	Identify graph of effect of warm and cold saline on frog's heart	Explain causes of effects of warm & cold saline.	
11	Effect of Stannius ligature	Identify graph of Stannius ligature. Enlist the properties proved by Stannius ligature.	Describe feasibility of this experiment in humans.	
12	Properties of cardiac muscle - I Long refractory period	Identify graphs of extrasystole with compensatory pause, two successive stimuli & incomplete tetanus	Compare refractory period of cardiac & skeletal muscle.	
13	Properties of cardiac muscle -II	State all or none law. Identify the graph of all or none law	Compare cardiac & skeletal muscle as regards the law.	

14	Properties of cardiac muscle -III	Identify graph of beneficial effect. Enlist the causes of beneficial effect.		
15	Nervous regulation & vagal escape	Outline nerve supply of heart & effect of stimulation of vagus & crescent Identify the graphs. Identify graph of vagal escape	Enumerate causes of vagal escape.	
16	Effect of Acetylcholine & adrenalin	Enumerate the effects & site of action of mentioned drugs. Identify the graphs of effects of acetylcholine & adrenaline	Describe clinical application of this experiment	
17	Effect of Nicotine	Explain effect & site of action of nicotine. Identify the graph of effect of nicotine.		
18	Perfusion	Identify graph of perfusion to know the effect of different ions	Clinical application	

VIII ASSESSMENT:

I) INTERNAL ASSESSMENT

Theory:

Maximum marks 20 are computed from maximum of 300 marks obtained in four written examinations and two viva voce as shown below-

Semester	Term	Theory	Viva-voce	Total
I	Mid term	50	---	50
	Terminal	50	20	70
II	Mid term	50	10	60
	Preliminary	100	20	120
Grand Total		250	50	300

Practicals:

Maximum marks 20 are computed from maximum of 100 marks obtained in three practical examinations as shown below –

Semester	Term	Practical	Total
I	Terminal	40	40
II	Mid Term	20	20
II	Preliminary	40	40
Grand Total			100

The student must secure at least 35 % marks separately in theory and practicals in internal assessment to be eligible to appear for the university examination.

Attendance:

75% of attendance in a subject for appearing in the examination is compulsory inclusive of non-lecture teaching. i.e. seminars, group discussions, tutorials, demonstrations and practicals.

II) UNIVERSITY EXAMINATION

Theory: (100 marks)

There will be two papers of 50 marks & of two hours duration each.

Pattern of Theory Paper:

Out of 6 questions any 5 questions are to be attempted.

- Three Long Answer Questions (LAQs): 10 Marks each.
- Three Short Answer Questions (SAQs): 10 Marks each.

Out of these SAQs; one question will have two sub questions of five marks each. Remaining two questions will be of short notes; out of 3 short notes, 2 short notes to be attempted (short notes should preferably on topics related to applied physiology).

Paper I- 50 marks (Duration 2 hours)

Systems covered: General Physiology, Nerve - Muscle Physiology, Blood, Excretion, Cardiovascular system, Respiratory system and exercise physiology.

Paper II- 50 marks (Duration 2 hours) out of 6 questions; 5 questions are to be solved.

Systems covered: CNS, Special senses, Endocrines, Reproductive system & G.I tract.

Practical examination : (40 marks)

Sr. No.	Practical	Particulars	Marks
1.	Haematology	Microscopic & Non microscopic	15
2.	Clinical	Two Practicals	15
3.	Graphs and Problems	Graph reading (5 marks) problem solving (5 marks)	10

Viva voce : (20 marks)

Sr. No.	Viva- Voce	Marks
1.	Viva- I on Physiology paper- I topics of theory	10
2.	Viva -II on Physiology paper- II topics of theory	10

Viva-voce marks are added to theory marks.

The candidate will be declared passed in the subject only when atleast fifty percent marks are obtained separately in theory and practical examination.

I MBBS Final Examination: Theory

	Marks
Paper I	50
Paper II	50
Viva I (10) and Viva II (10)	20
Internal assessment	20
Total Theory	140

I MBBS Final Examination: Practical

	Marks
Practical Examination (Hematology-15,Clinical Physiology-15,Graphs -10)	40
Internal assessment	20
Total Practical	60

IX. SUGGESTED READING:

A) Textbooks of Physiology:

- 1) Textbook of Medical Physiology by A. C. Guyton
- 2) Textbook of Physiology by A.K. Jain
- 3) Concise Medical Physiology by Chaudhary
- 4) Understanding Medical Physiology by R. L. Bijlani
- 5) Textbook of Medical Physiology by Indu Khurana
- 6) Practical physiology by Vijaya Joshi
- 7) Laboratory Manual and Journal of Physiology Practicals by Dr. V. G. Ranade

B) Reference Books:

- 1) Review of Medical Physiology by W. F. Ganong
- 2) Applied Physiology by S. Wright
- 3) Physiological basis of Medicine by Best & Taylor
- 4) Human Physiology by Vander
- 5) Physiology by Berne & Levy

C) Useful e-links:

<https://www.coursera.org/>
<https://www.khanacademy.org/>
<https://www.cornell.edu/>
<http://hms.harvard.edu/>
www.slideshare.net
<http://blog.tedmed.com/>

BHARATI VIDYAPEETH UNIVERSITY MEDICAL COLLEGE, PUNE

DEPARTMENT OF PSYCHIATRY: REVISION OF CURRICULUM 2016

GOAL:

To teach undergraduate students the basics of Psychology and Psychiatry.
Impart such knowledge and skills that may enable them to approach psychiatry patients in an appropriate way, diagnose and treat common psychiatric disorders, handle common psychiatric emergencies and refer disorders to specialists.

OBJECTIVES:

(a) KNOWLEDGE: At the end of the course, the student should be able to:

- 1) Understand the biopsychosocial model of psychiatric disorders
- 2) Know the current classification of psychiatric disorders
- 3) Know the clinical features, diagnosis and management of common psychiatric and neuropsychiatric disorders
- 4) Have the ability to recognise and manage common psychological disorders in primary care settings and refer appropriately
- 5) Recognise substance use disorders and refer appropriately
- 6) Identify and assess risk of suicide and refer
- 7) Have the ability to recognise temperamental issues and personality disorders and refer
- 8) Be able to identify and refer cases of intellectual disability
- 9) Should be aware of preventive, promotive, curative, rehabilitative services and medicolegal implications in the care of psychiatric patients, both in family and community
- 10) Have the ability to promote mental health and hygiene

(b) SKILLS: At the end of the course, the student should be able to:

- 1) Interview patients and understand different methods of communications
in Doctor Patient relationship
- 2) Elicit detailed psychiatric case history, mental status examination (MSE)
- 3) Define, elicit and interpret psychopathological symptoms & signs
- 4) Diagnose and manage common psychiatric disorders

(c) COMMUNICATION: At the end of the course, student should be able to

Counsel patients and family on their understanding of the disorder, management of the disorder and guide them to seek expert help if required

(d) COMPETENCIES: At the end the student should be able to

Use his knowledge to treat common psychiatric conditions and refer appropriately

TEACHING REQUIREMENT AS PER MCI (56 hours)**LECTURES 8th SEMESTER (20 hours)**

Sr No	TOPIC	SUB TOPIC	NO: OF HOURS	MUST KNOW	GOOD TO KNOW	NICE TO KNOW
1	Introduction to Psychiatry	WHO definition of health, definition of psychology and psychiatry, evolution of psychology & psychiatry	1	What is health What is psychology What is psychiatry History of psychiatry	Different schools of psychology	
2	Biopsychosocial model, Psychological factors in illnesses, Doctors-patients-caregivers interaction		1	Understanding bio psychosocial model approach to illness, psychological factors in illness, commonly used defenses by doctors, caregivers and patients when dealing with illness, doctor-patient relationship and communication	Different models of doctor patient communication and their relevance Psychological underpinning of non-compliance	
3	Classification in psychiatry		1	Need for classification, types of psychiatric disorders ie organic/psychotic/affective/neurotic	ICD,DSM, Criteria used in DSM	Various sub classifications of disorders
4	Schizophrenia and related psychiatric disorders		2	Definition, History, Diagnosis, Classification, Clinical features/phenomenology	Etiology Schizoaffective and delusional disorder presentation Community	Prognostic factors, Differential diagnosis, Epidemiology

				Treatment – broad groups of drugs used, nonpharmacological/ psychosocial	care Institutional care		
5	Affective disorders	Bipolar and Manic disorders Depressive disorders	2	Definition, History, Diagnosis, Classification, Clinical features/phenomenology Treatment – broad groups of drugs used, nonpharmacological/ psychosocial/psychot herapies overview Suicidal risk – identification and management	Etiology	Prognostic factors, Differential diagnosis, Epidemiology Comorbidity	
6	Neurotic and stress related, somatoform, obsessive compulsive disorders	Anxiety, Phobic, Panic, OCD, Somatoform, Dissociative	2	Diagnosis & Clinical features Treatment overview	Etiology Prognosis	Defense mechanism and psychotherapies Personality issues	
7	Organic psychiatric disorders	Delirium Dementia	1	Diagnosis & Clinical features Treatment overview	Etiology Differential diagnosis		
8	Substance use disorders	Concept of gateway drugs	2	Risk factors Classification	Etiology Alcoholics	Motivation enhancement therapy	

		Alcohol Opioids Cannabis Nicotine Caffeine Amphetamines Cocaine Miscellaneous		Concept of Dependence Tolerance Withdrawal Psychosocial correlates Treatment of specific drug related problems viz withdrawal, dependence, -overview	anonymous Treatment of complications	
9	Sleep and eating disorders	Anorexia Bulimia Various sleep disorders	2	Clinical features Anorexia Bulimia & common sleep disorders Overview of treatment		
10	Sexual disorders		1	History taking Common sexual problems & their management	Paraphilias Homosexuality Gender identity disorders	Comorbidity Differential diagnoses
11	Disorders of personality and behaviour		1	What is personality Implication in psychiatry Classification of personality disorders	Theories of personality overview	Management

12	Child psychiatry	Child development Intellectual disability Learning disability Behaviour disorders Emotional disorders Autistic Spectrum disorders	1	Classification Intellectual disability Clinical features ADHD,PDD, Treatment overview	Differential diagnosis Comorbidity	Etiology
13	Psychiatric emergencies	Suicide Violence	1	Assessment of risk of self harm and management Assessment of risk of violence and emergency management	Differential diagnosis Counselling Caregiver education	Medicolegal issues
14	Psychometry	Psychometric assessments	1	Indications IQ Personality		
15	Psychopharmacology	Antipsychotics Antidepressants	1	Commonly used psychiatric drugs	Mechanism of action	Newer drugs

		Mood stabilizers		Indications		
		Benzodiazepines		Adverse effects		
		Electroconvulsive therapy		Interactions		
		Other drugs and interventions				

LECTURE SERIES TIMETABLE PSYCHIATRY 8TH SEMESTER

Sr. no	Topic
1	Introduction to Psychiatry
2	Bio-psychosocial model, Psychological factors in illnesses, Doctor-patient-caregivers interaction
3	Classification in Psychiatry
4	Schizophrenia and related psychiatric disorders
5	Treatment of schizophrenia & psychotic disorders
6	Bipolar and Manic disorders
7	Depressive disorders
8	Neurotic and stress related, somatoform, obsessive compulsive disorders
9	Treatment of neurotic disorders
10	Organic psychiatric disorders
11	Workup of organic psychiatric disorders
12	Substance use disorders – alcohol use disorders
13	Other substance use disorders
14	Sleep disorders & Eating disorders
15	Sexual disorders
16	Disorders of personality and behaviour
17	Child psychiatry
18	Psychiatric emergencies
19	Psychometry
20	Psycho-pharmacology

SLO CLINICAL POSTING 5TH SEMESTER

- 1) Understand basic concepts of classification and diagnosis of Psychiatric disorders
- 2) To know the technique of Psychiatric interviewing
- 3) To understand basics of history taking and mental status examination in Psychiatry
- 4) To get acquainted to communication skills
- 5) To get knowledge and demonstration of drugs and procedures in Psychiatry

CLINICAL POSTING 5th SEMESTER (36 hours)

SR	TOPIC	HRS	MUST KNOW	GOOD TO KNOW	NICE TO KNOW
1	Introduction to Psychiatry and psychiatric disorders	2	Concepts of organic vs functional, psychotic vs neurotic, Classification of psychiatric disorders overview	Sub classifications	
2	Psychiatric interviewing	2	Methods of interviewing	Principles of interviewing	Techniques used
3	History taking in Psychiatry	2	Format & Sequence of history taking	Personality assessment	
4	Mental status examination	2	Format & sequence	Phenomenology	
5	Doctor patient relationship	2	Principles & ethics	Rapport establishment	

6	Communication skills	2	Methods of communication		
7	Case presentations Schizophrenia Mania & Bipolar disorder Depression Alcohol & or substance use /dependence Anxiety disorder Child psychiatry	12			
8	ECT demonstration	2	Indications & procedure	Pre ECT work up Post ECT Management	
9	Psychometric assessments	4	Various tests for intelligence, personality Demonstration Indications	Reporting of results of testing	
10	Psychopharmacology	3	Antipsychotics Antidepressants Mood stabilizers		

			Benzodiazepines Indications		
11	Assessment at term end	3	Multiple choice questions and short viva		

CLINICAL POSTING 5TH SEMESTER TIMETABLE

Sr. no	TOPIC
1	Introduction to Psychiatry and psychiatric disorders
2	Psychiatric interviewing
3	History taking in Psychiatry
4	Mental status examination
5	Patient doctor relationship
6	Communication skills
7	Case presentation Schizophrenia
8	Case presentation Bipolar disorders
9	Case presentation substance use disorders
10	Case presentation depressive disorder
11	Case presentation anxiety disorder
12	Case presentation Child Psychiatry
13	ECT demonstration and psychopharmacology
14	Psychometric assessment demonstration
15	Term ending examination

ASSESSMENT

TERM ENDING EXAMINATION 20 MARKS- 10 MARKS MCQ S AND 10 MARKS VIVA

SUGGESTED READING-

- A short textbook of Psychiatry- Niraj Ahuja (Main textbook)
- Shorter Oxford Textbook of Psychiatry (Reference book)

BHARATI VIDYAPEETH UNIVERSITY MEDICAL COLLEGE, PUNE

DEPARTMENT OF PULMONARY MEDICINE

REVISION OF CURRICULUM 2016

GOAL

The aim of teaching the undergraduate student in Tuberculosis and Chest Diseases is to impart such knowledge and skills that may enable him/her to diagnose and manage common ailments affecting the chest with the special emphasis on management and prevention of Tuberculosis and especially National Tuberculosis control programme.

OBJECTIVES

(a) KNOWLEDGE

At the end of the course of Tuberculosis and Chest diseases, the student shall be able to:

- 1) Demonstrate sound knowledge of common chest diseases, their clinical manifestations, including emergent situations and of investigative procedures to confirm their diagnosis
- 2) Demonstrate comprehensive knowledge of various modes of therapy used in treatment of respiratory diseases
- 3) Describe the mode of action of commonly used drugs, their doses, side-effects/toxicity, indications and contra-indications and interactions.
- 4) Describe commonly used modes of management including medical and surgical procedures available for treatment of various diseases and to offer a comprehensive plan of management inclusive of National Tuberculosis Control Programme.

(b) SKILLS

At the end of the course, the student shall be able to:

- 1) Interview the patient, elicit relevant and correct information and describe the history in chronological order;
- 2) Conduct clinical examination, elicit and interpret clinical findings and diagnose common respiratory disorders and emergencies;
- 3) Perform simple, routine investigative and office procedures required for making the bed side diagnosis, especially sputum collection and examination for etiologic organisms especially Acid Fast Bacilli (AFB), interpretation of the chest x-rays and respiratory function tests;
- 4) Interpret and manage various blood gases and PH abnormalities in various respiratory diseases.
- 5) Manage common diseases recognizing need for referral for specialized care, in case of inappropriateness of therapeutic response;

(c) COMMUNICATION

(c) INTEGRATION

The broad goal of effective teaching can be obtained through integration with departments of Medicine, Surgery, Microbiology, Pathology, Pharmacology and Preventive and Social Medicine

COMPETENCIES

The student is expected to:

Assist in the performance of common procedures, like laryngoscopic examination, pleural aspiration, respiratory physiotherapy, endotracheal intubation and pneumo-thoracic drainage/aspiration

IV) TEACHING SCHEDULE

Theory

Total teaching - 54 hours

Didactic Lectures - 18 hours

Practical -36 hours

Theory topics

Topics

1. Applied Anatomy of Respiratory system
2. Bronchiectasis.
3. Lung malignancies.
4. Mediastinum & its disorders.
5. Pleural malignancies.
6. Occupational Lung Disease
7. Air pollution
8. Respiratory emergencies.
9. TB- Epidemiology
10. TB-Pathogenesis and Pathology
11. TB-Clinical Features
12. TB- Investigations & Diagnosis
13. TB- ATT pharmacology and schedules of drug therapy
14. TB-DOTS
15. TB-Resistant tuberculosis
16. TB- DOTS Plus/Treatment of resistant TB
17. TB-Extra pulmonary TB (Pleural effusion etc)
18. TB-TB & HIV

Duration of each lecture ----- 1 hour

Term in which to be covered---8th SEMESTER

SLOs

Details of lecture topics

Sr No	Topic	Subtopic	SLOs
1	Applied anatomy R.S.		Describe surface anatomy Describe radiological anatomy
2	Bronchiectasis		1) Define bronchiectasis 2) Classify bronchiectasis 3) Describe investigations 4) Discuss surgical & medical management
3	Bronchogenic carcinoma & other malignancies with Mediastinal obstruction		1) Classify Ca lung 2) Describe epidemiology, pathology, clinical features and staging 3) Describe investigations & treatment. 4) Describe SVC obstruction
4	Mediastinum & its disorders		1. Describe anatomy of mediastinum 2. Classification of mediastinal tumors 3. C.F 4. Investigations 5. Treatment
5	Pleural Malignancies		1) Describe pathology, clinical features and staging 2) Describe investigations & treatment.
6	Occupational Lung Disease		Types Discuss Pathogenesis Discuss Investigations, Treatment
7	Air pollution		1) Indoor and outdoor air pollution 2) Respiratory problems 3) Air quality monitoring
8	Respiratory emergencies		C.F. & treatment of tension pneumothorax C.F. & treatment of massive hemoptysis
9	TB	Epidemiology	1) Extent of TB problem in the National and Global context, 2) Discuss incidence, prevalence and mortality. 3) Define --Annual Risk of Tuberculosis Infection (ARTI) 4) Socio-economic impact of TB
10	TB	Pathogenesis and pathology Role of host related factors.	Source of infection and exposure Primary Infection Post-primary TB Risk of infection Risk of developing disease
11	TB	Clinical features of pulmonary	Define pulmonary TB suspect Importance of properly identifying TB

		tuberculosis	suspects Enumerate symptoms Discuss signs
12	TB	Investigations\diagnosis	1) Sputum smear microscopy 2) Role of radiological investigations 3) Sputum culture and DST for diagnosis of Drug Resistant TB 4) Newer rapid diagnostic tools for detection of MDR TB 5) Newer tools under evaluation for diagnosis of MDR/XDR TB 6) Diagnostic Algorithm of Pulmonary TB
13	TB	Anti-tuberculous drugs -Pharmacology & schedules of drug therapy	1) Goal and Objectives of treatment 2) Scientific basis of treatment 3) Groups of antitubercular drugs 4) Write dose & regimens, 5) Enumerate adverse reactions to drugs 6) Treatment of ADR
14	TB	DOTS	Define DOTs Evolution of the Revised National Tuberculosis Control Programme (RNTCP) and its objectives, the DOTS Strategy and the STOP TB Strategy. 2) Write categories 3) Classify patient into appropriate category
15	TB	Resistant tuberculosis	1) Development of drug-resistant TB. 2) Risk factors\causes 3) Identification of DR-TB suspects 4) Diagnosis of DR-TB 5) Prevention of DR-TB
16	TB	DOTS PLUS \Treatment of resistant TB	Classes of anti-TB drugs Designing and administering DR regimen Pre-treatment evaluation Regimen—Cat IV and V Monitoring
17	TB	Extra - Pulmonary tuberculosis Pleural Effusion Others.	1) Enumerate types of extrapulmonary TB 2) Discuss pathogenesis of extrapulmonary TB, investigations 3) Diagnostic algorithm 4) Treatment
18	TB	TB & HIV	Epidemiology Impact of HIV on TB Impact of TB on HIV Features of P\EP TB in HIV Importance of intensified TB case finding Diagnosis of TB in HIV positive patients Treatment

CLINICAL TRAINING PROGRAMME

Practical/clinical Competencies to be attained are:

The clinical training programme will be conducted in 7th semester

Term	No of weeks
7 th semester	2

Each clinic/practical (Strike out as necessary) will be a 3 hours session

Structured programme will be as under:

Day	Topic	Domains	SLOs	Duration
1	Approach to pt. with respiratory symptoms\ History Taking	Knowledge [Cognitive]	1) To state & define respiratory symptoms 2) To name common conditions causing above symptoms	3 hr
		Analysis/Application [Cognitive] & Valuing/Responding [Affective]	To elicit past, present, personal & social history relevant to pulmonary medicine	
2	R.S. Clinical Examination	Knowledge [Cognitive] & Imitation [Psychomotor skills]	Demonstrate important signs on inspection, palpation, percussion and auscultation as relevant to pulmonary medicine	3 hrs
3	Pumonary function test--demo	Knowledge [Cognitive]	To identify restrictive & obstructive airway disorders	90 min
	For practice of history taking and clinical examination in ward/OPD			90 min
4	ABG blood gas Analysis and Resp. alkalosis & Acidosis	Knowledge [Cognitive]	1) To distinguish between normal & abnormal ABG 2) To interpret abnormal ABG	90 min
	For practice of history taking and clinical examination in ward/OPD			90 min
5	DOTs----- Interaction with MO RNTCP, health worker	Knowledge [Cognitive]	1) Define DOTs & recall categories 2) Describe side effects 3) Classify pt. into categories	90 min
	For practice of history taking and clinical examination in ward/OPD			90 min
6	DOTS PLUS Interaction with MO RNTCP, health worker	Knowledge [Cognitive]	1) Define MDR & XDR 2) Define MDR suspect 3) Describe cat IV regimen 4) Monitoring of pt. on cat IV	90 min
	For practice of history taking , clinical examination in ward/OPD			90 min
7	CXR	Knowledge [Cognitive]	1) Distinguish between normal & abnormal CXR	90 min

			2) Identify abnormal CXR with reasons	
	Interpretation of CXR in OPD and wards			90 min
8	Pulmonary TB Bed side clinic	Knowledge [Cognitive] Analysis/Application [Cognitive] Valuing/Responding [Affective] Imitation [Psychomotor skills]	1) History Taking \provisional diagnosis\D.D in pul TB pt 2) Clinical Examination in pul TB pt 3) Precautions to prevent spread of air borne infection	3 hrs
9	Pleural effusion- Pleural tapping-Demo	Knowledge [Cognitive] Analysis/Application [Cognitive] Valuing/Responding [Affective] Imitation [Psychomotor skills]	1) History Taking \provisional diagnosis\D.D in Pleural condition 2) Clinical Examination in pleural effusion 3) Pleural tapping -Indications, contraindications Procedure complications	3 hrs
10	Pneumothorax/empyema-ICD	Knowledge [Cognitive] Analysis/Application [Cognitive] Valuing/Responding [Affective] Imitation [Psychomotor skills]	1) History Taking \provisional diagnosis\D.D in Pleural conditions 2) Clinical Examination in pneumothorax/empyema 3) ICD -Indications, contraindications procedure complication	3 hrs
11	Smoking cessation	Knowledge [Cognitive]	1) Enumerate effects of smoking 2) Discuss different modalities of smoking cessation	1 hr
	For practice of history taking , clinical examination, CXR\PFT\ABG interpretation----clinico-radiological and clinicopathological correlation in ward\OPD			2 hr
12	Term End Exam			3 hrs

IV)ASSESSMENT

Attendance

Attendance requirements are 75% attendance in theory 8th term and 75% in clinics in 7th term

Internal Assessment:

The internal assessment will be done in 7th term and will contribute to the final internal assessment done by Medicine Department (20 Marks).

Examinations shall be conducted at the end of clinical posting in 7th term.

UNIVERSITY EXAMINATIONS

Part of Medicine Theory & Practical Exam

Suggested Reading

1. Hutchinson"s Clinical Methods by Hunter and Bomford,
2. The Principles and practise of Medicine - Sir Stanley Davidson

Reference books

3. Principles of internal Medicine - Harrison.
4. API Text Book of Medicine.

Useful E-links-----1) www.tbcindia.org

Department Of Radiodiagnosis
Bharati Vidyapeeth University
Medical College, Pune
Syllabus and Scheme of Examination
MBBS 2016

Goals

- Goal of medical graduate course is aligned with the National Goal and that of the Bharati Vidyapeeth Deemed University Goal. It focuses on “ **Pursuit of excellence in education and optimum patient care through affordable imaging**”
- The undergraduate medical education programme is designed with a **goal** to create an
“**Indian Medical Graduate**” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively **as a physician of first contact of the community** while being globally relevant.

In order to fulfil this goal, the IMG must be able to function in the following **ROLES** appropriately and effectively and these are viz .a Clinician , a Leader and member of the health care team and system , a Communicator , a Professional and a Lifelong learner

Objectives of the Course

The learner must achieve the following objectives by the time he/she completes the course.

The objectives are defined under following domains

- i. Knowledge
- ii. Skills
- iii. Communication Abilities, Human Values, Ethical Practice

i. Knowledge-

The Learner should --

- 1 Understand the basics of x ray production , ultrasound generation , MRI multislice CT and molecular imaging

- 2 They should have a basic knowledge of radiation protection
- 3 Be familiar with cross sectional anatomy along with the two dimensional appearances on x-rays and the physiological processes of the human body.
- 4 Be familiar with the indications for each modality and recent advances.
- 5 Be able to advise the patient regarding preparation for the procedures.

ii. Skills -

The Learner should

1. Interpret radiographs of chest, abdomen and bones.
2. Be familiar with FAST.

iii. Communication Abilities, Human Values, Ethical Practice

The learner should

1. Be able to communicate with the patient regarding the radiological findings and appropriate management.
2. Be able to communicate with the patient regarding the radiation hazards, contraindications and precautions of iodinated contrast, MRI.
3. Be able to convey the importance of the PCPNDT act

iv. Integration -

Integration can be incorporated at various levels by -

- a) Interdepartmental seminars with Pediatric Neurology (weekly), ENT, Ophthalmology, Surgery department
- c) With the surgery and medicine departments for tutorials on x-rays and related procedures

Competency

The undergraduate student must demonstrate judicious use of the imaging modalities available to enable efficient, appropriate and timely management of the patient.

Teaching schedule -

Clinical post -2 weeks - 9.00 am – 12.00 noon - 36 hours

List Of the topics

1. Introduction to radiology
2. X-ray production ,properties , biological effects and radiation protection
3. Radiology of musculoskeletal trauma of spine, upper and lower limbs
4. Tumors and metabolic diseases of bone
5. Interpretation of x-ray chest
6. Radiology of diseases respiratory system
7. Radiology of diseases of cardiovascular system
8. Investigation of and Radiology of diseases of gastrointestinal system
9. Investigation of and diseases of urogenital system
10. Ultrasound and application in obstetrics ,gynecology
11. Ultrasound and application in abdomen, small parts , Colour Doppler and broad applications
12. Radiology of head injury and polytrauma
13. Radiology of diseases of central nervous system
14. Radiology of orbit, ear nose throat and paranasal sinuses, Mammography and dental radiology
15. CT and PET CT
16. Crosssectional abdominal and chest imaging
17. MR Basics and overview
18. Introduction to interventional radiology

Specific Learning objectives –

The clinical sessions are conducted in the form of tutorials, demonstrations and Hands on training.

Sr No	Topic	Sub topic	SLOs
1	X-ray production	Production, Properties, Uses, interaction with matter Hazards Radiation protection	-The student is to be conversant with -Electromagnetic spectrum -Cathode ,anode of x-ray tube and X-ray production -Physical properties of x-rays and their effect on X-ray film and body -interaction of X-rays with matter -Compton scatter and photoelectric effect - Effects- stochastic and non stochastic effects - Dose and units -Radiation protection principles Time ,distance ,shielding -Personnel monitoring and TLD badge
2	Chest x-ray	Normal Radiographic anatomy Radiography Diseases of the diaphragm Diseases of the pleura	-The student is to be able to comprehend Radiographic anatomy of bones of thoracic cavity, soft tissue, heart, lungs, mediastinum -Radiography of chest , PAView, lateral and lordotic views, - Patient, x-ray tube and film position, radiographic factors -Radiographic appearances of Eventration of diaphragm, trauma, diaphragmatic hernias -Radiographic appearances of pleural effusion, loculated pleural effusion, empyema,pneumothorax,and hydropneumothorax
3	Respiratory system	Diseases of lung Collapse and consolidation Infections Obstructive and interstitial lung	-The student should be able to interpret on a X-ray chest -Patterns of collapse and consolidation in lobes of both lungs -Lung infections and lung abscess -Appearances of obstructive lung disease and interstitial lung disease

		disease Tumors	- Appearance of tumors of lung Central and peripheral metastatic
	Respiratory system	Diseases of lung pediatric Miscellaneous	-The student must be conversant with X-ray features of -Diaphragmatic hernias in children -Infection patterns, respiratory distress syndrome -Airway obstruction -Congenital lung diseases Macleod's syndrome Swyer James syndrome Immobile cilia syndrome Cystic adenomatoid lung Pulmonary sequestration -Mediastinum radiographic anatomy - X-ray appearances of tumors of anterior middle and posterior mediastinum -Pulmonary thromboembolism -Chest tubes
4.	Cardiovascular system	Congenital heart disease Acquired heart disease	- Student must be able to recapitulate the embryology of the heart -X-ray radiographic anatomy of heart -Cardiothoracic ratio -Chamber enlargement -X-ray appearances of Cyanotic heart disease, acyanotic heart disease - Able to interpret the various patterns of Valvular heart disease relating to mitral and aortic valves -Appearances of Ischemic heart disease Pericardial disease effusion and constrictive pericarditis
5.	Musculoskeletal system	Trauma Upper Limb Clavicle scapula shoulder	The student must be able to: - Define Fracture and Dislocation -Types, displacement, healing - Radiographic anatomy of clavicle scapula shoulder -Interpret x-ray appearances of fractures of clavicle, scapula anterior and posterior dislocation of shoulder

		Arm	-Radiographic anatomy of humerus and elbow -Interpret fractures in respect to upper end shaft and lower end of humerus -Dislocations of elbow
		Forearm and wrist	-Radiographic anatomy of radius , ulna and wrist -Interpret fractures of the radius and ulna Monteggia , Galeazzi, Colles, Smiths fractures - Dislocations at wrist - Radiographic anatomy of hand -Fractures at wrist Bennett's and boxers fracture
		Hand	
	Musculoskeletal system	Spine	-Student to recollect the anatomy of the cervical, dorsal, lumbosacral spine -Radiographic views and specific precautions of immobilization -spinal columns and stability -Fractures of cervical, dorsal lumbosacral spine on radiographs and their interpretation -Radiographic anatomy of the hip bone -Stable and unstable fractures of the pelvis -Radiographic anatomy of the hip joint and femur -Interpret on X-ray the types of fractures at acetabulum, , neck and shaft of femur - Identify and interpret dislocation at the hip
		Pelvis hip and thigh	
		Knee and leg	-Radiographic anatomy of the knee , tibia and fibula -Interpret fractures of the patella, tibia and fibula - Radiographic anatomy of the ankle , tarsal bones, metatarsals and phalanges - Fractures of the ankle, tarsal bones metatarsals and phalanges
		Ankle and foot	Ballerina and March fractures
	Musculoskeletal system	Tumors	-Student to know the general interpretation of X-rays of bone tumors with respect to - Location in the bone , -Age at presentation, -Appearances of benign verses malignant lesions , - Rate of growth, -Zone of transition and margins
		Benign tumors	-Interpretation of benign tumors -From Chondroid origin - osteochondroma - enchondroma

		Malignant bone tumors Primary Secondary Metabolic bone disease in children Rickets and scurvy Osteomyelitis Avascular necrosis	-From Osteoid origin osteoid osteoma osteoblastoma -Miscellaneous Aneurysmal bone cyst Osteoclastoma -Appearances of malignant tumors from Chondroid origin Chondrosarcoma -Osteoid origin Osteosarcoma -Miscellaneous Osteoclastoma Ewings sarcoma - Appearances of Metastatic bone disease -Common sites of primary -Sclerotic ,lytic and mixed -Student should know x-ray features of rickets -Changes at the growth plate generalized features from skull to toe as well as secondary features of impaired weight bearing -Appearances of Scurvy changes at metaphysis, epiphysis and secondary changes -Student should know x-ray features of site of occurrence ,periosteal elevation , bone thickening -Appearance of sequestrum and involucrum and cloaca -Student should know x-ray features of avascular necrosis increased density, irregularity and collapse Appearances and causes of AVN at head of femur
6.	Gastrointestinal tract	Acute Abdomen	-Student must be conversant with -Definition -Radiographic techniques supine ,erect and chest erect , horizontal ray abdominal radiograph in left

			lat decubitus -Clinical conditions that cause and mimic acute abdomen -X-ray appearances of - pneumoperitoneum - Stomach dilation - small gut and large gut dilation - Air fluid levels and their significance -Radio opaque shadows in the abdomen -Stomach and sigmoid volvulus -Role of ultrasound CT and MRI in acute abdomen
	Gastrointestinal tract	Investigative Procedures in Gastrointestinal tract	-Student should know the applied anatomy of the gastrointestinal tract and also - The indications, contraindications, preparation of , broad technique and post procedural instructions for each of the following radiological investigations : - Barium swallow - Barium meal - Barium enema - Small bowel enema - Ultrasound - CT and PET CT - MRI - GIT Angiography - Scintigraphy - Fistulogram and sinogram - Sialogram
7.	Genitourinary Tract	Investigative Procedures for the genitourinary system	Student should know the applied anatomy of the genito urinary tract and know the indications contraindications preparation technique and post procedural instructions for the following investigations: - Intravenous urography - Micturating cystourethrogram - Cystogram - Retrograde urethrogram - Hysterosalpingogram - Renal angiogram - Ultrasound of KUB and pelvis - Ultrasound of scrotum - CT Abdomen - CTUrography - MR Urography - Radionucleotide scan

8.	Ultrasound	Radiology of diseases of genitourinary tract	-Student should be able to interpret -Congenital anomalies of the kidney ureter bladder uterus ovaries and testis -Infections in kidney ureter bladder uterus fallopian tube ovaries and testis -Tumors of the kidney, bladder , uterus ,ovaries and testis
		Basic physics	-Student to be versed with the basic physics of ultrasound -Piezoelectric crystals and generation of ultrasound wave -Transmission through body tissues and generation of the ultrasound image -Doppler effect and application of the Doppler principle in colour Doppler and imaging of flow in body tissues
		Obstetric ultrasound	-The indications of ultrasound -In the first trimester - Gestational sac intrauterine or extra uterine , fetal pole ,yolk sac - Single and multiple pregnancies - Fetal heart activity , decidual reaction -In the second trimester - CRL of fetus, nuchal translucency - Early organ systems - Amnion chorion placenta - fetal anomalies -In the third trimester - Growth of fetus - Measurement of BPD, FL OC AC - Organ systems - Placenta amniotic fluid
		Abdominal ultrasound	-Student to be able to recall the ultrasound -- - Appearances of the liver gallbladder Kidneys spleen pancreas urinary bladder retroperitoneum, aorta IVC mesenteric vessels and lymphnodes, genitalia -Identify gross lesions involving the above organs
		Ultrasound of Small parts	-Student should be able to recall -type of probe transducer -ultrasound appearances of the orbit,

		Colour Doppler	Salivary glands, thyroid, lymph nodes and scrotum -Identify cataract retinal detachment, vitreous degeneration -Salivary gland calculi and tumors - Goiter and thyroid tumors -Testicular torsion and tumors -Student should know the basic physics of Colour flow, Doppler effect and equation and spectrum of normal flow in arteries and veins -Colour flow appearances in arterial stenosis and thrombosis in carotids ,renal and limb vessels -Colour flow appearances of deep vein thrombosis and varicose veins
9.	CT AND PET	CT	-Student should know brief history , -Principles,generastions of ct scanners , -CT tube ,gantry and detectors -image ,contrast and radiation dose - Role of CT in systemic evaluation of lesions
		PET	-Student should know the basic principles of emission tomography - Radiopharmaceuticals used in PET -Role of PET CT in oncology
10.	Magnetic Resonance Imaging Overview		- Student should know the Basic physics of MRI – spinning proton ,precession -Generation of T1 and T2 weighted signals - Types of magnets and their applications -Types of sequences and their applications -Broad knowledge of the MR appearances of lesions in brain, spine abdomen and musculoskeletal systems
11.	Central Nervous System	Tumours and infection	-Student must know the radiographic and imaging techniques in investigation of lesions of the brain and spine -Well versed with the crossectional,coronal and sagittal anatomy of brain and spine - Contrast administration in CT and MRI -Appearances of infective lesions on CT and MRI on plain study and after contrast -Appearances of tumors on plain study and after

			contrast on CT and MRI
		Head injury	-Student must know broad classification of primary and secondary brain injury -Role of radiography , CT MRI in trauma -Imaging appearances of primary head injury - Skull fracture,scalp haematoma - Extra cerebral hemorrhage - Epidural,subdural,subarachnoid hemorrhage - Intraaxial lesions, - Diffuse axonal injury,cortical contusion brainstem injuryintraventricular hemorrhage - Secondary lesions - Cerebral herniations,ischemia,infarction,cerebral oedma,hypoxic injury
		Poly trauma	-Role of plain x-rays -Role of fast ultrasound -Role of CT and MRI
12.	Crosssectional imaging overview	Cross-sectional imaging of head and neck Thorax Abdomen	- Student should know the broad crosssectional anatomy of the head and neck, thorax , abdomen and extremities - Role of CT and MRI -Overview of disease spectrum in contained organs and systems
13.	Eye, ENT, Dental Mammography	Eye ENT Dental Mammography	-Student should know crosssectional anatomy of the orbit -Role of ultrasound, CT MRI in diseases of eye -Student should know crosssectional anatomy of the Ear, Nose paranasal sinuses Pharynx and Larynx -Role of radiographs,CT and MRI in diseases conditions -Role of radiography in evaluation of diseases of the teeth -Maxillofacial injuries and role of imaging -Student should know role of mammography in breast disease -Birads classification

14	Interventional radiology	Biopsy procedures Drainage procedures Interventions arterial vascular system Non vascular interventions	-Student must have knowledge of biopsy procedures , -Choice of modality for biopsy -Pre procedural .intra procedural and post procedure care -Selection of imaging modality -Preprocedural , procedural and post procedural care -Student must know about DSA Suite - Pre procedural procedural and post procedural care of patient - Overview of arterial and venous interventions carried out - must be conversant with an overview of interventions in the hepatobiliary, urogenital respiratory and musculoskeletal systems



Department Of Surgery
Bharati Vidyapeeth University
Medical College, Pune
Syllabus and Scheme of Examination
MBBS



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Department Of Surgery
Bharati Vidyapeeth University
Medical College, Pune
Syllabus and Scheme of Examination
MBBS

Goals

- Goal of medical graduate course is aligned with National Goal and Bharati Vidyapeeth Deemed University Goal as ‘Efficient first contact physician’ and ‘Social transformation through Dynamic education’ respectively.
- The undergraduate medical education programme is designed with a **goal** to create an **“Indian Medical Graduate” (IMG)** possessing requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively **as a physician of first contact of the community** while being globally relevant.

In order to fulfil this goal, the IMG must be able to function in the following **ROLES**

Appropriately and effectively and these are viz. a Clinician, a Leader and member of the health care team and system, a Communicator, a Professional and a Lifelong learner

Objectives of the Course

The learner must achieve the following objectives by the time he/she completes the course. The objectives are defined under following domains

- i. Knowledge
- ii. Skills
- iii. Communication Abilities, Human Values, Ethical Practice

i. **Knowledge-**

The Learner should --

- 1 Understand the Basic Sciences relevant to General Surgery.
- 2 Be able to describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems and emergencies of all age groups.
- 3 Be able to describe indications and methods for fluid and electrolyte replacement therapy and blood and blood product transfusions.
- 4 Be able to describe common malignancies and their management as well as prevention and screening program for early detection.
- 5 Be able to identify the need of surgery and timely reference to the center and specialist for further management.

- 6 Be able to identify the area of interest and field for specialization for postgraduate course
- 7 Be able to update himself/herself by self-study, CMEs, Conferences.

ii. Skills -

The Learner should

1. Be able to take proper clinical history, conduct thorough clinical examination of the patient, perform essential diagnostic procedures and advice relevant tests and interpret them to come to a reasonable diagnosis.
2. Be able to provide basic and advanced life support (BLS & ATLS) in emergency conditions.
3. Be able to plan & manage acute surgical emergencies and trauma under supervision
4. Be able to manage wounds thoroughly including burns.
5. Be able to perform minor operative procedures under supervision.

Iii. Communication Abilities, Human Values, Ethical Practice

The learner should

1. Adopt ethical principles in all aspects of surgical practice.
Foster professional honesty and integrity.
Deliver surgical care to needy irrespective of social status, cast, creed or religion.
2. Develop communication skills
To break bad news to the patient, relatives.
To develop congenial working atmosphere.
3. Accept humbly limitations of his/her knowledge and skill and should not hesitate to ask for help from colleagues when needed.
4. Respect patient's rights to information and to seek a second opinion.

iv. Integration –

Integration can be incorporated at various levels by -

- a) Aligning our curriculum with the other related subjects taught at the same time e.g. Inflammation and wound healing with pathology department
- b) Interdepartmental seminars
- c) With the radiology department for tutorials on x-rays and related procedures

Competencies

The undergraduate student must demonstrate:

1. Understanding of the structural and functional basis, principles of diagnosis and management of common Surgical problems in adults and children,
2. Ability to choose, calculate and administer appropriately intravenous fluids electrolytes, blood and blood Products based on the clinical condition,
3. Ability to apply the principles of asepsis, sterilization, disinfection, rational use of prophylaxis, therapeutic Utilities of antibiotics and universal precautions in surgical practice,
4. Knowledge of common malignancies in India and their prevention, early detection and therapy,
5. Ability to perform common diagnostic and surgical procedures at the primary care level,
6. Ability to recognize, resuscitates, stabilize and provide basic life support patients following trauma,
7. Ability to administer informed consent and counsel patient prior to surgical procedures,
8. Commitment to advancement of quality and patient safety in surgical practice.

Teaching and Learning Activities

Within the framework of MCI all teaching learning sessions are planned. A list of teaching and learning activities designed to facilitate students acquire essential knowledge and skills outlined is given below.

Total Teaching Hours – 768

Theory Hours (Lectures + Tutorials) - 300

Clinical Posting Hours- 468

I Lectures

Didactic lectures start from 3rd semester

III	Semester	Once a week lecture – 24 hours
IV	Semester	Once a week lecture – 23 hours
VI	Semester	Twice a week lect. – 46 hours
VII	Semester	Twice a week lect. – 48 hours
VIII	Semester	Twice a week lect. – 23 hours
IX	Semester	Once a wk lecture. – 24 hours

Didactic lectures are focused on ‘must know’ knowledge of that particular organ/system and exposure to ‘desirable to know’ & ‘nice to know’ topics.

Aim of didactic lectures is to facilitate learning.

II Clinical posting

III	Semester	1 st post.	6 wks - 72 hours
IV	Semester	2 nd post	4 wks 24 hours
V	Semester	3 rd post	4 wks - 24 hours
VI	Semester	4 th post	4 wks - 72 hours
VIII	Semester	5 th post	4 wks - 72 hours
IX	Semester	6 th post	4 wks- 72 hours

III Tutorials

Tutorial classes start from VI semester. Each class is once a week & for two hours.

VI	semester	once a week –23 hours
VIII	semester	once a week – 23 hours
IX	semester	once a week – 48 hours

List of topics to be covered and the learning objectives in each semester is described later in the document. The topics covered in tutorial are more of clinical application like reading X-ray, performing procedures etc. in view of graduate MBBS doctor is expected to perform.

Details of lecture topics

IIIrd SEMESTER

Topic	Content
Introduction	Subject content, T-L activities, Assessment, Recommended books
Wounds I	Inflammation, Definition, Types, Classification, debridement
Wounds II	Wound healing, physiology, stages
Wounds III	factors affecting wound healing, Keloid , hypertrophic scar,
Sinus, Cyst, Tumors, Benign & Malignant Ulcer	Sinus, Cyst, Tumors, Benign & Malignant
	Definition, types, parts of ulcer.
Hernia General I	Inguinal hernia
Hernia General II	Femoral hernia, Para-umbilical hernia, Epigastric hernia
Hernia General III	Incisional hernia
Hydrocele	Hydrocele, Varicocele, Epididymal cyst, Spermatocoele – I
Acute Infection I	Define –toxemia, bacteremia, septicaemia
Acute Infection II	furuncle, carbuncle, erysipelas, Gas gangrene, Necrotising Fascitis
Chronic Infection I	Tetanus, Syphilis
Chronic Infection II	Tuberculosis, Leprosy, Actinomycosis
Neck Swelling I	Surgical anatomy- Triangles of neck, Deep cervical fascia, cervical lymph nodes
Neck Swelling II	Branchial cyst and sinus, Cystic hygroma, Carotid body tumor, T.B lymphadenitis
Hand infection I	Surgical anatomy Palmer spaces
Hand infection II	Clinical features and management of specific types

IVth SEMESTER

Topic	Content
Lymphatic's I	Surgical anatomy, Embryology and physiology.
Lymphatic's II	Lymphangitis, Lymphoedema.
Lymphatic's III	Lymphoma
Disease of Veins	Surgical anatomy of venous sys of lower limb, Aetiopathology of varicose veins
Disease of Veins	Clinical features, investigations and management
Disease of Arteries	s/s of acute and chronic ischemia, Gangrene
Disease of Arteries	Clinical features, Investigation and management of PVD
Blood & Blood Products	Blood groups and blood components
Blood Transfusion	Indication, Transfusion reactions
Trauma I	General, definitions, polytrauma, Triage, ABCD approach trauma management
Trauma II	Disaster – Definition, Disaster preparedness.
Trauma III	Blast injuries
Burns I	Anatomy of skin, Burns -Definition, types , Classification
Burns II	Pathophysiology, Clinical assessment
Burns III	Management
Shock I	Definition and types of shock
Shock II	Pathophysiology of individual types

Shock III	clinical features and management
Shock IV	electrolyte
Shock V	electrolyte imbalance
Surgical Nutrition I	– Nutrition in normal individual
Surgical Nutrition I	– Enteral nutrition, Parenteral Hyper alimentation ,TPN,

VIth SEMESTER

Topic	Content
Principles Of Oncology I	Introduction , definition , pathophysiology of cancer
Principles Of Oncology II	Multimodal approach to treatment, Palliation
Skin I	Anatomy
Skin II	Benign lesion, Squamous cell, Basal cell,
Skin III	Melanoma
Salivary Glands I	Surgical anatomy- Parotid, Sub- mandibular salivary gland
Salivary Glands II	Inflammatory conditions, benign tumors
Salivary Glands III	Malignancy
Oral Cavity I	Surgical anatomy
Oral Cavity II	Apthous ulcers , premalignant lesions of oral cavity
Oral Cavity III	Aetiopathology , Clinical features, staging of oral ca
Oral Cavity IV	Ca tongue, Management of all oral ca.
Thyroid I	Surgical Anatomy, Physiology
Thyroid II	Define goiter, types, causes, Thyroiditis
Thyroid III	Hypo and hyperthyroidism
Thyroid IV	Throid malignancy
Breast I	Surgical anatomy, development of breast
Breast II	Benign Breast pathologies
Breast III	Aetiopathology, Risk factors, Clinical features of Ca breast
Breast IV	Investigations , Management of Ca breast
AC Abdomen I	definition ,causes , investigations
AC Abdomen II	differential diagnosis and management approach
AC Abdomen III	peritonitis
AC Abdomen I	Blunt Trauma abdomen—mechanism
AC Abdomen II	Blunt Trauma abdomen-solid organ trauma

VIIth SEMESTER

Topic	Content
Intestine. Obstruction II	classification , pathophysiology
Intestinal. Obstruction II	clinical features
Intestinal. Obstruction III	Investigations , Management
Abdominal Koch I	Aetiopathology, sites of abdominal Kochs.
Abdominal Koch II	Clinical features, Investigation and management
Oesophagus I	Surgical anatomy, benign lesions,Tracheoesophageal fistula ,Achalasia
Oesophagus II	GERD , hiatus hernia
Oesophagus III	ca esophagus
Stomach I	Surgical anatomy,, CHPS

Stomach II	APD
Stomach III	Aetiopathology, Risk factors, Clinical features
Stomach IV	Investigation and management CA Stomach
Appendix I	Surgical anatomy ,etiopathogenesis of appendicitis
Appendix II	types of appendicitis, clinical features
Appendix III	investigation and management
Colon I	Surgical anatomy, Hirschsprung's disease
Colon II	Crohn's and ulcerative colitis
Colon III	etiopathogenesis of colonic carcinoma, clinical features, investigation and management of ca
Colon IV	Approach to a case of Lower G I bleed.
Rectum and Anal canal I	Surgical anatomy
Rectum and Anal canal II	Hemorrhoids, Anal fissure, Fistula in ano
Rectum and Anal canal III	etiopathogenesis ,clinical features of Carcinoma
Rectum and Anal canal IV	Investigations and management of Carcinoma
Principal & Laparoscopic Surgery	Basics of Laparoscopy
Staplers in Surgery	types and uses

VIIIth SEMESTER

Topic	Content
Liver I	Anatomy, Physiology, histopathology and LFT
Liver II	portal hypertension
Liver III	SOL/Liver Abscess /Hydatid cyst of liver
Liver IV	Malignancy of liver – Aetiopathology , Clinical features, investigations and management
Obstructive Jaundice I	Myths about Obstructive Jaundice
Obstructive Jaundice II	Bilirubin metabolism, Clinical features, investigations and management
Gall bladder I	Surgical anatomy, Physiology of bile, Pathogenesis of gall stone formation, types
Gall bladder II	Clinical features, investigations and management
Pancreas I	Surgical anatomy, Physiology,
Pancreas II	Acute and chronic pancreatitis, complications and management
Pancreas III	Peri-ampullary carcinomas
Spleen I	Surgical anatomy, Physiology, functions
Spleen II	Splenic trauma
Spleen III	Splenomegaly, Splenectomy
Urology Symptomatology I	Renal, and Ureteric colic, Hematuria
Urology Symptomatology II	Acute retention of urine.
Kidney	Surgery. Anatomy of kidney, Ureter and retro-peritoneum
Kidney	Development and Congenital Anomalies of genito-urinary system
Urolithiasis I	Urolithiasis upper tract
Urolithiasis II	Urolithiasis lower tract
Urolithiasis III	Hydronephrosis
Renal Tumours I	
Renal Tumours II	

IXth SEMESTER

Topic	Content
Urinary Bladder I	Basic surgical anatomy, cystitis, Trauma
Urinary Bladder II	Bladder tumors
Prostate I	Surgical anatomy
Prostate II	Benign enlargement of prostate
Prostate III	Ca prostate
Operative Video of Prostate Surgery	
Urethra I	Surgical anatomy, Rupture urethra
Urethra II	MCU, RGU, Urethral stricture
Penis	Surgical anatomy, Priapism, Ca penis
Testis I	Anatomy, Embryology , Undescended testis
Testis II	Torsion, epididymo-orchitis, Epididymal Cysts.
Testis III	Testicular tumors
CVTS I	Surgical anatomy of chest wall , pleural cavity, physiology
CVTS II	Chest injuries
CVTS III	Pleural effusion, lung abscess.
Neuro-surgery I	Surgical Anatomy of cranium and Brain , congenital anomalies
Neurosurgery II	Pathophysiology of Head injury, types
Neurosurgery III	Clinical features, assessment and management of head injury
Neurosurgery IV	Brain abscess, tumours

Details of Tutorials topics

VI	semester	once a week – 23 hours
VIII	semester	once a week – 23 hours
IX	semester	once a week – 48 hours

- UG students will have surgery tutorials in VIth, VIIIth and IXth semester.
- The tutorials will be essentially a small group teaching format.
- The teaching – learning methodology will vary according to the requirement of the topic .
- Opportunity is taken to teach the students in a Module format , which will include Demonstration, videos, information about the instruments required , steps of procedures in relation to the topic , so also the x-rays if any and the surgical pathology specimen where ever relevant.
- Few of the common soft skills and emergency care skills will be taught in tutorials in an Integrated manner, in collaboration Emergency Medicine, Radiology and Forensic medicine department.

VIth Semester

1. Communications Skills
2. Research methodology skills

VIIIth Semester

3. Airway Management
4. BLS

IXth Semester

5. Informed consent
6. Medicolegal aspects of medicine
7. Ethics and professionalism

Sr. No	Name of the module	Content	T-L methodology	Logistics required	No. of sessions
1.	Introduction	Introduction to instruments, Sterilization of instruments	Demonstration Small group discussion	Basic instruments.	1
2.	Urinary catheterization	Procedure video/ demo. Teach about – Procedure, Foley's catheter Xylocaine jelly Urobag	Demonstration Small group discussion	CD , Computer Foley's catheter Xylocaine jelly Urobag	1
3.	Insertion of Nasogastric	Procedure video/ demo. Teach about – Procedure,	Demonstration Small group	CD , Computer Nasogastric tube/	1

	tube	Nasogastric tube/ Levine tube Xylocaine jelly	discussion	Levine tube Xylocaine jelly	
4.	Dressing Trolley	Solutions on dressing trolley – Saline, Betadine, H ₂ O ₂ , EUSOL , Spirit Chittle's forceps Hand hygiene Universal precautions	Demonstration Small group discussion	Dressing Trolley Cheattle's forceps	2
5.	Wound Dressing	Types of wound Various dressing materials	Group discussion	Available dressing materials	1
6.	CLW Suturing	Video/ Demo. Suture materials	Video/ demo Hands on training module	Hands on training models Suture material	2
7.	Venesection	Video/ Demo. Teach about = Procedure, BP handle, Dissecting forceps, Mosquito forceps, artery forceps, 11, 15 no. Surgical blades, needle holder. Infant feeding tube Central venous catheterization	Video/ demo	CD, Computer, Instrument required = BP handle, Dissecting forceps, Mosquito forceps, artery forceps, 11, 15 no. Surgical blades, needle holder. Infant feeding tube, CVP catheters	1
8.	Tracheostomy	Video/ Demo. Teach about = Procedure, Tracheostomy tubes metal and Portex , Cricoid hook, Tracheal dilator, Nelaton's / suction catheter	Video/ demo	CD, Computer, Instrument required = Tracheostomy tubes metal and Portex , Cricoid hook, Tracheal dilator, Nelaton's / suction catheter	1
9.	Supra- pubic cyst ostomy	Video/ Demo. Teach about = Procedure, Trochar and cannula set, Xray – Urethrogram , explain the procedure & indications	Video/ demo	CD, Computer, Instrument required = Trochar and cannula set, Xray – Urethrogram	
10.	Intercostal Drainage	Video/ Demo. Teach about = Procedure,	Video/ demo	CD, Computer,	2

		Pneumothorax types haemo-pneumothorax, Flail chest Malecot's cath., Argyll or ICD tube, Under water seal bag, X- rays - # RIB, Pneumothorax, Flail segment, Post ICD x- rays		Instrument required = Malecot's cath. Argyll or ICD tube, Under water seal bag, X- rays - # RIB, Pneumothorax, Flail segment, Post ICD x- rays	
11.	Surgeries for Hydrocele	Video/ Demo. Teach about = Procedure, Scrotal sac anatomy	Video/ demo	CD, Computer	1
12.	Surgeries for Inguinal Hernia	Video/ Demo. Teach about = Procedure, Surgical anatomy of inguinal canal	Video/ demo	CD, Computer, Chart, Models	2
13.	Incision and Drainage of abscess	Video/ Demo. Teach about = Procedure, Hiltons method, Special abscess drainage principles like Parotid, Breast abscess etc. Instrument- Sinus forceps, Corrugated rubber drain	Video/ demo	CD, Computer, Sinus forceps Corrugated rubber drain	1
14.	Introduction to radio-diagnosis Plain and contrast studies	Demonstration	Demonstration	CD, Computer, X – rays CT Scan	2
15.	Abdominal Incisions, Exploratory Laparotomy	Surgical Anatomy of anterior abdominal wall and principle of exploratory laparotomy Instruments – Tube drains, Romovac	Video, Small group discussion	CD, Computer, Chart	1
16.	Oesophagus	Demonstration Surgical pathology specimen, Barium swallow , Barium meal OGD Scopy	Demonstration Small group discussion	CD, Computer, X – rays, Specimen Chart	2

		Causes and Management of Upper GI bleed			
17.	Stomach	Demonstration Surgical pathology specimen, Barium swallow , Barium meal OGD Scopy	Demonstration Small group discussion	CD, Computer, X – rays, Specimen	2
18.	Appendix	Demonstration Surgical pathology specimen, Appendectomy procedure Related instruments – Straight artery forceps, Babcock forceps, Allis’s forceps	Video Demonstration Small group discussion	CD, Computer, X – rays, Specimen Related instruments – Straight artery forceps, Babcock forceps, Allis’s forceps	1.
19.	Small Intestine	Surgical pathology specimen – Typhoid ulcer, Tuberculous ulcer, Intussusception Meckel’s Diverticulum X- ray – Multiple air fluid levels, Free Gas under diaphragm Instruments – Intestinal clamps, Various abdominal retractors , scissors	Video Demonstration Small group discussion	CD, Computer, X – rays, Specimen Related instruments- Intestinal clamps, Various abdominal retractors, scissors,	3
20.	Gall Bladder	Surgical pathology specimen Bilirubin metabolism, Pathophysiology of gall stone formation and complications Instruments – Mixter.s forceps, Des Jardin’s forceps, T tube ERCP	Small group discussion	Chart, Specimen	2
21	Colon , Rectum and	Surgical pathology specimen -	Video	CD, Computer,	2

	anal canal	Carcinoma colon Carcinoma rectum and anal canal, Polyposis coli, X- ray - Sigmoid volvulus Barium enema Procedure – Colostomy Causes and Management of lower GI bleed	Small group discussion	X – rays Chart, Specimen	
22.	Thyroid	Surgical pathology specimen X – Ray neck Procedure - FNAC. Principles of thyroid surgery	Small group discussion Case based learning	X – rays Chart, Specimen, Kockers clamp	2
23.	Breast	Surgical pathology specimen Tru-cut biopsy Triple assessment Mammography Principles of breast surgery	Small group discussion Case based learning	X – rays Chart, Specimen	2
24	Oral Malignancy	Surgical pathology specimen Surgical anatomy – Triangles of neck, Cervical Lymph nodes, Deep cervical fascia Types and incisions for Neck dissection	Small group discussion Case based learning	Chart, Specimen	2
25	Kidneys	Surgical pathology specimen Polycystic kidney, Hydronephrosis, Renal cell carcinoma Instruments-DJ stent X-Ray- Renal / ureteric / Bladder Calculi IVP Principles of surgery for	Small group discussion Case based learning	Chart, Specimen, X-rays	2

		- Renal / ureteric / Bladder calculi ESWL, PCNL, Endourology			
26	Testis	Surgical pathology specimen of Ca Testis Principles of Surgery	Small group discussion	Specimen	1
27	Penis	Surgical pathology specimen of Ca Penis Pre malignant conditions Procedure- Circumcision Instruments- Mosquito forceps and straight artery forceps	Video / Demonstration Small group discussion	Specimen, CD Computer, Instruments	1
28	Laparoscopic surgery	Principles of Laparoscopic surgery	Demonstration Small group discussion, Hands -on	Lap Trainer	2
29.	Anaesthetic drugs and Crash cart	Procedure – GA, Regional anaesthesia Discuss common drugs	Demonstration	Drug ampoules and vials	1

Details of clinical postings

IIIrd semester posting (1st posting) - Topics

1. History taking in detail under all sub headings of data record
2. Detailed history taking of specific symptoms like Pain , Fever , Vomiting etc.
3. Complete general physical examination with proper demonstration of each sign & its clinical interpretation with understanding of pathophysiology of each.
4. Thorough systematic History taking and examination of swelling
5. Systematic thorough History taking and examination of an ulcer

IVth semester Posting (2nd posting) - Topics

1. Revision of topics of first post
2. How to reach to provisional diagnosis :
3. History taking and Examination of common swellings like sebaceous cyst, lipoma, Lymph Nodes, scrotal and inguino-scrotal swelling.
4. History taking and Examination of ulcer, diabetic foot, bed sore, P.V.D.

Vth semester Posting (3rd posting) – Topics

1. Revision of topics of previous posts

2. Provisional & Differential Diagnosis with Investigations & broad outline of management for swelling, ulcer, inguino-scrotal swelling
3. History taking and Examination of Breast& Thyroid pathologies, PVD, Varicose veins, Oral malignancy, Neck swelling, Parotid swelling etc.

VIth semester Posting (4th posting) – Topics

1. Revision of topics of previous posts
2. Provisional & Differential Diagnosis with Investigations & broad outline of management.
History taking and Examination of Breast& Thyroid pathologies, PVD, Varicose veins, Oral malignancy, Neck swelling, Parotid swelling etc

VIIIth semester Posting (5th posting) - Topics

1. Revision of all topics covered
2. History taking , differential diagnosis and Examination of abdominal lump
3. Detail discussion of each condition right up to principles of management

IXth semester Posting (6th posting) – Topic

1. Grand, rapid revision of all Clinical cases
 - During clinical postings learner will attend Out Patient Department (OPD), wards & Operation Theater (OT) with the faculty members of the unit with which he /she is posted. Student will observe attentively all the procedures performed at different setting & there over all working.
 - Student will apply their knowledge, what they have gained in their tutorial teaching classes, during their clinical posting.
 - Student will enter the ‘case record’ in his/her journal time to time during clinical posting.

SPECIFIC LEARNING OBJECTIVES OF LECTURES

Sr. No	Name Of Topic	Must Know	Desirable to know
1	Introduction	1) Greetings 2) Self-introduction & about department & faculty overall 3) Subject surgery • Spectrum of diseases • Role of Surgery • Curative / Palliative Surgery • Role of 'No Surgery' Conservative approach • Fascinating • Patient's faith in doctor/surgery • Morals & ethics of Surgeon doctor 1) Teaching Learning Opportunities • Clinical Posting • Lectures • Tutorials 2) Utilization of time to maximum 3) Internal & final Assessment 4) Books recommended Bailey & Love's Short Practice of Surgery Clinical Das.	
2	Wounds And Wound Healing	Definition of Wound. Types or Classifications of Wound. Concept of Tidy and Untidy Wounds. Concept of Debridement. Definition of Wound Healing. Stages of Wound Healing. Physiology of Wound Healing. Abnormal Scars-Keloid, Hypertrophic Scars. Factors Affecting Wound Healing- General And Local	Molecular basis of wound healing and its application to modify wound healing Newer dressing materials.
	Tumors / Cysts /Ulcers /Sinuses	• Define Tumor, Ulcer, Cyst, Sinus • To Be Able To Classify Different Types of Tumor, Ulcer, Cyst, Tumor • To Know Parts of Ulcer • To Know Basic Principles of Tumor, Ulcer, Cyst/, Sinus Management • Staging Grading of Various Tumors	Details of Specific Investigation & Treatment modalities
	Umbilical Hernia	Anatomy, Etio-pathology, Investigations and Treatment, Prevention of Recurrence In Umbilical And Incisional Hernia	Laparoscopic intraabdominal preperitoneal onlay meshplasty (IPOM) Various meshes used in open and laparoscopic surgery
	Inguinal Hernia	Surgical Anatomy of Inguinal Canal Etiopathogenesis Clinical Examination and Differential Diagnosis of	Laparoscopic hernia repair (TEP- total extraperitoneal repair,

		Inguino-scrotal Swellings Investigations and Treatment Complications of Inguinal Hernia Surgical Treatment Postoperative Complications And Its Management	TAPP-trans-abdominal pre-peritoneal repair)
	Hydrocele Varicocele	Anatomy of Scrotum Definition, Types, Clinical Features, Management of Hydrocele. Etiology of Secondary Hydrocele. Treatment of Epididymo-orchitis. Congenital Hydrocele Clinical Features, Management. Varicocele Etiology, Clinical Features, Investigations, Treatment.	Appendix of testis, with its complications
	Acute Infection	A) Inflammation 1. Cardinal Signs. 2. Pathophysiology of Inflammation. B) Infection 1. Definition of Infection. 2. Definition of Common Terminologies like Bacteremia, Toxemia, Pyemia , Septicemia, MODS. 3. Basic Immunology Knowledge. 4. Classification of Infection. 1) Classifications 2) Risk Factors for Wound Infection. 3) Pathophysiology Major of Acute Infection. 4) Classification of Sources of Infection. 5) Common Infection Bacteriology, Cellulites, Abscess, Lymphangitis , SSI 6) Specific Infection. Tetanus, Gangrene, Necrotizing Fasciitis, Aetiology, Pathophysiology, Clinical Features, Investigation 7) Principles of Antimicrobial Therapy	
	Chronic Infection	Definition, Etiology, Pathogenesis, Clinical Features, Complications, Investigations and Treatment of Tuberculous (Lymph Nodes, Scrofuloderma and Lupus Vulgaris), Tetanus, Syphilis, Leprosy, Actinomycosis.	Recent Advances in Investigations and Management.
	Neck Swelling	1) The Surgical Anatomy of The Neck Including a. Triangles of The Neck Their Divisions, Boundaries, and Contents b. Cervical Fascia and Divisions 2) The Different Types of Neck Swellings Midline as Well as Lateral, In Terms of Aetiology, Clinical Features, Diagnosis And Management 3) Lymphadenopathy with Special Reference To – Tuberculosis, Lymphoma, Occult Primary	Principles of Radical and Modified radical dissection
	Hand Infection	Anatomy of Hand (Muscles, Nerves, Vascular Supply, Palmar Spaces, Web Spaces, Space of Parona etc.) Clinical Features, Investigation And Management of	

		Acute Paronychia , Chronic Paronychia , Felon, Subungual Abscess, Web Space Abscess, Deep Palmar Space Abscess and Suppurative Tenosynovitis Common Causative Organisms and Antibiotics To be Used. Functional Position of Hand	
	Lymphatic	1) Main Functions of Lymphatic System 2) Development of Lymphatic System 3) Causes of Swollen Limb and on The Basis of History / Examination & Results of Investigation Should Be Able To Diagnose. 4) Definition of Lymphedema and Describe the Pathophysiology, Clinical Features and Management. 5) Physical, Pharmacological and Surgical Treatment of Lymphedema. 6) Lymphoma-Classification/Types, Etiopathogenesis, Clinical Features, Staging, Investigations and Treatment.	
	Veins	1) Anatomy Of Venous System of The Lower Limb i. Long & Short Saphenous Veins ii. Perforators 2) Definition of Varicose Veins 3) Pathophysiology of Varicose Veins 4) Classification , Etiology, Clinical Features, Investigations and Complications of Varicose Veins 5) Management of Varicose Vein Viz. Life Style Change Advice, Conservative Treatment, Surgical Management of Varicosity and the Perforators, Newer Modalities like EVLT. Radiofrequency Ablation, Foam Sclerotherapy , and SEPS 6) Clinical Features of Deep Vein Thrombosis, Investigations To Prove & Its Management	Plastic surgical procedure for deep veins repair
	Arteries	1) Surgical Anatomy of all Major Vessels of The Body 2) Different Etiologies& Pathologies Which Affect Different Size of Arteries 3) Clinical Presentation of Acute & Chronic Arterial Insufficiency 4) Investigations & Treatment of Acute & Chronic Arterial Insufficiency 5) Classification of Gangrenes Its Etiology. Pathology 6) Clinical Presentations of Different Types of Gangrene 7) Investigations & Management of Different Types of Gangrene	
	Blood & Blood Transfusion	1) Type of Haemorrhage – Primary, Reactionary & Secondary/ Surgical & Nonsurgical Haemorrhage. 2) Patho Physiology of Haemorrhage& Clinical Features of Haemorrhagic Shock. 3) In Detail about Management of Haemorrhage.	

		4) In Detail Various Methods to Control Haemorrhage & Resuscitation In Haemorrhagic Shock. 5) Blood Groups & Cross – Matching. 6) Indications of Blood Transfusion. 7) In Actual About the Use of Blood & Blood Component. 8) The Benefits & Risks of Blood Transfusion – Indications of Blood Transfusion. 9) Blood Transfusion Reactions. 10) Blood Substitutes. 11) Blood Collection, Storage.	
	Trauma Care & Disaster Management	Knowledge • Clinical Features And Injury Patterns In, Accident, Blunt Trauma Blast Victim • Triage • Assessment And Treatment of Trauma Patient • Primary Recovery and Resuscitation of Patient Psychomotor • To be Able to Evaluate The Trauma Patient (Head to Toe Evaluation) (ABCDE) • Start IV Line, Catheterize, Intubate	• To know our trauma care & Disaster management system. Programs • Refer to required special hospital
	Burns	1) Definition of Burns. 2) Types and Classifications 3) Pathophysiology of Burns. 4) Common Cause of Burns. 5) Medicolegal Importance. 6) Clinical Grading of Burns 7) Examination and Application of Rule of Nine for % of Burns. 8) Criteria for Admission 9) Primary and Definitive Treatment 10) Local Burn Wound Care – Fasciotomy , Ischarectomy 11) Fluid Management in Burns 12) Complications – Early and Delayed and Their Management	Newer skin substitutes Tissue engineering
	Shock	Introduction	
		Definition	
		Normal Circulation- micro circulation - capillary bed – cell bathing in ECF Dependent on 3** components of circulatory system **Pump - heart **Fluid - circulatory volume **Container – peripheral vascular resistance	
		Pathophysiology - Hampered peripheral tissue perfusion Acidosis – hypothermia – hyperkalemia – coagulopathy ---- cascade - death	Changes in pre-load and after-load Pathophysiology at various levels Compensatory mechanisms – renin –

			angiotensin – aldosterone – other hormones Immune response
		Various Classifications- Compensated – uncompensated – irreversible ----- Hypovolemic – Septic – Traumatic – Burns – Anaphylactic – Cardiogenic - Neurogenic – Vasovagal – Psychogenic ----- Hypovolemic - Cardiogenic – Obstructive - Distributive – Endocrine -----In surgical patients – hemorrhage / burns / fluid sequestration / abdominal compartment syndrome	
		Symptoms / Signs	All symptoms / signs
		Massive Blood Transfusion- how to meet with the needs side effects of massive blood transfusion	Whole blood - packed cell - washed RBCs – FFP - cryoprecipitate – factor VIII, fibrinogen - platelets - Prothrombin complex concentrates Blood groups – match & mismatch
		Basics of Management- control bleeding – drugs / surgery fluid / what-how much fluid - crystalloid – colloid role of inotropes and vasoactive drugs	
		SIRS –MODS Septic Shock– Cold and Warm Shock	fluid / what fluid - crystalloid – colloid role of inotropes and vasoactive drugs in cold and warm shock
	Surgical Nutrition	Nutrition in normal individual, Surgical patient in terms of requirement Enteral nutrition, Parenteral hyper alimentation ,TPN – Indications and contraindications	3 in 1 solutions. Work-up and follow up of patients on TPN
	Principals Of Oncology	1) Understand The Biological Nature of Cancer. 2) The Principles of Cancer Prevention & Early Detection. 3) And Appreciate The Principles of Cancer Etiology & The Major Known Causative Factors. 4) Multi-Disciplinary Management of Cancer. 5) Principles of Palliative Care.	
	Skin	1) The Structure & Functional Properties of Skin. 2) The Types of Skin Grafts / Flaps. 3) Etio-pathogenesis, Clinical Features and Management of Malignant Melanoma, Basal Cell	

		Carcinoma, Squamous Cell Carcinoma. 4) To The Able to Describe Vascular Skin Lesions and Its Management.	
	Salivary Glands	Anatomy of Parotid Gland with Its Relation to Facial Nerve. Anatomy of Sub -mandibular Gland. Pathological classification of salivary tumor Clinical Features, Investigations, Management of Mixed Parotid Tumors	Surgical procedure of Superficial parotidectomy
	Oral Cavity	1) Surgical Anatomy of Oral Cavity 2) Surgical Anatomy of Tongue 3) Teeth Configuration, Retro Molar Trigone 4) Benign and Infective Lesions of Oral Cavity- Ranula, Aphthous Ulcers 5) Carcinoma Tongue –Epidemiology, Aetiopathology, Clinical Features, Staging and Management 6) Pre Malignant Lesions of Oral Cavity 7) Carcinoma of Oral Cavity in Terms of Etiology, Pathology, Clinical Features And Management 8) Cervical Lymph Nodes Which Drains The Oral Cavity	Recent Advances in management of oral ulcers
	Thyroid	-Definition And Evaluation of STN (Solitary Thyroid Nodule) and Its Management -Surgical Indication In Grave's Disease And Colloid Goiter -Management of MNG - Optimization of Hyperthyroidism Before Planning Surgery. -Types of Thyroid Malignancies And Its Management - Types And Details Of Thyroid Surgery - Post Operative Complications And Its Management Hypo and hyperthyroidism and its clinical evaluation and management,	Surgical anatomy and physiology Patho-physiology of goiter (simple goiter and multinodular goiter) Hypo and hyperthyroidism Videos of thyroid surgery
	Breast	1) Surgical Anatomy, of Breast And Axilla 2) Physiology of Breast Development 3) Congenital Anomalies of Breast Development 4) Common Infective Pathology, Clinical Features & Management of Breast Abscess 5) Classification, Aetio-Pathology, Clinical Features & Management of Benign Breast Diseases/ ANDI 6) Classification, Aetio-Pathology, Clinical Features, Investigation, Staging of Breast Cancer 7) Treatment Modalities of Carcinoma Breast – Early, Operable And LABC 8) Gynaecomastia.	Targeted therapy and Breast Conservation Therapy (BCT)
	Acute Abdomen	Learner Should Be Able to 1. Define Acute Abdomen 2. Enumerate The Causes of Acute Abdomen and Give Differential Diagnosis in a Given Case	Diagnose A Patient Of Peritonitis And To Give Basic Primary Treatment

		3. Take Complete, Relevant History and Perform Thorough Clinical Examination and Basic Necessary Investigations In Case of Acute Abdomen 4. Diagnose and Give Basic Primary Management to The Patient of Acute Abdomen 5. Understand That Approach to 'Abdomen' is Different While Dealing with a Case of 'Abdominal Trauma' 6. Understand the Importance of Understanding 'Mechanism of Injury' History In Detail and Accordingly Suspect the Intra Abdominal Injuries 7. Assess the Severity of Trauma With the Help of Clinical Findings And Bed Side Investigation Modalities 8. Give BTLS to the Patient 9. Describe Anatomy And Physiology of Peritoneum 10. Describe Pathophysiology of Peritonitis And Stages of It. 11. Describe Etiology of Peritonitis 12. Diagnose a Patient of Peritonitis and To Give Basic Primary Treatment	
	Intestinal Obstruction	1. Know Classification of Intestinal Obstruction 2. Understand Pathophysiology of Intestinal Obstruction 3. Know Different Causes of Intestinal Obstruction 4. Be Able to Recognize Cardinal Features of It on History And Clinical Examination 5. Be Able to Give Primary Management to This Patient & Should Know Definitive Treatment	
	Abdominal Tuberculosis	1) Mode of Infection of GI Tuberculosis and Spread. 2) Types of Intestinal Tuberculosis. 3) Characteristics of Tuberculous Ulcer. 4) Clinical Features of Tb Abdomen 5) Specific Investigation.-Blood And Radiological. (X-ray Barium) 6) Management –Medical –Anti TB Treatment Surgical Management – Indications and Options 7) DDS of Right Iliac Fossa Lump	Findings On USG Abdomen And Ct Abdomen
	Oesophagus	1) Anatomy & Physiology of Oesophagus. 2) Common Symptoms of Oesophagus Diseases. 3) Common Investigations Performed for Esophageal Pathologies. 4) Tracheo-Oesophageal Fistula, 5) Achalasia Cardia , 6) GERD And Hiatus Hernia, 7) Premalignant Conditions of Carcinoma Esophagus 8) Etiology, Pathology, Clinical Features, Investigations, Staging And Management of Carcinoma of Esophagus	

	Stomach	1) Surgical Anatomy & Physiology of Stomach. 2) In Detail Common Pathologies & Pathophysiology of Stomach In Relation to Disease. 3) Necessary & Most Appropriate Investigations for Gastro Duodenal Symptoms. 4) In Detail the Investigations & Management of Peptic Ulcer Disease & Its Complications. 5) In Detail the Various Presentations & Management of Gastric Cancer	
	Appendix	1) The Surgical Anatomy of Appendix. 2) About Appendicitis in Terms of Aetiology, Clinical Features, Diagnosis and Management 3) The Differential Diagnosis of Right Iliac Fossa Pain 4) About Other Pathologies of Appendix Like Tumors In Terms of Aetiology, Clinical Features, Diagnosis and Management	
	Colon	1) Surgical Anatomy of Colon 2) Carcinoma of Colon Its Etiology, High Risk Factors, Pathology ,Clinical Features, Investigations and treatment 3) Ulcerative Colitis 4) Colonic Polyposis 5) Sigmoid Volvulus Clinical Features, Management	Colonoscopy, colostomy Toxic megacolon Virtual colonoscopy, colostomy care
	Rectum And Anal Canal	1) Surgical Anatomy of Rectum & Anal Canal 2) Common Causes of Bleeding Per Anum 3) Pathology, Clinical Features & Management of Hemorrhoids, Fissure in Ano & Fistula in Ano, Perianal Abscesses. 4) Pathology, Clinical Features & Management of Carcinoma of Rectum & Carcinoma of Anal Canal	
	Principal Of Laparoscopy Surgery	Introduction , Indication Contra Indication Access To Abdomen Physiological Effects Of Pneumo- Peritoneum Optics & Image Transmission Hemostatic Devices Safety In Laparoscopy Complications	
	Staplers In Surgery	In Open Surgery In Laparoscopy Surgery Linear Staplers Circular Staplers Vascular Staplers Hemorrhoid Staplers Skin Staplers	
	Liver & Portal Hypertension	Introduction Anatomy ligaments, anatomical & surgical lobes, dual blood supply and anomalies, portal circulation	---

		Physiology – functions – detoxification, metabolism, maintenance of pH, temperature of body, bilirubin , coagulation, albumin;	Cori cycle
		Histology : hepatic lobule – portal triad - with special reference to cirrhosis – degeneration and disorganized regeneration	Cirrhosis, noncirrhotic periportal fibrosis [NCPF]
		Liver And Biliary Tract Function Tests/Investigations- blood / urine / imaging – USG – CT – MRI – MRCP – ERCP – EUS - portal Doppler – HIDA – PTC – OP cholangiogram – post op tube cholangiogram – USG guided FNAC	CHILD AND PUGH classification
		Approach to Abnormal LIVER FUNCTION TESTS	flow chart - algorithm
		Blunt Injury Abdomen and Liver Trauma - Polytrauma cases - Shock, Conserve? Explore? Damage control / definitive	
		Liver Abscess - portal Pyemia, pyogenic abscess, amoebic / mixed abscess [Entamoeba histolytica cycle – intestinal and extra intestinal amoebiasis]– medicines – pig tail – aspiration - complications	
		Liver Hydatid – parasite cycle - systemic – wide spread – hepatic hydatid [clinical features – complications - USG – CT –	medicines – aspirate – laparoscopic suction – drainage – marsupialization – open surgery
		Liver Sols / Tumours- primary – secondary [solitary / multiple] - imaging / FNAC – tumour markers – when to resects	
		Liver Cirrhosis – definitions / histology / aetiopathology – classification – portal pressure – effects of cirrhosis – ascites / portal hypertension / hepatic functional derangement / encephalopathy ---- treatment [transplant / support / treat effects	Child And Pugh classification
		Ascites – aetiopathology, diagnosis, medical management, diagnostic tapping / therapeutic tapping, treatment – peritonio-venous / porto-systemic shunts	Which peritonio-venous / porto-systemic shunts
		Portal Hypertension - definition, aetiopathology / classification, clinical features – head to toe; effects [ascites, porto-systemic shunting / collaterals – varices ; encephalopathy], treatment –treat complications – effects; support liver, liver transplant	All sites of collateral, physics behind PHT / shunt surgery
		Varices - DD Of upper GI bleed -- Aetiopathology, grades, gastropathy , prophylactic treatment [medical / invasive – endoscopic – banding, sclerotherapy / surgical], bleeding varices – emergency – ice medical	endoscopic features - heralding of possible bleed TIPS – major shunting

		management – drugs / blood / Sangestaken Blakemore tube / endoscopic intervention, direct attack on varices ,	and non-shunting procedures, selective – nonselective shunts Pros and cons of each
		Encephalopathy - Aetiopathology - precipitating factors, clinical features, supportive treatment, s. ammonia, diet advice	
	Obstructive Jaundice	What Is Wrong & Right- Yellow sclera, skin, mucosa, urine; itching Clay colored stools for more than 3 weeks, predominantly direct[conjugated bilirubinaemia, raised s. alkaline PO4ase reduced urinary urobilinogen = “surgical jaundice	
		Conventional Classification of Jaundice	
		Classification - AIM to differentiate between “surgical” and “medical” jaundice ---- or in dilemma - ----- SCAM: stricture, calculus, anomaly, mass.-----surgical jaundice	
		Better Workable Classification	
		Clinical Presentation, history and examination and investigations	
		Named Signs Charcot’s triad, Boas sign, Reynolds’s pentad, Courvoisier’s law, Murphy’s sign -	
		Approach To Abnormal LIVER FUNCTION TESTS	flow chart - algorithm
		Bilirubin Metabolism	
		Investigations –LFTs, imaging – USG, CT, MRI, MRCP, 3 D CT Cholangiogram, ERCP, EUS – FNAC, PTC, PTBD, operative and post operative cholangiogram ---- ----- indications / contraindications / limitations / advantages – side effects of each	
		Treatment - - to prevent treat complications - Relieve jaundice – bypass / resect / treat the cause - Special reference to – strictures – benign / malignant / iatrogenic Cholangiocarcinoma, choledochal cyst	Ascending cholangitis Hepatic failure
	Gall Bladder	1) Surgical Anatomy of Gall Bladder 2) In Detail Aetiology, Pathology, Clinical Features & Management of Acute & Chronic Inflammation of Gall Bladder 3) In Detail Aetiology, Pathology, Clinical Features Complication & Management of Calculus Disease in Biliary System 4) Etiology, Pathology, Clinical Features, Investigations and Management of Carcinoma of Gall Bladder, Cholangiocarcinoma, 5) Etiology, Pathology, Clinical Features, Investigations	

		and Management of Obstructive Jaundice.	
	Pancreas	1) Surgical Anatomy & Physiology of the Gland 2) Pathophysiology, Aetiology, Clinical Features, Clinical Grading, Investigation, Complications and Management of Acute Pancreatitis. 3) Pathophysiology, Aetiology, Clinical Features, Clinical Grading, Investigation and Management of Carcinoma of Pancreas 4) Clinical Features, Investigations, Complications and Management of Chronic Pancreatitis 5) ERCP, MRCP	Newer management modalities for Pancreatitis Endoscopic ultrasound
	Spleen	-Surgical and Applied Anatomy of Spleen - Histology of Spleen - Functions of Spleen - Splenic Trauma Mechanism of Injury, Clinical Features, Types, Grades, Investigations and Management. -Causes of Splenomegaly. Hereditary Spherocytosis, Sickle Cell Anemia, Thalassemia, ITP, Hypersplenism - Indications For Splenectomy - Splenorrhaphy -Complications of Splenectomy Overwhelming Post Splenectomy Infection (OPSI)	Splenic conservation in Splenic trauma patients, Other diseases in which Splenectomy is not useful
	Urology Symptomatology	Learners Must Know Symptoms of Lower Urinary Tract Like 1. Renal Pain 2. Ureteric Colic 3. Hematuria 4. Acute Retention of Urine	1. Anuria 2. Chronic Retention of Urine
	Anatomy of Kidney & Retroperitoneum	Learners Must Know 1. Basic Anatomy of Kidney, Ureter & Retroperitoneum	1. Applied Anatomy of Kidney & Retroperitoneum
	Congenital Anomalies of Gus	Learners Must Know 1. Development of Genitourinary System (Gus)	Embryological Development 1. PUJ OBSTRUCTION. 2. PUV 3. VUR
	Urolithiasis Upper Tract	Learners Must Know 1. Etiological Factors 2. Different Types of Stones 3. Complications of Stone Disease 4. About Investigations for Diagnosis 5. Management Options	How to follow up a case of Renal Calculus Disease Advanced techniques for treatment such as 1. LASER ESWL
	Urolithiasis Lower Tract	Learners Must Know 1. Causes	Differential Diagnosis of Pain in lumbar

		2. Clinical Features 3. How to Diagnose a Case of Urolithiasis 4. The Management of Ureteric Colic 5. Detailed Definitive Management of Urolithiasis of Lower Urinary Tract	region likely to be Ureteric Colic Videos of Endoscopic Urosurgery for Lower Tract Urolithiasis
	Renal Tumours Benign & Malignant	Learners Must Know 1. The Clinical Features 2. Different Types of Renal Tumours 3. Classification & Staging of The Renal Tumours 4. List of Investigations Needed. 5. How to Proceed With Management.	Role of CT SCAN in management of renal tumours
	Urinary Bladder Anatomy & Tumours	Learners Must Know 1. Basic Anatomy 2. Enlist Types of Tumours In Bladder. 3. Details of Transitional Cell Carcinoma 4. The Clinical Features. 5. How To Diagnose 6. Outline of Management of TCC Bladder.	1. Cystoscopy 2. TURBT 3. Radical cystectomy
	Prostate Anatomy + BPH + Prostatitis	Learners Must Know 1. Zonal & Basic Anatomy of Prostate. 2. The Etiological Factors 3. The Symptoms of BEP (Prostatism) 4. Emergency Treatment of Acute Retention of Urine	Medical Management of BPH Surgical Management 1. Indications Options
	Carcinoma Of Prostate	Learners Must Know 1. Applied Anatomy of Ca Prostate 2. List of Symptoms 3. Different Diagnostic Modalities 4. Which are The Treatment Options	Prognosis & follow up of the patient operated / conserved Role of hormonal therapy in management of Prostatic carcinoma
	Urethra Anatomy + Trauma + Stricture	Learners Must Know 1. Detailed Urethral Anatomy, PU valves 2. Causes of Rupture of Urethra 3. Discuss The Emergency Management For Same 4. Types of Stricture Urethra 5. Details of Investigations and Correct Methods of Interpretations of RGU, MCU. 6. Various Management Options Available.	Indications for Suprapubic Cystostomy (SPC) Endoscopy Video (Optical Internal urethrotomy) and Demonstration of SPC
	Penis Anatomy + Carcinoma Of Penis	Learners Must Know 1. Basic & Applied Anatomy of Penis 2. List of Clinical Features of Ca Penis 3. Details of Diagnostic Modalities 4. Different Treatment Options	Preventions of Carcinoma
	Testis Anatomy + Undescended Testis	Learners Must Know 1. Basic Anatomy 2. Etiological Factors & Incidences of Undescended Testis	Types of Surgeries for Undescended testis

		3. Time of Surgery for Undescended Testes	
	Testicular Trauma + Torsion Of Testis	Learners Must Know 1. Etiology and Applied Anatomy of Torsion 2. Clinical Features 3. Various Treatment Options 4. Details of Early Diagnosis & Treatment of Torsion	Differential Diagnosis of Torsion of testis & Epididymo-orchitis
	Testicular Tumours	Learners Must Know 1. Classification of Testicular Tumours 2. List of Investigation For Diagnosis 3. The Treatment Options 4. Details of High Orchidectomy	Role of tumours markers in testicular tumours Follow up & Prognosis Radical surgery like RPLND
	Hydrocele & Varicocele	Learners Must Know 1. Definition of Hydrocele & Varicocele 2. Different Types of Hydroceles 3. How To Diagnose (Clinical Examination + Investigations) 4. Treatment Options 5. Anatomy of Pampiniform Plexus 6. How To Diagnose Varicocele 7. The Treatment Options Available.	Jaboulay's repair Varicocelectomy
	Thorax Surgical Anatomy & Physiology	Must Know	
	Chest Injuries	1. Ribs 2. Flail Chest – Def – Clinical Feature – Management 3. Pneumothorax Closed, open 4. Clinical Feature 5. Management 6. ICD - Video	
	Empyema	Def Pathogenesis Stages of – Acute Empyema – Subacute – Chronic	
	Lung Abscess Effusion	Def Pathogenesis Management	
	Head Injury	GCS, Classification of Head Injury, Primary and Secondary Head Injury, Management of Head Injury, Radiological Types Like EDH, SDH, ICH, Contusions	Drugs Used And Their Pharmacology, Mannitol, Dexta, Antiepileptic What Can be Added- ICP Monitoring, Map Monitoring
	Brain Tumors	Classifications of Tumor, Incidence and Occurrence in	Imaging

		age Wise, Treatment	Characteristics, Prognosis, Adjuvant Therapy

SPECIFIC LEARNING OBJECTIVES OF TUTORIALS

Instruments

Must know - The student

- Should be able to identify the instrument
- Should know the material from which it is made up of
- Should be able to describe the instrument- the parts of instrument
- Should know the Sterilization technique
- Should know specific uses

Desirable to know

Few extra uses

How to handle the instrument

List of common instruments used in General surgery

- Straight artery forceps (Hemostat)
- Curved artery forceps
- Mosquito artery forceps
- Mixer's forceps
- Magill's forceps
- Kocher's forceps
- Lister's sinus forceps
- Sponge holding forceps
- Towel clips
- Babcock's forceps
- Allis's forceps
- Lane's forceps
- Toothed dissecting forceps
- Plain dissecting forceps
- Mayo's dissecting scissor
- Heath's suture cutting scissor
- Needle holder
- Bard Parker handle)
- Surgical blades
- Cheatle's forceps
- Des-jardin'sCholedocho-lithotomy forceps
- Deaver's retractor
- Doyen's retractor
- Morris retractor
- Langenbeck's retractor
- Cat's paw retractor
- Balfour's self-retaining retractor
- Small intestinal clamps
- Tongue depressor
- Cricoid hook
- Tracheal Dilator
- Humby's knife
- Myer's metal stripper

- Proctoscope
- Laryngoscope
- Metallic fistula probe
- suturing needle

X-rays

Must know – The student

- Should be able to identify whether plain or special X-ray
- Should be able to tell position of X-ray - well centralized or not
- Should be able to tell view - AP/PA/lateral/oblique/decubitus
- Should be able to describe the findings in detail
- Should be able to diagnose the condition
- Should be able to describe the clinical features of the pathology

Desirable to know

- Differential diagnosis
- Additional radiological investigations to confirm the diagnosis

List of X-rays

- Gas under Diaphragm
- Multiple air fluid levels jejunum and Ileum
- Sigmoid Volvulus
- Only fracture ribs
- Multiple fracture ribs with pneumothorax
- Multiple fracture ribs with Hemopneumothorax
- Multiple fracture ribs with Hemopneumothorax with ICD
- Multiple Lung Metastasis
- Radio-Opaque foreign body in trachea
- Radio-Opaque foreign body in Oesophagus
- Barium Swallow for CA Oesophagus
- Barium Swallow for CA Stomach
- Barium Swallow for Achalasia
- Barium Enema for CA Caecum
- Barium Enema for CA Left Colon
- Barium Enema for ulcerative colitis, Crohn's disease
- KUB for stone in Kidney
- KUB for stone in Ureter
- KUB for stone in Bladder
- IVP for congenital PUJ obstruction and Anomalies
- IVP for Kidney Stone , Ureteric Stone and Hydronephrosis
- Diaphragmatic Hernia

Catheters and Tubes

Must know – The student

- Should be able to identify the catheter / tube
- Should know whether it is Disposable or Reusable
- Should be able to describe the catheter / tube
- Should know the material from which it is made up of

- Should know the Sterilization technique
- should know the uses

Desirable to know

Details of procedure in which it is used

List of Catheters and tubes

- Foley's self-retaining Urinary catheter
- Three way Foley's catheter
- Malecot's catheter
- Red rubber catheter
- Suction Catheter/ Nelaton's catheter
- Central venous catheter
- Naso-gastric tube/ Levin's tube
- Infant feeding tube
- Kehr's T - tube
- Flatus tube
- Intercostal Drainage tube / Argyll tube and Under water seal
- Abdominal drains
- Corrugated rubber drain
- Romovac drain
- Urobag
- Metal tracheostomy tube
- Portex tracheostomy tube
- Endotracheal tube
- Airway - Plastic / Metal
- Intravenous set
- IV cannula
- Scalp vein

PROCEDURES

Student must know

- Should know the indications (Absolute / Relative) of the procedure.
- Should know the CONTRAINDICATIONS (Absolute /Relative) of the procedure.
- Should know details of Pre-Op PREPARATIONS in view of
 1. Consent :
 2. XST :
 3. Radiology Investigations If Any:
 4. Atropine :
 5. TT :
- Should know which Anaesthesia is preferred for the procedure.
- Should know the Position of the Patient on OT table.
- Should know the Steps of PROCEDURE.
- Should know Complications of the procedure (Immediate & Delayed)
- Should know the Post –op Orders specific to the procedure.

Desirable to know

Alternate procedures for the same disease.

List of Procedures

1. Appendectomy
2. Cholecystectomy
3. Excision of Lipoma
4. Sebaceous cyst
5. Ganglion
6. Dermoid
7. Herniotomy
8. Hernioplasty
9. Jaboulay's repair for hydrocele
10. Lords plication for hydrocele
11. Varicose vein stripping
12. Trendelenberg's operation for varicose vein
13. Mastectomy
14. Thyroidectomy

SPECIMENS**Student must know**

- Should identify the organ in the specimen.
- Should know whether Ante mortem or Post Mortem.
- Should be able to describe the specimen.
- Should give differential Diagnosis of Pathology.
- Should be able to give details of Clinical Presentation of the disease.
- Should know the Management of the disease.

Student desirable know

Differential diagnosis of the disease in the specimen.
Should know the investigations required for the disease.

List of Specimens

- 1) Appendix
- 2) Below knee amputated leg
- 3) Hemi-mandibulectomy
- 4) Polycystic kidney
- 5) Hydronephrosis
- 6) Multinodular goiter
- 7) Carcinoma breast
- 8) Carcinoma rectum
- 9) Ilea tuberculosis
- 10) Familial adenomatous polyposis
- 11) Renal Cell Carcinoma
- 12) Small bowel carcinoma
- 13) Gall Bladder
- 14) Urinary bladder calculi

Drugs

Common drugs in surgery

Adrenaline, atropine, hydrocortisone, avil, Inj. T.T, Lignocaine, Triamcinolone

Must Know

1. Generic name
2. Category and classification of Drug
3. Dosage and mode of administrations
4. Indication and contraindications

Desirable to know

History of drug

Sterilization**Must know**

Definition

Classification of techniques

Chemical sterilization –Savlon, Cidex, Hyponitrite

Principle of autoclaving

Disinfection of instruments exposed to HIV

Desirable to know

Packing of trays

Cautery**Must know**

1. Components of cautery system
2. Types of cautery current :monopolar and bipolar
3. Precautions while using
4. Cleaning

Desirable to know

Harmonic, CUSA

OBJECTIVES FOR THE INTRODUCTION OF NEW TOPICS IN SIXTH SEMESTER TUTORIAL

Hands on Training Module

A. Suturing and Knotting

Must Know

1. Able to tie surgical knots using hands and instruments
2. Able to take simple sutures
3. Able to take mattress sutures
4. Able to identify the types of suture material
5. Able to give indication for different suture materials

Desirable to know

Subcuticular Sutures

B. IV Access

Must know

1. Should be able to identify appropriate vein to cannulate
2. Should know the various access veins
3. Should know the various cannula
4. Should know how to use Intracath and scalp vein set.
5. Should know how to fix intracath
6. Should know the precautions to take

Desirable to know

CVP line, Venesection

C. Dressing

Must know

1. Should know cleaning of wound
2. Should be able to choose appropriate cleaning agent
3. Should choose appropriate dressing material.
4. Should be able to apply bandage roll to limbs snugly.
5. Should be able to perform debridement.

Desirable to know

Principles of Fasciotomy

Use of curette

D. Nasogastric and Foley's workshop

Must Know

1. Should be able to organize for the procedure
2. Should be able to explain procedure to patient
3. Should be able to take consent
4. Should be able to perform nasogastric and Foleys insertion
5. Should be able to fix the tube appropriately.

Desirable to know

ICD insertion

E. Laparoscopy

Must know

- Identify the various instruments
- Components of the system
- Know the gases used in pneumoperitoneum
- Know the techniques of inserting ports

Desirable to know

- How to work the instrument on Beetle trainer

ASSESSMENT

Attendance requirements are 75% attendance in theory and 75% in clinics in each of the terms separately

Formative Assessment (Internal Assessment)

Theory

Maximum marks 30 computed from maximum 300 marks obtained in two written examination and two viva voce as follows:

	Theory	Viva voce
VIII semester	100	40
IX semester	120	30
Journal Writing	-	10
Preliminary	(2papers of 60 marks each)	
Total	220	80

The mark obtained out of these 300 marks, will be converted into out of 30 marks.

Practical

Maximum marks 30, computed from maximum 300marks, obtained from 8 practical examination as shown below.

Clinical 2 nd posting	25
Clinical 3 rd posting	25
Clinical 4 th posting	25
Clinical 5 th posting	25
Clinical 6 th posting	25
Orthopaedics last positing	40
Radiology	20
Anaesthesia	20
Preliminary Examination	120
Total Marks	300

The marks obtain out of 300 will be converted into out of 30marks.

The candidate must secure at least thirty five percent marks separately in theory and practical in internal assessment to be eligible to appear for the university Examination.

Summative Assessment (University Examination)

Theory

Examination will consists of two written papers of two hours duration and carrying maximum 60 marks in each paper

Distribution of the topics and the pattern of Question paper will be as follows

Paper I

Section-I

Q. I	Long Question (General Surgery)	9 marks
Q.II	Long Question (General Surgery)	9 marks
Q.III.	Short Notes Any 3out of 4 (Radiology, Anesthesiology Dentistry and other)	12 marks

Section-II (Orthopaedics)

Q.I.	Long Question (Traumatology)	9 marks
Q.II	Long Question (Cold Orthopaedics General)	9 marks
Q.III.	Short Notes Any 3out of 4(Orthopedic Regional, Orthopaedic general , trauma)	12 marks

Paper II

Section-1

Q.I	Long questions (GIT)	9marks
Q.II.	Long question (GIT)	9marks
Q.III.	Short Notes any 3 out of 4 (G.I.T+surgical procedures, investigation, recent advances and others)	12marks

Section –II

Q.I	Long questions (G.U.T)	9 marks
Q.II	Long questions (Head, Neck, Face, Breast, Chest including trauma, CNS, Endocrine)	9 marks
Q.III.	Short notes (GUT and topics mentioned above)	12 marks

Practical Examination

Long case (one)	40 marks

Short cases (three of 20 marks each including one Orthopedic case) 60 marks

Viva voce

Orthopaedics 05marks

Viva voce General surgery 15 marks

(Instruments, X-rays, surgical Pathology specimens, Tubes, catheters,
Suture material and Anaesthesia drugs etc.)

Total 120 marks

(Viva voce marks to be added to theory marks)

Candidate will be declared pass in the subject only when at least fifty percent of marks are obtained separately in theory and practical examinations.

Recommended Books and Journals

TEXT BOOKS

- a) Short practice of Surgery; Bailey and love; edition 26
- b) Principles of Surgery; Shwartz et al; edition 6 volume 1, Volume 2
- c) Textbook of Surgery; Christofer Davis & Sabiston edition 15; Volume 1, volume 2
- d) Emergency Surgery; Hamilton Bailey; edition 12
- e) Anatomy: Regional and Applied; Last; edition 1984
- f) Synopsis of Surgical Anatomy; Lee Mc Gregor; edition 12
- g) Gray's Anatomy; Henry Gray, edition 38
- h) Demonstration of physical signs in clinical Surgery; Hamilton Bailey; edition 17
- i) Clinical Surgery manual; S. Das; edition 4
- j) Short cases in Surgery; Bhattacharya, edition 4
- k) Oxford hand book of clinical surgery
- l) Pye's Surgical Handicraft; 21st edition
- a)

BHARATI VIDYAPEETH DEEMED UNIVERSITY, PUNE

INTRODUCTION AND GENERAL INFORMATION

Bharati Vidyapeeth, the parent organization of Bharati Vidyapeeth Deemed University, is one of the largest educational organizations in the country. It has 180 educational units under its umbrella including 80 colleges and institutes of conventional and professional disciplines. The Vidyapeeth was established on 10th May 1964 by Dr Patangrao Kadam with a wider objective of contributing to intellectual awakening and socio cultural transformation through dynamic education. It commenced functioning as a Deemed university on 26th April 1996 following the notification of the Ministry of Human Resource Development (Dept of Education, Govt of India) on the recommendations of the University Grants Commission, New Delhi vide their notification No. F.9-15/95-U.3 dated 26th April, 1996. The Deemed University has presently 29 constituent Units comprising professional institutes in Pune, Solapur, Kolhapur, Sangli, New Delhi, Karad, Mumbai and Navi Mumbai.

The status of University was given to the cluster of these colleges and institutes in appreciation of the higher level of their academic excellence and for their potential for further growth. During the last twenty years or so the university has achieved higher pinnacles of academic excellence and has established its reputation to such an extent that it attracts students not only from various parts of India but also from abroad. According to a survey conducted by Association of Indian Universities, this University is among the top ten universities in the country preferred by overseas students for admissions. At present there are more than 850 overseas students from 47 countries on the rolls of the constituent units of the University.

During the last 20 years there has been a tremendous academic expansion of the University. It now conducts, in all, 305 courses in its constituents units and, of them, 105 are post graduate, 45 are undergraduate and 55 diploma level courses. All the professional courses which the University conducts have the approval of their respective statutory councils viz. Medical Council of India, Dental Council of India etc. The University has 8 campuses located in different cities including New Delhi. It is probably the only University having three self financing research institutes devoted exclusively to research in health related, pharmaceutical and social sciences. The University is proud of its Institute of Environment Science and Research Education which has been identified as a nodal agency by the Government of India for its programmes of biodiversity and environmental products.

The University's performance and achievements were assessed by the National Assessment and Accreditation Council (NAAC) and it was reaccredited with the prestigious 'A' grade in 2011. Some programmes of the University have also been accredited by the National Board of Accreditation. Three constituents are also recipients of the ISO 9001-2001 certifications.

The degrees and diplomas awarded by this University have the same status and recognition as those awarded by any Indian University recognized by the University Grants Commission, New Delhi. This University operates its educational programmes in accordance with the rules, regulations and guidelines of various statutory Central Government bodies like Medical Council of India, Dental Council of India, Bar Council of India, Nursing Council of India etc.

The University has created excellent infrastructure for all its constituent units, including well structured spacious buildings, continuously updated laboratories, libraries and hostels with all necessary amenities and facilities for both boys and girls.

BHARATI VIDYAPEETH DEEMED UNIVERSITY MEDICAL COLLEGE, PUNE

The aim of Bharati Vidyapeeth Deemed University Medical College is to prepare students to function as a competent, proactive 'First Contact Physician' equipped with the scientific temper and capability for specialization befitting the ever changing health needs of our dynamic community.

VISION: The Vision of our institute is to transform Bharati Vidyapeeth University Medical College, Pune into a 'Center of Excellence' in the field of medical education & research and to cater to national as well as global health care needs.

MISSION: The Mission of the institute is to

1. Develop world class infrastructure, faculty base and teaching learning environment so as to produce a competent first contact physician as envisaged by the Union government and Medical Council of India.
2. Empower students with deep knowledge and awareness of current developments in medicine.
3. Encourage research activities in improving health care management.
4. Achieve high standards of comprehensive patient management.
5. Develop a humane attitude towards patient.

INSTITUTIONAL GOALS& OBJECTIVES

In consonance with the national goals the undergraduate students passing out of this medical college should:

- a) be competent in the diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- c) appreciate rationale for different therapeutic modalities and be familiar with the administration of essential drugs and their common side effects.
- d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitudes towards patients in discharging their professional responsibilities.
- e) possess the attitude for continued self learning and seek further expertise or pursue research in any chosen area of medicine, action research and documentation skills.
- f) be familiar with the requirements which are essential for the implementation of the National Health Programmes including practical aspects of the following:
 - i) Family Welfare and Material and Child Health(MCH)
 - ii) Sanitation and water supply
 - iii) Prevention and control of communicable and non-communicable diseases
 - iv) Immunization
 - v) Health Education
 - vi) IPHS standards of health at various level of service delivery, medical waste disposal.
 - vii)Organizational institutional arrangements.
- g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, general and hospital management, principal inventory skills and counseling.
- h) be able to identify community health problems and learn to work to resolve these by designing and instituting corrective steps and evaluating outcome of such measures.
- i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- j) be competent to work in a variety of health care settings.

- k) have personal characteristics and attitudes required for professional life such as personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

The focus of the institute is to produce doctors who are competent and compassionate with a humane and holistic approach towards their patients. The quality of education imparted to the students is constantly improved by up-gradation of teaching and learning methods through a continuous process. Our teaching programs encourage interaction and participation by students.

The emphasis of all teaching learning activities is to inculcate the habits of self-directed lifelong learning in our students. The teaching learning activities are designed accordingly. The emphasis is on learning, skills and hands on training. The students get ample opportunities for practicing this in the attached teaching hospital.

GENERAL: Bharati Vidyapeeth Deemed University Medical College & Hospital, Pune was established in Feb 1989 and is one of the premier institutes imparting quality medical education at undergraduate, post graduate and post-doctoral levels. The college was initially affiliated with Pune University till April 1996 after which it became a constituent unit of Bharati Vidyapeeth Deemed University.

The college and the attached hospital are situated on the main Pune – Satara Road in the southern part of Pune city about 5 km from Swargate. The Medical College and attached teaching hospital occupy 25 acres of land on a sprawling 75 acres lush green campus.

The medical college is permitted to admit 150 students for MBBS course and 105 students in various postgraduate degree and diploma courses. The College and the degrees offered are recognized by the Medical Council of India. The General Medical Council, Great Britain. Also has recognized the college. Students of this college are eligible to appear for USMLE and PLAB examinations. The college is listed in the World Health Organization's directory of recognized medical educational institutes. The college offers 3 undergraduate programmes, 22 postgraduate degree and 8 diploma programmes along with 05 MSc, 2 diploma, 11 fellowship and 08 PhD programmes.

The college boasts of excellent infrastructure, experienced, dedicated and caring faculty, a strong student support system, facilities for research including a dedicated research institute, community and outreach and extension activities and a 860 bedded multispecialty, tertiary care hospital offering all modern diagnostic and therapeutic services. The hospital has an independent

cardiac cath lab, expanded critical care services, nephrology unit with dialysis, central laboratories and advanced imaging facilities.

Teaching and training is done using modern techniques with a student centered approach, use of ICT and high tech simulation centre and a number of basic and advanced simulators for training in life saving skills.

HUMAN RESOURCESThe teaching faculty of this college is our single biggest asset. The college boasts of qualified experienced and dedicated faculty along with a large number of teaching staff and non-teaching staff, comprising para medical, nursing and ancillary staff. Departments are adequately staffed with professors, associate and assistant professors, lecturers and tutors as prescribed by the MCI. All the teaching faculty members are trained in teaching technology. The faculty members have a number of publications to their credit in scientific journals and are also invited as resource persons for various conferences workshops, CME programmes etc.

The Medical College considers its “Staff” as its most important asset and strives for its well-being. The Bharati Vidyapeeth Health Scheme (B.V.H.S.) ensures that all the staff members (Teaching and Non-Teaching) can avail the investigative, diagnostic and treatment facilities at Bharati Hospital. The Sevak Kalyan Nidhi (S.K.N.) is another such welfare scheme for the non-teaching staff for their needs such as education of their children, housing loans etc.

Research and up gradation of knowledge is a priority in the college. Limited funding is given to staff members to attend conferences, workshops and training programmes. The college organizes several workshops every year for training of faculty. A state of the art research facility – IRSHA – exists in the college campus for research. Besides the curricular activities, the staff meets informally at various get together events organized by the college on the occasion of research society conference or university foundation day.

INFRASTRUCTURE:The college buildings are constructed to provide all the basic amenities that are required for meaningful teaching and learning processes. The total built up area of college is approx. 2,55,000sq.ft. The college premises is located in a four storied, well illuminated and ventilated building with spacious corridors and appropriate décor.

The main administrative block is situated on the ground floor at the entrance of the college. The offices of Principal and Vice Principal are in the vicinity of the administrative block. The administrative block & the academic sections of the college are fully computerized with 24 hours Internet facility.

There are 26 departments in the Medical College. The pre-clinical and para clinical departments are located in the college building. Each department has well-furnished faculty rooms with

separate space for departmental offices and non-teaching staff. Departments have separate demonstration rooms, well equipped practical laboratories, museums, dissection halls to carry out teaching and training of Undergraduate and Post Graduate students.

Well-equipped Research Laboratories and an Animal House are available to carry out research in basic medical sciences. For Academic activities the institute has 5 lecture halls which have been recently renovated, each measuring around 2000 sq ft. (Seating capacity of 180 students) with in-built acoustics and projection facilities including LCD projector. Air-conditioned conference halls are available for college council and other meetings.

Examination halls have a Seating Capacity for 375 candidates. There is a separate hall for the Central Assessment Programme (CAP) located in college building. The Medical Education Technology Unit is located on the third floor of the college building. This unit provides basic and advanced training for teachers in the Medical College.

There are two centrally air conditioned auditoria built which are used to host Co-Curricular and extracurricular activities of the college like conferences, seminars, cultural programmes etc.

The departments are well equipped to support student learning and also have state of the art equipment like Fully Automated Chemo-luminescence, Immunohistochemistry, Teaching Microscopes, ELISA Facilities etc. to aid patient diagnosis and to update post graduate training in special fields like Endocrinology, Histopathology, Bacteriology, Immunology etc.

The college has a separate statistical unit for providing statistical assistance to all departments for their research projects. The central Photographic cum Audiovisual Unit of the college is equipped with trained staff and facilities.

There is a separate **Central library** building measuring 12000 sq ft with separate 24 hr reading rooms for Undergraduate, Post Graduate students and staff members. The library has more than 17162 text and reference books and subscribes to more than 187 national and international journals. It has separate archives and facilities for reprography, microfilm, videotapes, CDs Audiovisual tapes and a separate Digital Library with 40 outlets with access to many online journals are available to provide global access of Information and computer Technologies to students and staff. A dedicated 2 Mbps line provides uninterrupted Internet access with access to more than 4000 Online Journals from UGC and MUHS servers.

A fast speed Internet facility is provided in every department and staff can access almost all indexed journals and various textbooks. This helps them to update their knowledge, send their research articles and also find references. In addition each dept has its own departmental library and a few with Tele Medicine and Video Conferencing for patient care as well as for student training.

Health Centers: Rural and Urban Bharati Vidyapeeth University Medical College, Pune runs a Rural Health Training Centre at village Lavale at a distance of 26 km from B. V. U. Medical College, Pune. It serves as a rural field practice demonstration area for undergraduate students and interns. The RHTC is providing comprehensive health care to a population of 40,000 spread around 11 villages.

The building at RHTC, Lavale consists of ground and two floors with total 2482.20 sq. m. built up area. The centre is fully equipped with diagnostic, therapeutic and intervention facilities along with residential facilities for staff and trainees.

ADMISSIONS 150 Students are admitted to the MBBS programme which consists of 4 ½ yrs academic training and 1 yr Compulsory internship

Eligibility: Age - 17 yrs complete and should have passed 12 std of HSC or any other equivalent board with minimum 50 % marks in Physics, Chemistry, Biology & minimum 50 % marks in the CET. The students are enrolled in the college through a Common Entrance Test conducted by Bharati Vidyapeeth University at all India level with examination centers in all parts of India.

Medical course is a long course of four and half years and students very often tend to get short of confidence, insecure, depressed, especially those students coming from various corners of India and from abroad. Facilities are provided to the students for their academic progress as well as extracurricular development.

The conducts an introductory three-day orientation programme for new entrant students and are counseled regarding medical curriculum, pattern of teaching and learning, study skills and stress and time management. Later, when the students are exposed to clinical teaching, orientation is conducted regarding development of clinical skills.

Counseling:

The institute provides academic and personal counseling of the students.

A ward-teacher programme was started to improve the communication between the students and teachers. Students approach their teachers in case of any difficulty regarding his/her personal, health and academic problems. If and when the need arises, the teacher can refer the ward to the “counseling cell”.

A Counseling cell functions on the basis of follow up of performance of students. A system of having an academic in charge for preclinical, paraclinical and clinical subjects and terms exists. The respective academic incharges receive the inputs about the performance and attendance of concerned students. Parents of students having poor performance and / or

unsatisfactory attendance are informed and counselling sessions are held between heads of the department and such parents to sort out academic and non-academic problems that the students may have. Information is shared with students and parents alike on the progress of students during their courses. Information of students' progress is publicized in the college website for information of students and parents.

The Medical Education Unit of the college organizes a Fresher's Orientation Programme for the newly admitted Ist semester students in order to make these new entrants comfortable in the new environment and help them adjust to the demands of the totally new study curriculum. Issues addressed are Effective Learning, Stress and time management. An Orientation programme for UG students of semester III is also organized to make them well oriented to hospital before their clinical posting with the objective of preparing these students for their first patient interaction.

A Grievance Redressal Cell has come into existence from the year 2000 for sorting out various grievances from medical students, staff members, patients, patients' relatives that are related to B.V.U.M.C. and Bharati Hospital. This functions under its objectives to receive grievances of all concerned and take decisions and provide solutions for them. Suggestion / Complaint boxes have been kept in the college as well as hospital premises at various locations. A Public Relation Officer has also been appointed in the hospital and the CMO looks after grievances after office hours. Suggestions are also received from other committees like counseling cell and Alumni association.

An **Anti-Sexual Harassment Cell** was established in January 2008 as per the judgment of the Supreme Court which actively addresses issues related to sexual harassment amongst the students, teaching and non-teaching staff of the college and hospital.

An **Anti-Ragging Committee** functions to curb the menace of ragging. Anti-ragging regulations are displayed at various sites and counseling of students and parents is done at the time of admission and interaction between freshers and seniors are also done. The medical college implements guidelines framed by various H'ble Courts of the country and the MCI to curb the menace of ragging.

Cultural

The institute has a well formed Cultural and Magazine committee. It consists of a balance of Faculty as well as UG students from all the 3 academic years. Annual cultural programme "MIRAGE" is organized every year usually in the month of March/ April. Students are encouraged to participate and show off their extracurricular skills. The college also encourages the students to participate in intercollegiate extracurricular activities at University, state and National level. There is active participation of our students in the Annual Youth Festival Of

Bharati Vidyapeeth Deemed University Medical College, held in the month of September in our Kothrud campus.

College Magazine: Creativity is the starting point of many inventions. The college publishes an annual magazine called “ELIXIR” that provides a medium for all creative minds. There is a separate magazine committee with students serving on the editorial board. Students are encouraged to contribute articles under various sections and in different languages (Hindi, Marathi and English). Elixir has been consistently published for the last 12 years, which is a show-case of the literary skills of our staff and students both.

The Sports committee consists of a balance of Faculty as well as UG students from all the 3 academic years. The ‘Annual Sports Week’ is organized every year in the last fortnight of September. All undergraduate and postgraduate students as well as the teaching and nonteaching staff of the institute enthusiastically participate in all the events. Students are encouraged to participate in state and national level sport competitions.

There is a separate playground for outdoor games. A Gymnasium and facilities for indoor games are available. Participation in sports competition like basketball, volleyball, cricket, football, badminton, table tennis and chess etc. at intercollegiate, university and inter university level is highly encouraged.

Foreign student and NRI student cell: The NRI and foreign students cell was formed in August 2007 in response to guidelines received from Ministry of External affairs. Information regarding foreign/NRI students is collected as per these guidelines.

Medical Colleges are the places where learning is sacred. Learning also means growth. For growth in any field, research is a must. The importance research activity was identified by the Bharati Vidyapeeth Medical College since its establishment in the year 1989. Since then BVUMC has given priority to improve research related activities within the campus and established an independent research unit IRSHA – Interactive Research School in Health Affairs. The main agenda of the IRSHA is to collaborate research of various disciplines within BVUMC as well as with external research institute like NCL and other international universities.

BVUMC has provided an excellent platform not only for UG and PG students but also to its faculty members to participate in research activities. UG students are assigned projects in small groups by department of Community Medicine. PG students are given broad areas of topic for research which helps to create and promote research aptitude. Faculty members of various departments are encouraged to present scientific research papers at various national and international conferences. The Research Society of BVUMC was established to encourage the idea of research among the faculties of all the disciplines and the students to undertake more

research projects. The research society of BVUMC is authorized for funding important research projects. Similarly the research committee at the university level is also entitled for funding various research projects. Teachers are given special study leave for research purpose along with seed money for their project from B.V. University. Students are given financial support in the form of ICMR scholarship along with all possible help to use college and hospital resources required to carry out the project.

There have been a number of publications at both International and National level from the college staff. A number of staff members and students have presented their work in various national and international conferences. Many of the faculty members are invited as guest speakers and to deliver key note address at the major knowledge events. The college has received more than Rs. five crores in grants from various national and international agencies for carrying out research.

Bharati Vidyapeeth University Medical College, Pune has hosted a number of conferences, symposia, CME programmes and workshops at regional, state, national and international levels. The college also organizes seminars and CME's in rural areas for local doctors, health professionals and paramedical staff. The College has **linkages developed With National/ International, Academic/Research Bodies in the form of MOUs such as** IRA for Regional Rheumatology, FOGSI Satellite School Conference, IPAS - Orientation Training Programme on Comprehensive Abortion Care and with Federation of Obstetrics & Gynaecology of India (FOGSI).

Alumni Association: The institution has an active Alumni Association established on 15/05/1999. Meetings are held periodically where alumni from India and abroad and from different fields of super specialty participate. Renowned alumni from their fields are invited to deliver guest lectures during first MBBS orientation programme. They share their experiences and interact with newly admitted students. Specialist and super specialists provide health services to patients. The Alumni directory is constantly updated.

BHARATI HOSPITAL

Bharati Hospital was established in 1994 as a teaching hospital attached to Bharati Vidyapeeth University Medical College. It is a well-known centre of clinical excellence located in the same premises. It is a 860 bedded multi-specialty, tertiary care hospital providing modern diagnostic as well as therapeutic facilities. Housed in a well-planned multistoried building having an area of approximately 3,35,500sqft, it caters to our clientele of around 3,00,000 people in the immediate vicinity of about 25 sq. km.

All clinical departments are located in the hospital and run their respective OPDs. The wards and OPDs are well equipped with all facilities for teaching, training and patient care. They provide

good clinical material for teaching and training of under graduate and Post Graduate students.

Apart from the routine OPDs in basic specialties a number of specialty clinics like – Neurology, Cardiology, Rheumatology, Nephrology, Gastroenterology, Endoscopy, Neurosurgery, Pediatric surgery, Plastic surgery, Breast clinic, Infertility clinic, Endocrinology clinic, Pediatric endocrinology, Pediatric nephrology, Pediatric genetics, Spine clinic, Sports medicine, Aesthetic dermatology, Geriatric clinic, De-addiction clinic, Child guidance centre etc. are also run in the hospital.

The administrative sections and record rooms are fully automated. Radiology and Orthopedics departments are linked with computer retrieval systems. There is a state of the art OT complex located on the third floor of the Hospital with 13 Operating Rooms. This ultra-modern facility caters to General Surgery, Orthopaedics, and super specialties like neurosurgery, laparoscopic surgeries etc. All OTs are centrally air conditioned with AHU, HEPA filters multi-para monitors, and cardiac monitors and with all the modern gadgets for the patient safety. The facility of CCTV is available for demonstration of live operative procedures for students. The students can interact and get their queries answered by discussion with the operating surgeon.

The hospital provides 24-hour emergency central casualty services. All facilities are available for basic life support and resuscitation. The casualty is 24 bedded with emergency OT and critical care management. The hospital has 4 ambulances for paediatric patients & for adult patients. The ambulances have oxygen cylinders, multipara monitors, infusion syringe pumps & ECG cables in each of them

The Hospital has well equipped critical care areas like the ICU, CCU, NICU and PICU facilities. Bharati Hospital was one of the few centers permitted by Govt. of Maharashtra to establish an isolation ward for treating H1N1 cases in the recent outbreak in Pune city. There is a separate Dialysis unit offering treatment to patients at very low cost. A strong force of 150 residents for round the clock services (OPD / IPD and emergency) are available in the hospital.

There is a tertiary level Adult Intensive Care Unit available with approximately 2400 admissions per year and round the clock coverage with trained Intensive care specialists. It is an ISCCM recognized center for training- IDCCM since 2012. It boasts of Advanced Ventilatory and monitoring facilities with sophisticated equipment dedicated bronchoscope, a point of care lab and ICU dialysis facility. Also a Simulation Skills lab with SimMan 3G and other basic manikins is in use for training.

The Neonatal Intensive Care Unit (N.I.C.U) of Bharati hospital has the largest NICU in Maharashtra with 60 beds. It has advanced equipment with Level III / II / I care provided and ventilators and Phototherapy units, Neonatal Neurosonography and echocardiography.

The Pediatric Intensive Care Unit (P.I.C.U) is a 10 bedded Level II PICU with Renal replacement therapy and Invasive BP monitoring.

The Central Laboratory of Bharati Hospital is fully equipped with facilities required for Biochemistry, Pathology and Microbiology investigations. The central clinical Laboratories of Hospital have been refurbished and are well equipped with latest instruments like Fully Automated analyzers, ABG Machines, Hematology counters etc. Blood Bank is licensed and well equipped for component preparation and storage as well as plasmapheresis. The hospital has a well-equipped blood bank licensed for preparation of blood components which is a 24 hour emergency service.

The biochemistry section has state of the art equipment like fully automated biochemistry analyzer, Acid Base status analyzer, glycosylated hemoglobin testing, D – Dimer assay, coagulometer, Electrolyte analyzer and fully automated hormone analyzer based on chemiluminescence principle. The hematology section has 3 and 5 part automated differential hematology analyzers. The laboratory also has cryostat as well as cytocentrifuge machine.

Department of Radiodiagnosis and Radioimaging is spread over 7500 sq. ft of the space with round the clock services. It has state of the art equipments such as MRI, C.T scan (Phillips), Mammography, U.S.G machines with colour Doppler facility, X - Ray machines, computed radiography, portable X ray machines and 2D echo.

Other facilities available in the hospital are central laundry unit, CSSD, Vermiculture Plant, Eye Bank, Ambulances, Canteen and Medical Store in subsidized rates. A 24 hr pharmacy is located in the hospital building which provides medicines at subsidized rates. The Physiotherapy department has well trained physiotherapists with Short Wave Diathermy, IFT, Traction, Ultrasound Therapy, Tens and Electrical muscle Steam water.

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (MBBS)

The syllabus for the MBBS course has been formulated as per the guidelines of the Medical Council of India Regulations of India 1997 as amended upto 2012.

GENERAL CONSIDERATIONS AND TEACHING APPROACH

The Graduate medical curriculum of Bharati Vidyapeeth Medical College, Pune is oriented towards creation of an 'Indian Medical Graduate' possessing requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively as a physician of first contact of the community while being globally relevant. The students should be able to look after the preventive, promotive, curative & rehabilitative aspects of the community.

The training, though broad based and flexible, is aimed at providing an educational experience of the essentials required for health care in our country and meets internationally acceptable standards. The students are also provided adequate placement training to undertake the responsibilities of service situations to enable the graduates to become effective instruments of implementation of those requirements. The graduate shall endeavour to have acquired basic training in different aspects of medical care.

The training emphasizes on the importance of the community aspects of health care and of rural health care services and adequate exposure to such experiences are available through all the three phases of education & training. This is further emphasized by providing exposure to field practice areas and training during the internship period.

The educational experience and curriculum emphasizes health and community orientation instead of only disease and hospital orientation or being concentrated -on-curative-aspects based on the basic concepts of modern scientific medical education. Enough experiences are provided for self learning and the methods and techniques ensuring this are a part of teaching learning process.

The syllabus endeavours to stimulate the medical graduate to become capable of functioning independently in both urban and rural environments with emphasis on fundamental aspects of the subjects taught and on common problems of health and disease avoiding unnecessary details of specialization.

The curriculum gives adequate and proper emphasis to the importance of social factors in relation to the problem of health and diseases. The importance of population control and family welfare planning is to be emphasized throughout the period of training with the importance of health and development duly emphasized.

The syllabus endeavours to place adequate emphasis on cultivating logical and scientific habits of thought, clarity of expression and independence of judgment, ability to collect and analyze information and to correlate them. The educational process should be placed in a historic background as an evolving process. The students will be given an outline on “History of Medicine”. This will be taught in an integrated manner by subject specialists and will be coordinated by the Medical Education Unit of the College.

Every effort shall be made to encourage the use of active methods related to demonstration and on firsthand experience besides didactic methods of large group teaching. Students will be encouraged to learn in small groups, through peer interactions so as to gain maximal experience through contacts with patients and the communities in which they live. The curriculum objectives will be best taught in a setting of clinical relevance and hands on experience for students who assimilate and make this knowledge a part of their own working skills.

The graduate medical education in clinical subjects shall be provided in small groups and based primarily on out-patient teaching, emergency departments and within the community including peripheral health care institutions. Small groups will consist preferably of not more than 10 students so that a teacher can give personal attention to each student with a view to improve his/her skill and competence in handling of the patients.

Proper records of the work shall be maintained which will form the basis for the students' internal assessment.

Integrated teaching will be encouraged between traditional subject areas using a problem based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both understanding and resolution of the problem. Every attempt will be made to de-emphasize compartmentalization of disciplines so as to achieve both horizontal and vertical integration in different phases.

Students will be encouraged to participate in group discussions and seminars to enable them to develop personality, character, expression and other faculties which are necessary for a medical graduate to function either in solo practice or as a team leader when he begins his independent career. A discussion group should not have more than 20 students.

Modern educational technology will be availed of while teaching students. Medical Education Units/ Departments be established in all medical colleges for faculty development and

providing learning resource material to teachers. A curriculum committee will be constituted which will plan curricula and instructional methods which will be regularly updated. Integration of ICT in learning process will be implemented.

The vacation period to students in one calendar year shall not exceed one month, during the 4 ½ years Bachelor of Medicine and Bachelor of Surgery (MBBS) Course.

OBJECTIVES OF MEDICAL GRADUATE TRAINING PROGRAMME:

INSTITUTIONAL GOALS

In consonance with the national goals the undergraduate students coming out of this medical institute should:

- l) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- m) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- n) appreciate rationale for different therapeutic modalities, be familiar with the administration of essential drugs and their common side effects.
- o) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitudes towards patients in discharging their professional responsibilities.
- p) possess the attitude for continued self learning and seek further expertise or pursue research in any chosen area of medicine, action research and documentation skills.
- q) be familiar with the requirements which are essential for the implementation of the National Health Programmes including practical aspects of the following:
 - viii) Family Welfare and Material and Child Health(MCH)
 - ix) Sanitation and water supply
 - x) Prevention and control of communicable and non-communicable diseases
 - xi) Immunization
 - xii) Health Education

- xiii) IPHS standard of health at various level of service delivery, medical waste disposal.
- xiv) Organizational institutional arrangements.
- r) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, general and hospital management, principal inventory skills and counseling.
- s) be able to identify community health problems and learn to work to resolve these by designing and instituting corrective steps and evaluating outcome of such measures.
- t) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- u) be competent to work in a variety of health care settings.
- v) have personal characteristics and attitudes required for professional life such as personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

ROLES

Roles: In order to fulfil the above goals, the student must be able to function in the following roles appropriately and effectively:

- a) **Clinician** who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- b) **Leader and member of the health care team and system** with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- c) **Communicator** with patients, families, colleagues and community.
- d) **Lifelong learner** committed to continuous improvement of skills and knowledge.
- e) **Professional**, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

COMPETENCIES

Competencies: The graduate passing out of this institution should obtain the following set of competencies at the time of graduation:

- a) As a **clinician**, demonstrate knowledge of normal and abnormal human structure, function and development, medico-legal, societal, ethical and humanitarian principles that influence health care, national and regional health care policies, ability to elicit and record histories, perform relevant physical examinations, effective clinical problem solving, judgment and ability to interpret and integrate available data, maintain accurate clear and appropriate record of the patient, choose the appropriate diagnostic tests, prescribe and safely administer appropriate therapies, provide a continuum of care at the primary and/or secondary level, ability to appropriately identify and refer patients and familiarity with basic, clinical and translational research as it applies to the care of the patient.
- b) As a **leader and member of the health care team and system** work effectively and appropriately with colleagues in an inter-professional healthcare team, recognize and function effectively, responsibly and appropriately as a health care team leader, educate and motivate other members of the team, access and utilize components of the health care system and health delivery, participate appropriately in measures that will advance quality of health care and patient safety, recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer.

c) As a **communicator** demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients, establish professional relationships with patients and families, be respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy and in a manner that encourages participation and shared decision-making.

d) As a **lifelong learner** committed to continuous improvement of skills and knowledge demonstrate ability to perform an objective self-assessment, apply newly gained knowledge or skills to the care of the patient, introspect and utilize experiences, search (including through electronic means), and critically evaluate and apply medical literature for patient care and identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

e) As a **professional who is committed to excellence**, practice selflessness, integrity, responsibility, accountability and respect, respect and maintain professional boundaries between patients, colleagues and society, demonstrate ability to recognize and manage ethical and professional conflicts, abide by prescribed ethical and legal codes of conduct and practice and demonstrate a commitment to the growth of the medical profession as a whole.

Training Period and Time Distribution

Every student shall undergo a period of certified study extending over 4 ½ academic years divided into 9 semesters, (i.e. of 6 months each) from the date of commencement of study for the subjects comprising the medical curriculum upto the date of completion of the examination which will be followed by one year compulsory rotating internship.

Each semester will consist of approximately 120 teaching days of 8 hours each in college working hours, including one hour of lunch.

The period of 4 ½ years will be divided into three phases as follows:-

1. **Phase-I**(two semesters) – This Phase will consist of Pre-clinical subjects (Human Anatomy, Physiology including Bio-Physics, Biochemistry and introduction to Community Medicine including Humanities). Besides 60 hours for Introduction to Community Medicine including Humanities, the rest of the time shall be somewhat equally divided between Anatomy and Physiology plus Biochemistry combined (Physiology 2/3 & Biochemistry 1/3).
2. **Phase-II** (3 semesters) – This Phase will consist of para-clinical/ clinical subjects. During this phase teaching of para-clinical and clinical subjects shall be done concurrently. The para-

clinical subjects shall consist of Pathology, Pharmacology, Microbiology, Forensic Medicine including Toxicology and part of Community Medicine.

The clinical subjects shall consist of all those detailed below in Phase III. Out of the time for Para-clinical teaching approximately equal time shall be allotted to Pathology, Pharmacology, Microbiology and Forensic Medicine and Community Medicine combined (1/3 Forensic Medicine & 2/3 Community Medicine).

3. **Phase-III** (Continuation of study of clinical subjects for seven semesters after passing Phase-I) The clinical subjects to be taught during Phase II & III are Medicine and its allied specialties, Surgery and its allied specialties, Obstetrics and Gynaecology and Community Medicine.

Besides clinical postings as per schedule mentioned herewith, the rest of the teaching hours will be utilized for didactic lectures, demonstrations, seminars, group discussions etc. in various subjects.

Medicine and its allied specialties will include General Medicine, Paediatrics, Tuberculosis and Chest, Skin and Sexually Transmitted Diseases, Psychiatry, Radio-diagnosis, Infectious diseases etc.

Surgery and its allied specialties training will include General Surgery, Orthopaedic Surgery including Physiotherapy and Rehabilitation, Ophthalmology, Otorhinolaryngology, Anaesthesia, Dentistry, Radio-therapy etc.

Obstetrics & Gynecology will include family medicine, family welfare planning etc.

4. The first 2 semesters (approximately 240 teaching days) shall be occupied in the Phase I (Pre-clinical) subjects and introduction to a broader understanding of the perspectives of medical education leading to delivery of health care. No student shall be permitted to join the Phase II (Para-clinical/clinical) training until he/she has passed in all the Phase I (Pre-clinical subjects).

5. After passing pre-clinical subjects, 1 ½ year (3 semesters) shall be devoted to para-clinical subjects. Phase II will be devoted to para-clinical & clinical subjects, along with clinical postings. During clinical phase (Phase III) pre-clinical and para-clinical teaching will be integrated into the teaching of clinical subjects where relevant.

6. Didactic lectures shall not exceed one third of the time schedule. The remaining two thirds of the schedule shall include practicals, clinicals and other forms of small group teaching. Learning processes shall include living experiences, problem oriented approach, case studies and community health care activities.

7. Teaching in first semester shall commence on 1st of August each year. For this purpose, they shall follow the time schedule as indicated in the following table.

8. The supplementary examination for 1st Professional MBBS examination will be conducted within 6 months so that the students who pass can join the main batch. Failed students will have to appear in the subsequent year provided that the students who pass the supplementary examination shall be allowed to appear in the second professional MBBS examination only after he/she completes the full course of study of three semesters (i.e. 18 months) for the second professional MBBS examination irrespective of the examination of the main batch.

9. Phase Distribution and Timing of Examinations:

6 MONTHS	6 MONTHS	6 MONTHS	
1	2		Ist professional examination (during second semester)
3	4	5	IInd professional examination (during fifth semester)
6	7		IIIrd professional Part I (during 7th semester)
8	9		IIIrd professional Part II (Final Professional).

Note:

- Passing in Ist Professional is compulsory before proceeding to Phase II training.
- A student who fails in the IInd professional examination, shall not be allowed to appear in the IIIrd Professional Part I examination unless he/she passes all subjects of IInd Professional examination.
- Passing in IIIrd Professional (Part I) examination is not compulsory before entering the 8th & 9th semester training. However passing of IIIrd Professional (Part I) is compulsory for being eligible to appear for the IIIrd Professional (Part II) examination.

- d) During third to ninth semesters, clinical postings of three hours duration daily as specified in the Table below is suggested for various departments, after Introductory Course in Clinical Methods in Medicine & Surgery of two weeks each for the whole class.
- e) Grace marks upto a maximum of five marks may be awarded at the discretion of the University to a student who has failed in only one subject but has passed in all other subjects.

Prescribed Teaching Hours and Suggested Model Time Tables

The following minimum teaching hours are prescribed in various disciplines:

A. Pre-Clinical Subjects :(Phase-1-First and Second Semester)

Anatomy 650 Hrs.

Physiology 480 Hrs.

Biochemistry 240 Hrs.

Community Medicine 60 Hrs.

B. Para-Clinical Subjects: (Phase-II-5th to 7th Semester)

Pathology 300 Hrs.

Pharmacology 300 Hrs.

Microbiology 250 Hrs.

Community Medicine 200 Hrs. (including 8 weeks postings of 3 hrs each)

Forensic Medicine 100 Hrs.

Teaching of para-clinical subjects shall be 4 hrs per day in 3rd Semester and 3hrs per day in 4th and 5th Semesters (See attached Time Table)

C. Clinical Subjects

1. Clinical postings will be as per chart attached.

2. Theory lectures, demonstrations and Seminars etc. will be conducted in addition to clinical postings as under. The clinical lectures to be held from 4th Semester onwards (See attached Time Table)

Gen-Medicine 300 Hours

Gen. Surgery 300 Hours

Paediatrics 100 hrs

Orthopedics 100 hrs

T.B. and Chest Diseases 20 hrs

Ophthalmology 100 hrs

Psychiatry 20 hrs

ENT 70 hrs
 Skin and STD 30 hrs
 Radiology 20 hrs
 Community Medicine 50 hrs
 Dentistry 10 hrs
 Anaesthesia 20 hrs
 Obst&Gynae. 300 hrs

Note:

This period of training is the minimum suggested. Adjustments where required depending on availability of time may be made.

This period of training does not include university examination period.

Extra time available will be devoted to other Sub-specialities.

During semesters 3 to 9 the following clinical postings for each student, of 3 hrs. duration is suggested for various departments after introductory course in Clinical Methods in Medicine and surgery of 2 weeks each for the whole class.

TABLE

Total	3 rd Semester (Wks)	4th Semester (Wks)	5th Semester (Wks)	6th Semester (Wks)	7th Semester (Wks)	8th Semester (Wks)	9th Semester (Wks)	Total (Wks)
Subject								
General Medicine ***	6	-	4	-	4	6	6	26
Paediatrics	-	2	-	2	2	4	-	10
Tuberculosis And Chest Diseases	-	2	-	-	-	-	-	2
Skin & STD	-	2	-	2	-	2	-	6
Psychiatry	-	-	2	-	-	-	-	2
Radiology*	-	-	-	-	2	-	-	2
General Surgery ****	6	-	4	-	4	6	6	26
Orthopaedics **	-	-	4	4	-	-	2	10
Ophthalmol ogy	-	4	-	4	-	-	2	10
Ear Nose	-	4	-	4	-	-	-	8

And Throat								
Obstetrics and Gynaecology including Family Welfare Planning *****	2	4	4	-	4	4	6	24
Community Medicine	4	4	-	4	-	-	-	12
Casualty	-	-	-	2	-	-	-	2
Dentistry	-	-	-	-	2	-	-	2
Total	18	22	18	22	18	22	22	142

Note:

Clinical methods in Medicine and Surgery for the whole class will be held for 2 weeks each respectively at the start of 3rd semester

* This posting includes training in Radiodiagnosis and Radiotherapy where existent.

** This posting includes exposure to Rehabilitation and Physiotherapy.

*** This posting includes exposure to laboratory medicine and infectious diseases.

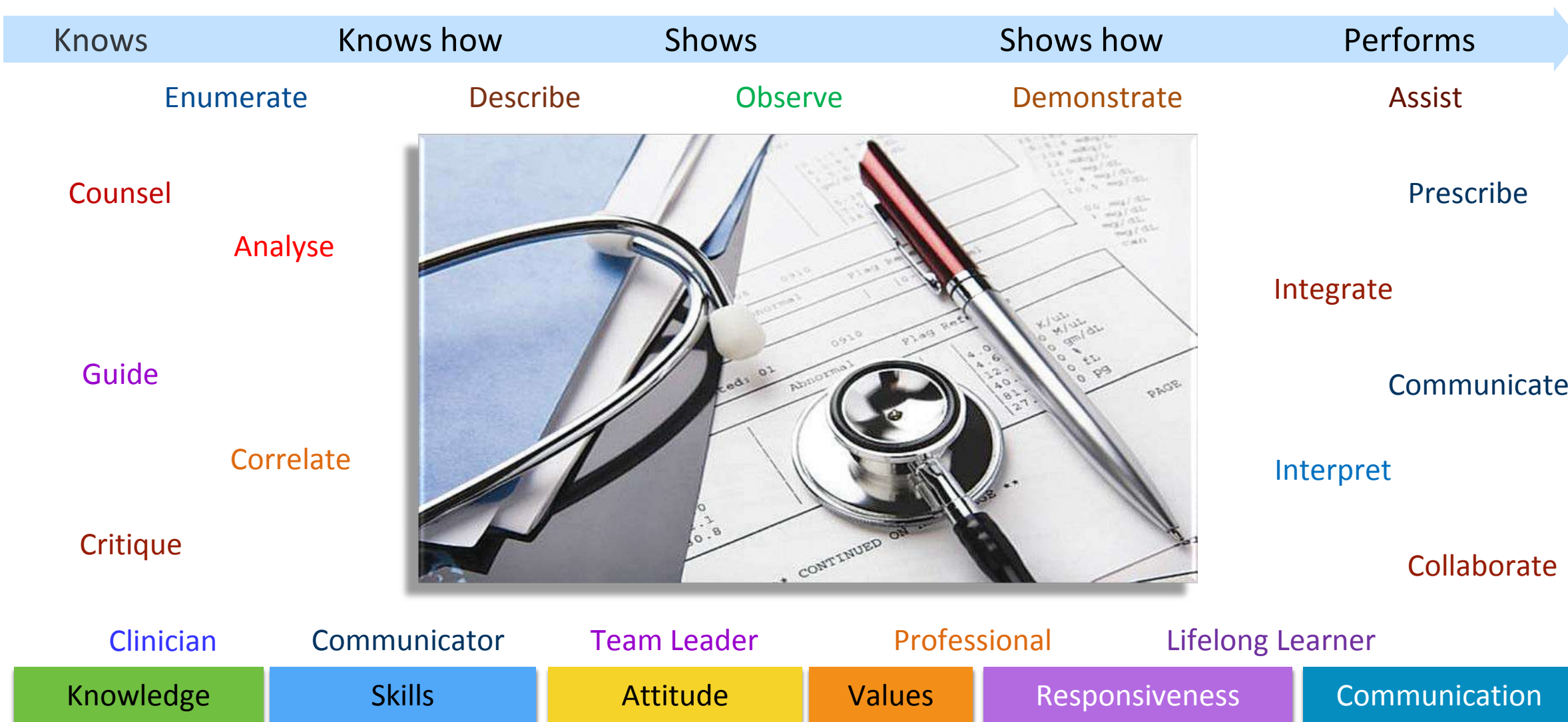
**** This posting includes exposure to dressing and Anesthesia.

***** This includes maternity training and Family medicine and the 3rd semester posting shall be in Family Welfare Planning.



MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



VOLUME-I (2018)

**COMPETENCY BASED UNDERGRADUATE CURRICULUM
FOR THE
INDIAN MEDICAL GRADUATE
2018**



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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड

BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

FOREWORD

The Medical Council of India, aware of its responsibilities in creation of trained health manpower, has been engaged for the past few years in updating the medical curriculum for undergraduates and postgraduates to be in consonance with the changing health needs of the country. The task of updating and reorganization of the postgraduate curriculum in nearly 50 broad specialty disciplines to the competency pattern was accomplished by the Academic Cell of the Council with the help of subject experts and members of its Reconciliation Board and have been uploaded on the Council Website for use of the medical fraternity.

The Council visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. The student should be trained to effectively communicate with patients and their relatives in a manner respectful of the patient's preferences, values, beliefs, confidentiality and privacy and to this purpose, a book on Attitude, Ethics & Communication was prepared by the Medical Council of India; the teaching faculty of medical colleges have been receiving training on this module since 2015.

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-2-

Competency based Medical Education provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies. Keeping this objective as the core ingredient, the Medical Council of India with the help of panel of experts drawn from across the country, laid the basic framework for the revised undergraduate medical curriculum. Over the past four years, a group of highly committed medical professionals working as Members of the MCI Reconciliation Board developed this information into a document incorporating appropriate teaching-learning strategies, tools and techniques of teaching, and modes of assessment which have culminated in the current competency based undergraduate curriculum. We understand that maximum efforts were made to encourage integrated teaching between traditional subject areas using a problem-based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both the understanding and resolution of the problem. All efforts have been made to de-emphasize compartmentalisation of disciplines so as to achieve both horizontal and vertical integration in different phases. We are proud of their work accomplishment and congratulate them in the onerous task accomplished.

It gives us great satisfaction to state that the '**competency based undergraduate curriculum**' that has been prepared by the Medical Council of India would definitely serve the cause of medical education and in creating a competent Indian Medical Graduate to serve the community.

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COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Preamble

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide health care to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using “broad competencies”; instead, the reports have written end of phase subject (sub) competencies. These “sub-competencies” can be mapped to the global competencies in the Graduate Medical Education Regulations.

A significant attempt has been made in the outcome driven undergraduate curriculum to provide the orientation and the skills necessary for life-long learning to enable proper care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged. In the pre-internship years,- the highest level of skill acquisition is a show how (SH) in a simulated or guided environment; few skills require independent performance and certification - these are marked with P (for performance). Opportunity to ‘perform’ these skills will be available during internship.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above, an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self directed learning and co-curricular activities.

Formative and internal assessments have been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened, increasing the involvement of Curriculum Committee and Medical Education Departments/Units.

The curriculum document in conjunction with the new Graduate Medical Education Regulations (GMR), when notified, must be seen as a “living document” that should evolve as stakeholder requirements and aspirations change. We hope that the current GMR does just that. The Medical Council of India is

grateful to all the teachers, subject experts, process experts, patients, students and trainees who have contributed through invaluable inputs, intellectual feedbacks and valuable time spent to make this possible. This document would not have been possible without the dedicated and unstinting intellectual, mental and time-consuming efforts of the members of the Reconciliation Board of the Council and the Academic Cell of MCI.

How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. They must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

2. Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession fulfill his/her social obligations towards realization of this goal.
- (b) learn every aspect of National policies on health and devote herself/himself to its practical implementation.
- (c) achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

- (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH);
 - (ii) Sanitation and water supply;
 - (iii) Prevention and control of communicable and non-communicable diseases;
 - (iv) Immunization;
 - (v) Health Education;
 - (vi) Indian Public Health Standards (IPHS) at various level of service delivery;
 - (vii) Bio-medical waste disposal; and
 - (viii) Organizational and or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, General and hospital management, principal inventory skills and counseling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2. 3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

- 3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- 3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - i) Disease prevention,
 - ii) Health promotion and cure,
 - iii) Pain and distress alleviation, and
 - iv) Rehabilitation and palliation.

- 3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

- 3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- 3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- 3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- 3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. *Communicator with patients, families, colleagues and community*

- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically reevaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. *Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession*

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise outcomes

Section 2 contains subject-wise outcomes so called “sub-competencies” that must be achieved at the end of instruction in that subject. These are organised in tables and have two parts. The core subject outcomes are in first part. The second part in the same document (titled Integration) contains outcomes/competencies in other subjects which have been identified by experts in those subjects as requiring alignment or integration with the core subject.

Outcomes (competencies) in each subject are grouped according to topics number-wise. It is important to review the individual outcomes (competencies) in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section “definitions used in this document”. The suggested number of times a skill must be performed independently for certification in the learner’s log book is also given. Last two columns indicate subjects within the same phase and other phases with which the topic can be taught - together - aligned (temporal coordination), shared, correlated or nested.

The number of topics and competencies in each subject are given below:

Topics & outcomes in Pre-clinical & Para-clinical subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Human Anatomy	82	409
2.	Physiology	11	137
3.	Biochemistry	11	89
4.	Pharmacology	05	85
5.	Pathology	36	182
6.	Microbiology	08	54
7.	Forensic Medicine & Toxicology	14	162
	Total	167	1118

Topics & outcomes in Medicine and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Community Medicine	20	107
2.	General Medicine	26	506
3.	Respiratory Medicine	02	47
4.	Pediatrics	35	406
5.	Psychiatry	19	117
6.	Dermatology, Venereology & Leprosy	18	73
7.	Physical Medicine & Rehabilitation	09	43
	Total	129	1299

Topics & outcomes in Surgery and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	General Surgery	30	133
2.	Ophthalmology	09	60
3.	Otorhinolaryngology	04	76
4.	Obstetrics & Gynaecology	38	126
5.	Orthopedics	14	39
6.	Anesthesiology	10	46
7.	Radiodiagnosis	01	13
8.	Radiotherapy	05	16
9.	Dentistry	05	23
	Total	116	532

Section 3

Sample topics used for alignment & integration

Section 3 contains a sample selection of topics that run across the phases which can be used for alignment and integration. These are suggestions and institutions can select their own set of topics which can run across phases.

It is important to design the curriculum with a view to ensure with several broad outcomes in mind: a) achievement of the broad competencies by the learner at the end of the MBBS program, b) retain the subject - wise character of learning and assessment and ensure that phase-wise subject outcomes are met and assessed, c) teaching topics that are similar together thereby reducing redundancy and allowing the learner to integrate the concept as the most important step in integration (alignment or temporal coordination) (see document on integration), and d) align learning and assessment experiences to the outcome and the level of achievement specified.

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H	I	J
No.	Competencies	Domain	K/KH/SH/P	Core	Suggested Teaching Learning Method	Suggested Assessment method	No. required to certify (P)	Vertical Integration	Horizontal Integration
Physiology									
Summary Name of Topic: General Physiology Number of Competencies: (08)									
PY1.1	Describe the structure and functions of a	K	KH	Y	Lectures, Small group discussion	Written/Viva			Biochemistry
IM25.4	Elicit <i>document</i> and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	Skill assessment		Community Medicine	

Unique number of the competency. First two alphabets represent the subject (see list); number following alphabet reflects topic number, following period is a running number.

Description of competency

Identifies the domain or domains addressed
 K - Knowledge
 S - Skill
 A - Attitude
 C - Communication

Identifies the level of competency required based on the Miller's pyramid
 K - Knows
 KH - Knows How
 S - Skill
 SH - Show How
 P - Perform independently

Identifies if the competency is core or desirable.
 Y indicates Core;
 N-non-core

Identifies the suggested learning method.
 DOAP - Demonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
 Skill assessment - Clinics, Skills lab, Practicals etc.

no of times a skill needs to be done independently to be certified for independent performance;
 Rarely used in UG

Subject (s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject (s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

PA42.1*	At the end of the session the phase II student must be able to enumerate the most common causes of meningitis correctly
PA42.2*	At the end of the session the phase II student must be able to enumerate the components of CSF analysis correctly
PA42.3*	At the end of the session the phase II student must be able to describe the CSF features for a given etiology of meningitis accurately
PA42.4*	At the end of the session the phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters

- Audience - who will do the behavior
- Behavior - What should the learner be able to do?
- Condition - Under what conditions should the learner be able to do it?
- Degree – How well must it be done

Objective: Statement of what a learner should be able to do at the end of a specific learning experience
*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving learning methods from competencies

Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Lecture	small group discussion
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Related objectives can be combined into one teaching session	
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given etiologic of meningitis accurately		
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	small group discussion, practical session	

*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies-1

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the ~~Phase II student~~ must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given aetiology of meningitis accurately	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document

Deriving assessment methods from competencies-2

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

MI2.4*	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine	Pathology

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the morphology of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects -teachers from both subjects usually not needed. Ensure redundancy and duplication by reviewing both subjects



Horizontally aligned and integrated with pathology

Vertically integrated with General Medicine



Integrate concept - not necessarily teachers Plan session with teachers from both phases. Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient). Using teachers from both phases is rarely required

The concept of integration

Concept of integration used in the Manual

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application. The GMR 2018 applies these principles to the extent that will retain the strengths of silo - based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind, the Regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be thought separately but during the same time frame (Figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to Share (Figure 1b) topics or Correlate (Figure 1c) topics by using an integration session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. Care must be taken to ensure that achievement phase - based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasized that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may be involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting (Figure 1d) (Harden). Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year.

Assessment will continue to be subject based. However, efforts must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application.

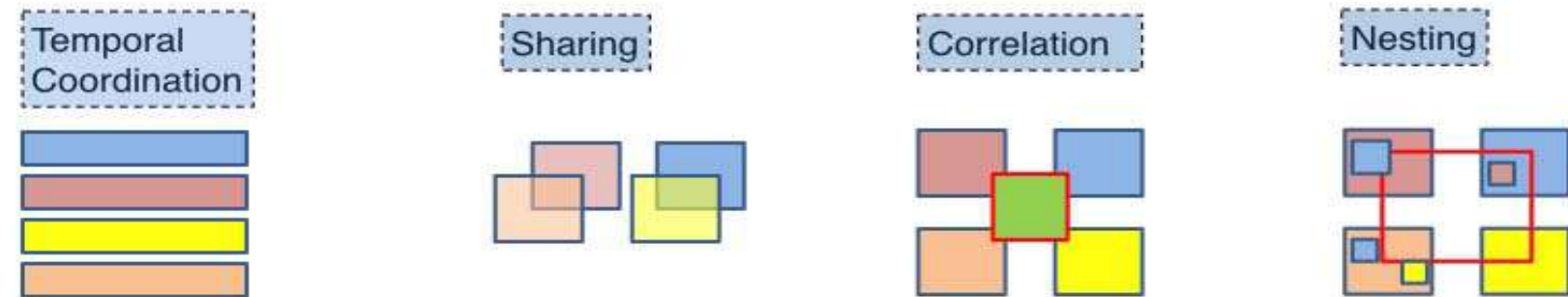


Figure 1 : Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Definitions used in the Manual

- 1. Goal:** A projected state of affairs that a person or system plans to achieve.
In other words: Where do you want to go? or What do you want to become?
- 2. Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.
In other words: What should you have? or What should have changed?
- 3. Objective:** Statement of what a learner should be able to do at the end of a specific learning experience.
In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Interpret	
Elicit		
Report		

Note:

- 1. Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.
- 2. The word ‘perform’ or ‘do’ is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
- 3. Most tasks that require performance during undergraduate years will be performed under supervision.
- 4. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

Lecture	Any instructional large group method including traditional lecture and interactive lecture
Small group discussion	Any instructional method involving small groups of students in an appropriate learning context
DOAP (Demonstration- Observation - Assistance - Performance)	A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently
Skill assessment	A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands
Core	A competency that is necessary in order to complete the requirements of the subject (traditional must know)
Non-Core	A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified.

Volume I

Competency based Undergraduate Curriculum

in

Pre-clinical and Para-clinical subjects

HUMAN ANATOMY (CODE: AN)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Human Anatomy									
Topic: Anatomical terminology		Number of competencies: (2)			Number of procedures for certification: (NIL)				
AN1.1	Demonstrate normal anatomical position, various planes, relation, comparison, laterality & movement in our body	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/skills assessment			
AN1.2	Describe composition of bone and bone marrow	K	KH	Y	Lecture	Written/ Viva voce			
Topic: General features of bones & Joints		Number of competencies: (6)			Number of procedures for certification: (NIL)				
AN2.1	Describe parts, blood and nerve supply of a long bone	K	KH	Y	Lecture, DOAP session	Written/ Viva voce			
AN2.2	Enumerate laws of ossification	K	KH	N	Lecture	Written			
AN2.3	Enumerate special features of a sesamoid bone	K	KH	N	Lecture	Written			
AN2.4	Describe various types of cartilage with its structure & distribution in body	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN2.5	Describe various joints with subtypes and examples	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN2.6	Explain the concept of nerve supply of joints & Hilton's law	K	KH	Y	Lecture	Written/ Viva voce			
Topic: General features of Muscle		Number of competencies: (3)			Number of procedures for certification: (NIL)				
AN3.1	Classify muscle tissue according to structure & action	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN3.2	Enumerate parts of skeletal muscle and differentiate between tendons and aponeuroses with examples	K	KH	Y	Lecture	Written/ Viva voce			
AN3.3	Explain Shunt and spurt muscles	K	KH	N	Lecture	Written			
Topic: General features of skin and fascia		Number of competencies: (5)			Number of procedures for certification: (NIL)				
AN4.1	Describe different types of skin & dermatomes in body	K	KH	N	Lecture, DOAP session	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN4.2	Describe structure & function of skin with its appendages	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.3	Describe superficial fascia along with fat distribution in body	K	KH	Y	Lecture, DOAP session	Written/ Viva voce			
AN4.4	Describe modifications of deep fascia with its functions	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.5	Explain principles of skin incisions	K	KH	N	Lecture	Written		Dermatology, Venereology & Leprosy	
Topic: General features of the cardiovascular system Number of competencies: (8) Number of procedures for certification: (NIL)									
AN5.1	Differentiate between blood vascular and lymphatic system	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.2	Differentiate between pulmonary and systemic circulation	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.3	List general differences between arteries & veins	K	KH	Y	Lecture	Written/ Viva voce			
AN5.4	Explain functional difference between elastic, muscular arteries and arterioles	K	KH	Y	Lecture	Written/ Viva voce			
AN5.5	Describe portal system giving examples	K	KH	Y	Lecture	Written/ Viva voce			
AN5.6	Describe the concept of anastomoses and collateral circulation with significance of end-arteries	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN5.7	Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses	K	KH	N	Lecture	Written			Physiology
AN5.8	Define thrombosis, infarction & aneurysm	K	KH	N	Lecture	Written		Pathology	Physiology
Topic: General Features of lymphatic system Number of competencies: (3) Number of procedures for certification: (NIL)									
AN6.1	List the components and functions of the lymphatic system	K	KH	N	Lecture	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN6.2	Describe structure of lymph capillaries & mechanism of lymph circulation	K	KH	N	Lecture	Written			
AN6.3	Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system	K	KH	N	Lecture	Written		General Surgery	
Topic: Introduction to the nervous system Number of competencies: (8) Number of procedures for certification: (NIL)									
AN7.1	Describe general plan of nervous system with components of central, peripheral & autonomic nervous systems	K	KH	Y	Lecture	Written			
AN7.2	List components of nervous tissue and their functions	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.3	Describe parts of a neuron and classify them based on number of neurites, size & function	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.4	Describe structure of a typical spinal nerve	K	KH	Y	Lecture	Written/ Viva voce			
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	Lecture	Written		General Medicine	Physiology
AN7.6	Describe concept of loss of innervation of a muscle with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
AN7.7	Describe various type of synapse	K	KH	N	Lecture	Written			Physiology
AN7.8	Describe differences between sympathetic and spinal ganglia	K	KH	N	Lecture	Written			
Topic: Features of individual bones (Upper Limb) Number of competencies: (6) Number of procedures for certification: (NIL)									
AN8.1	Identify the given bone, its side, important features & keep it in anatomical position	K/S	SH	Y	DOAP session	Viva voce/ Practicals/ OSPE			
AN8.2	Identify & describe joints formed by the given bone	K/S	SH	Y	Lecture, DOAP session	Viva voce			
AN8.3	Enumerate peculiarities of clavicle	K	KH	Y	Lecture, DOAP session	Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN8.4	Demonstrate important muscle attachment on the given bone	K/S	SH	Y	Practical DOAP session, Small group teaching	Viva voce Practicals		Orthopedics	
AN8.5	Identify and name various bones in articulated hand, Specify the parts of metacarpals and phalanges and enumerate the peculiarities of pisiform	K/S	SH	Y	Practical, F91 DOAP session, Small group teaching	Viva voce Practicals			
AN8.6	Describe scaphoid fracture and explain the anatomical basis of avascular necrosis	K	KH	N	DOAP session	Viva voce		Orthopedics	
Topic: Pectoral region Number of competencies: (3) Number of procedures for certification: (NIL)									
AN9.1	Describe attachment, nerve supply & action of pectoralis major and pectoralis minor	K	KH	Y	Lecture, Practical	Written			
AN9.2	Breast: Describe the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied anatomy of breast	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN9.3	Describe development of breast	K	KH	N	Lecture	Written			
Topic: Axilla, Shoulder and Scapular region Number of competencies: (13) Number of procedures for certification: (NIL)									
AN10.1	Identify & describe boundaries and contents of axilla	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.2	Identify, describe and demonstrate the origin, extent, course, parts, relations and branches of axillary artery & tributaries of vein	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.3	Describe, identify and demonstrate formation, branches, relations, area of supply of branches, course and relations of terminal branches of brachial plexus	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN10.4	Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN10.5	Explain variations in formation of brachial plexus	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN10.6	Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis	K	KH	N	Lecture	Written		General Surgery	
AN10.7	Explain anatomical basis of enlarged axillary lymph nodes	K	KH	N	Lecture	Written		General Surgery	
AN10.8	Describe, identify and demonstrate the position, attachment, nerve supply and actions of trapezius and latissimus dorsi	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.9	Describe the arterial anastomosis around the scapula and mention the boundaries of triangle of auscultation	K	KH	N	Lecture	Written			
AN10.10	Describe and identify the deltoid and rotator cuff muscles	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.11	Describe & demonstrate attachment of serratus anterior with its action	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN10.12	Describe and demonstrate shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Orthopedics	
AN10.13	Explain anatomical basis of Injury to axillary nerve during intramuscular injections	K	KH	N	Lecture	Viva voce			
Topic: Arm & Cubital fossa Number of competencies: (6) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN11.1	Describe and demonstrate muscle groups of upper arm with emphasis on biceps and triceps brachii	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN11.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels in arm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN11.3	Describe the anatomical basis of Venepuncture of cubital veins	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN11.4	Describe the anatomical basis of Saturday night paralysis	K	KH	Y	Practical, Lecture	Written/ Viva voce		Orthopedics	
AN11.5	Identify & describe boundaries and contents of cubital fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN11.6	Describe the anastomosis around the elbow joint	K	KH	N	Lecture	Written			
Topic: Forearm & hand Number of competencies: (15) Number of procedures for certification: (NIL)									
AN12.1	Describe and demonstrate important muscle groups of ventral forearm with attachments, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of forearm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.3	Identify & describe flexor retinaculum with its attachments	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN12.4	Explain anatomical basis of carpal tunnel syndrome	K	KH	Y	Lecture	Written/ Viva voce			
AN12.5	Identify & describe small muscles of hand. Also describe movements of thumb and muscles involved	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.6	Describe & demonstrate movements of thumb and muscles involved	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.7	Identify & describe course and branches of important blood vessels and nerves in hand	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.8	Describe anatomical basis of Claw hand	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN12.9	Identify & describe fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN12.10	Explain infection of fascial spaces of palm	K	KH	N	Lecture	Written		General Surgery	
AN12.11	Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN12.12	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN12.13	Describe the anatomical basis of Wrist drop	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN12.14	Identify & describe compartments deep to extensor retinaculum	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN12.15	Identify & describe extensor expansion formation	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: General Features, Joints, radiographs & surface marking Number of competencies: (8) Number of procedures for certification: (NIL)									
AN13.1	Describe and explain Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage	K	KH	Y	Lecture	Written/ Viva voce			
AN13.2	Describe dermatomes of upper limb	K	KH	N	Lecture	Written/ Viva voce			
AN13.3	Identify & describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints, wrist joint & first carpometacarpal joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN13.4	Describe Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangeal joint	K	KH	N	Lecture	Written			
AN13.5	Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand	K/S	SH	Y	Practical, Small group discussion, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	
AN13.6	Identify & demonstrate important bony landmarks of upper limb: Jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end, Inferior angle of the scapula	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment			
AN13.7	Identify & demonstrate surface projection of: Cephalic and basilic vein, Palpation of Brachial artery, Radial artery, Testing of muscles: Trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, Brachioradialis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN13.8	Describe development of upper limb	K	KH	N	Lecture	Written			
Features of individual bones (Lower Limb) Number of competencies: (4) Number of procedures for certification: (NIL)									
AN14.1	Identify the given bone, its side, important features & keep it in anatomical position	K/S	SH	Y	DOAP session	Viva voce			
AN14.2	Identify & describe joints formed by the given bone	K/S	SH	Y	Lecture, DOAP session	Viva voce			
AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia	K	KH	Y	Lecture	Viva voce/ Practicals		Forensic Medicine & Toxicology	
AN14.4	Identify and name various bones in the articulated foot with individual muscle attachment	K/S	SH	N	Practical, DOAP session, Small group teaching	Viva voce/ Practicals			
Topic: Front & Medial side of thigh Number of competencies: (5) ♂ Number of procedures for certification: (NIL)									
AN15.1	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN15.2	Describe and demonstrate major muscles with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN15.3	Describe and demonstrate boundaries, floor, roof and contents of femoral triangle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN15.4	Explain anatomical basis of Psoas abscess & Femoral hernia	K	KH	N	Lecture, DOAP session	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN15.5	Describe and demonstrate adductor canal with its content	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: Gluteal region & back of thigh Number of competencies: (6) Number of procedures for certification: (NIL)									
AN16.1	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of gluteal region	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN16.2	Describe anatomical basis of sciatic nerve injury during gluteal intramuscular injections	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.3	Explain the anatomical basis of Trendelenburg sign	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.4	Describe and demonstrate the hamstrings group of muscles with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN16.5	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN16.6	Describe and demonstrate the boundaries, roof, floor, contents and relations of popliteal fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: Hip Joint Number of competencies: (3) Number of procedures for certification: (NIL)									
AN17.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN17.2	Describe anatomical basis of complications of fracture neck of femur	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN17.3	Describe dislocation of hip joint and surgical hip replacement	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
Topic: Knee joint, Anterolateral compartment of leg & dorsum of foot Number of competencies: (7) ♂ Number of procedures for certification: (NIL)									
AN18.1	Describe and demonstrate major muscles of anterolateral compartment of leg with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN18.2	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN18.3	Explain the anatomical basis of foot drop	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN18.4	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the knee joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN18.5	Explain the anatomical basis of locking and unlocking of the knee joint	K	KH	Y	Small group teaching	Written/ Viva voce			
AN18.6	Describe knee joint injuries with its applied anatomy	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN18.7	Explain anatomical basis of Osteoarthritis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
Topic: Back of Leg & Sole Number of competencies: (7) Number of procedures for certification: (NIL)									
AN19.1	Describe and demonstrate the major muscles of back of leg with their attachment, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN19.2	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN19.3	Explain the concept of “Peripheral heart”	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN19.4	Explain the anatomical basis of rupture of calcaneal tendon	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.5	Describe factors maintaining importance arches of the foot with its importance	K	KH	Y	Lecture	Written/ Viva voce			
AN19.6	Explain the anatomical basis of Flat foot & Club foot	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.7	Explain the anatomical basis of Metatarsalgia & Plantar fasciitis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
Topic: General Features, Joints, radiographs & surface marking Number of competencies: (10) Number of procedures for certification: (NIL)									
AN20.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN20.2	Describe the subtalar and transverse tarsal joints	K	KH	N	Lecture, DOAP session	Written/ Viva voce			
AN20.3	Describe and demonstrate Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN20.4	Explain anatomical basis of enlarged inguinal lymph nodes	K	KH	N	Lecture	Written/ Viva voce		General Surgery	
AN20.5	Explain anatomical basis of varicose veins and deep vein thrombosis	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN20.6	Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN20.7	Identify & demonstrate important bony landmarks of lower limb: -Vertebral levels of highest point of iliac crest, posterior superior iliac spines, iliac tubercle, pubic tubercle, ischial tuberosity, adductor tubercle, -Tibial tuberosity, head of fibula, -Medial and lateral malleoli, Condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal, tuberosity of the navicular	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment			
AN20.8	Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Medicine	
AN20.9	Identify & demonstrate Palpation of vessels (femoral, popliteal, dorsalis pedis, post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, Great and small saphenous veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Medicine, General Surgery	
AN20.10	Describe basic concept of development of lower limb	K	KH	N	Lecture	Viva voce			
Topic: Thoracic cage Number of competencies: (11) Number of procedures for certification: (NIL)									
AN21.1	Identify and describe the salient features of sternum, typical rib, 1 st rib and typical thoracic vertebra	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN21.2	Identify & describe the features of 2 nd , 11 th and 12 th ribs, 1 st , 11 th and 12 th thoracic vertebrae	K/S	SH	N	Lecture, DOAP session	Viva voce/ skill assessment			
AN21.3	Describe & demonstrate the boundaries of thoracic inlet, cavity and outlet	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN21.4	Describe & demonstrate extent, attachments, direction of fibres, nerve supply and actions of intercostal muscles	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN21.5	Describe & demonstrate origin, course, relations and branches of a typical intercostal nerve	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN21.6	Mention origin, course and branches/ tributaries of: 1) anterior & posterior intercostal vessels 2) internal thoracic vessels	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN21.7	Mention the origin, course, relations and branches of 1) atypical intercostal nerve 2) superior intercostal artery, subcostal artery	K	KH	N	Lecture	Written			
AN21.8	Describe & demonstrate type, articular surfaces & movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN21.9	Describe & demonstrate mechanics and types of respiration	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN21.10	Describe costochondral and interchondral joints	K	KH	N	Lecture	Written			
AN21.11	Mention boundaries and contents of the superior, anterior, middle and posterior mediastinum	K	KH	Y	Practical, Lecture	Written/ Viva voce			
Topic: Heart & Pericardium Number of competencies: (7) Number of procedures for certification: (NIL)									
AN22.1	Describe & demonstrate subdivisions, sinuses in pericardium, blood supply and nerve supply of pericardium	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN22.2	Describe & demonstrate external and internal features of each chamber of heart	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN22.3	Describe & demonstrate origin, course and branches of coronary arteries	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN22.5	Describe & demonstrate the formation, course, tributaries and termination of coronary sinus	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN22.6	Describe the fibrous skeleton of heart	K	KH	Y	Lecture	Written			
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	Lecture	Written		General Medicine	Physiology
Topic: Mediastinum Number of competencies: (7) Number of procedures for certification: (NIL)									
AN23.1	Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN23.2	Describe & demonstrate the extent, relations tributaries of thoracic duct and enumerate its applied anatomy	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN23.3	Describe & demonstrate origin, course, relations, tributaries and termination of superior venacava, azygos, hemiazygos and accessory hemiazygos veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN23.4	Mention the extent, branches and relations of arch of aorta & descending thoracic aorta	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN23.5	Identify & Mention the location and extent of thoracic sympathetic chain	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN23.6	Describe the splanchnic nerves	K	KH	N	Lecture	Written			
AN23.7	Mention the extent, relations and applied anatomy of lymphatic duct	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Lungs & Trachea Number of competencies: (6) Number of procedures for certification: (NIL)									
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN24.3	Describe a bronchopulmonary segment	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.4	Identify phrenic nerve & describe its formation & distribution	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
AN24.5	Mention the blood supply, lymphatic drainage and nerve supply of lungs	K	KH	Y	Lecture	Written/ Viva voce			
AN24.6	Describe the extent, length, relations, blood supply, lymphatic drainage and nerve supply of trachea	K	KH	N	Lecture	Written			
Topic: Thorax Number of competencies: (9) Number of procedures for certification: (01)									
AN25.1	Identify, draw and label a slide of trachea and lung	K/S	SH	Y	Lecture, Practical	Written/ skill assessment	1		
AN25.2	Describe development of pleura, lung & heart	K	KH	Y	Lecture	Written			
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.6	Mention development of aortic arch arteries, SVC, IVC and coronary sinus	K	KH	N	Lecture	Written/ Viva voce			
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K/S	SH	Y	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.8	Identify and describe in brief a barium swallow	K/S	SH	N	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.9	Demonstrate surface marking of lines of pleural reflection, lung borders and fissures, trachea, heart borders, apex beat & surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Medicine, Pediatrics	Physiology
Topic: Skull osteology Number of competencies: (7) Number of procedures for certification: (NIL)									
AN26.1	Demonstrate anatomical position of skull, Identify and locate individual skull bones in skull	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.2	Describe the features of norma frontalis, verticalis, occipitalis, lateralis and basalis	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.3	Describe cranial cavity, its subdivisions, foramina and structures passing through them	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.4	Describe morphological features of mandible	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.5	Describe features of typical and atypical cervical vertebrae (atlas and axis)	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment			
AN26.6	Explain the concept of bones that ossify in membrane	K	KH	N	Lecture	Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN26.7	Describe the features of the 7 th cervical vertebra	K/S	SH	N	DOAP session	Viva voce			
Topic: Scalp Number of competencies: (2) Number of procedures for certification: (NIL)									
AN27.1	Describe the layers of scalp, its blood supply, its nerve supply and surgical importance	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN27.2	Describe emissary veins with its role in spread of infection from extracranial route to intracranial venous sinuses	K	KH	Y	Lecture	Written			
Topic: Face & parotid region Number of competencies: (10) Number of procedures for certification: (NIL)									
AN28.1	Describe & demonstrate muscles of facial expression and their nerve supply	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.2	Describe sensory innervation of face	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN28.3	Describe & demonstrate origin /formation, course, branches /tributaries of facial vessels	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.4	Describe & demonstrate branches of facial nerve with distribution	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.5	Describe cervical lymph nodes and lymphatic drainage of head, face and neck	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN28.6	Identify superficial muscles of face, their nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN28.7	Explain the anatomical basis of facial nerve palsy	K	KH	Y	Lecture	Written		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN28.8	Explain surgical importance of deep facial vein	K	KH	Y	Lecture	Written		General Surgery	
AN28.9	Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN28.10	Explain the anatomical basis of Frey's syndrome	K	KH	N	Lecture	Written		General Surgery	
Topic: Posterior triangle of neck Number of competencies: (4) Number of procedures for certification: (NIL)									
AN29.1	Describe & demonstrate attachments, nerve supply, relations and actions of sternocleidomastoid	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN29.2	Explain anatomical basis of Erb's & Klumpke's palsy	K	KH	Y	Lecture	Written		General Surgery	
AN29.3	Explain anatomical basis of wry neck	K	KH	N	Lecture	Written		General Surgery	
AN29.4	Describe & demonstrate attachments of 1) inferior belly of omohyoid, 2)scalenus anterior, 3) scalenus medius & 4) levator scapulae	K/S	SH	N	Lecture, Practical	Written/ Viva voce			
Topic: Cranial cavity Number of competencies: (5) Number of procedures for certification: (NIL)									
AN30.1	Describe the cranial fossae & identify related structures	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN30.2	Describe & identify major foramina with structures passing through them	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN30.3	Describe & identify dural folds & dural venous sinuses	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN30.4	Describe clinical importance of dural venous sinuses	K	KH	Y	Lecture	Written			
AN30.5	Explain effect of pituitary tumours on visual pathway	K	KH	N	Lecture	Written		Ophthalmology	
Topic: Orbit Number of competencies: (5) Number of procedures for certification: (NIL)									
AN31.1	Describe & identify extra ocular muscles of eyeball	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN31.2	Describe & demonstrate nerves and vessels in the orbit	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN31.3	Describe anatomical basis of Horner's syndrome	K	KH	N	Lecture	Written		Ophthalmology	
AN31.4	Enumerate components of lacrimal apparatus	K	KH	Y	Lecture	Written			
AN31.5	Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus	K	KH	Y	Lecture	Written		Ophthalmology	
Topic: Anterior Triangle Number of competencies: (2) Number of procedures for certification: (NIL)									
AN32.1	Describe boundaries and subdivisions of anterior triangle	K	KH	Y	Practical, Lecture	Written/ Viva voce			
AN32.2	Describe & demonstrate boundaries and contents of muscular, carotid, digastric and submental triangles	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
Topic: Temporal and Infratemporal regions Number of competencies: (5) Number of procedures for certification: (NIL)									
AN33.1	Describe & demonstrate extent, boundaries and contents of temporal and infratemporal fossae	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN33.2	Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN33.3	Describe & demonstrate articulating surface, type & movements of temporomandibular joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN33.4	Explain the clinical significance of pterygoid venous plexus	K	KH	Y	Lecture	Written		General Surgery	
AN33.5	Describe the features of dislocation of temporomandibular joint	K	KH	N	Lecture	Written		General Surgery	
Topic: Submandibular region Number of competencies: (2) Number of procedures for certification: (NIL)									
AN34.1	Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibular ganglion	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN34.2	Describe the basis of formation of submandibular stones	K	KH	N	Lecture	Written		General Surgery	
Topic: Deep structures in the neck Number of competencies: (10) Number of procedures for certification: (NIL)									
AN35.1	Describe the parts, extent, attachments, modifications of deep cervical fascia	K	KH	Y	Lecture	Written			
AN35.2	Describe & demonstrate location, parts, borders, surfaces, relations & blood supply of thyroid gland	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN35.3	Demonstrate & describe the origin, parts, course & branches subclavian artery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN35.4	Describe & demonstrate origin, course, relations, tributaries and termination of internal jugular & brachiocephalic veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN35.5	Describe and demonstrate extent, drainage & applied anatomy of cervical lymph nodes	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN35.6	Describe and demonstrate the extent, formation, relation & branches of cervical sympathetic chain	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN35.7	Describe the course and branches of IX, X, XI & XII nerve in the neck	K	KH	Y	Lecture	Written			
AN35.8	Describe the anatomically relevant clinical features of Thyroid swellings	K	KH	N	Lecture	Written		General Surgery	
AN35.9	Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib	K	KH	N	Lecture	Written		General Surgery	
AN35.10	Describe the fascial spaces of neck	K	KH	N	Lecture	Written			
Topic: Mouth, Pharynx & Palate Number of competencies: (5) Number of procedures for certification: (NIL)									
AN36.1	Describe the 1) morphology, relations, blood supply and applied anatomy of palatine tonsil 2) composition of soft palate	K	KH	Y	Lecture	Written		ENT	
AN36.2	Describe the components and functions of Waldeyer's lymphatic ring	K	KH	Y	Lecture	Written		ENT	
AN36.3	Describe the boundaries and clinical significance of pyriform fossa	K	KH	N	Lecture	Written		ENT	
AN36.4	Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess	K	KH	N	Lecture	Written		ENT	
AN36.5	Describe the clinical significance of Killian's dehiscence	K	KH	N	Lecture	Written		ENT	
Topic: Cavity of Nose Number of competencies: (3) Number of procedures for certification: (NIL)									
AN37.1	Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN37.2	Describe location and functional anatomy of paranasal sinuses	K	KH	Y	Lecture	Written		ENT	
AN37.3	Describe anatomical basis of sinusitis & maxillary sinus tumours	K	KH	N	Lecture	Written		ENT	
Topic: Larynx Number of competencies: (3) Number of procedures for certification: (NIL)									
AN38.1	Describe the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN38.2	Describe the anatomical aspects of laryngitis	K	KH	N	Lecture	Written		ENT	
AN38.3	Describe anatomical basis of recurrent laryngeal nerve injury	K	KH	N	Lecture	Written		ENT	
Topic: Tongue Number of competencies: (2) Number of procedures for certification: (NIL)									
AN39.1	Describe & demonstrate the morphology, nerve supply, embryological basis of nerve supply, blood supply, lymphatic drainage and actions of extrinsic and intrinsic muscles of tongue	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN39.2	Explain the anatomical basis of hypoglossal nerve palsy	K	KH	N	Lecture	Written		ENT	
Topic: Organs of hearing and equilibrium Number of competencies: (5) Number of procedures for certification: (NIL)									
AN40.1	Describe & identify the parts, blood supply and nerve supply of external ear	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.2	Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.3	Describe the features of internal ear	K	KH	N	Lecture	Written		ENT	
AN40.4	Explain anatomical basis of otitis externa and otitis media	K	KH	N	Lecture	Written		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN40.5	Explain anatomical basis of myringotomy	K	KH	N	Lecture	Written		ENT	
Topic: Eyeball Number of competencies: (3) Number of procedures for certification: (NIL)									
AN41.1	Describe & demonstrate parts and layers of eyeball	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Ophthalmology	
AN41.2	Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion	K	KH	N	Lecture	Written		Ophthalmology	
AN41.3	Describe the position, nerve supply and actions of intraocular muscles	K	KH	N	Lecture	Written		Ophthalmology	
Topic: Back Region Number of competencies: (3) Number of procedures for certification: (NIL)									
AN42.1	Describe the contents of the vertebral canal	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN42.2	Describe & demonstrate the boundaries and contents of Suboccipital triangle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN42.3	Describe the position, direction of fibres, relations, nerve supply, actions of semispinalis capitis and splenius capitis	K	KH	N	Lecture	Written			
Topic: Head & neck Joints, Histology, Development, Radiography & Surface marking Number of competencies: (9) Number of procedures for certification: (NIL)									
AN43.1	Describe & demonstrate the movements with muscles producing the movements of atlantooccipital joint & atlantoaxial joint	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN43.2	Identify, describe and draw the microanatomy of pituitary gland, thyroid, parathyroid gland, tongue, salivary glands, tonsil, epiglottis, cornea, retina	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN43.3	Identify, describe and draw microanatomy of olfactory epithelium, eyelid, lip, sclero-corneal junction, optic nerve, cochlea- organ of corti, pineal gland	K/S	SH	N	Lecture, Practical	Written/ skill assessment			
AN43.4	Describe the development and developmental basis of congenital anomalies of face, palate, tongue, branchial apparatus, pituitary gland, thyroid gland & eye	K	KH	Y	Lecture	Written/ Viva voce			
AN43.5	Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Surgery	
AN43.6	Demonstrate surface projection of- Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & accessory nerve	K/S	SH	N	Practical	Viva voce/ skill assessment		General Surgery	
AN43.7	Identify the anatomical structures in 1) Plain x-ray skull, 2) AP view and lateral view 3) Plain x-ray cervical spine-AP and lateral view 4) Plain x-ray of paranasal sinuses	K/S	SH	Y	Practical	Viva voce/ skill assessment		Radiodiagnosis	
AN43.8	Describe the anatomical route used for carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ skill assessment		Radiodiagnosis	
AN43.9	Identify anatomical structures in carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ skill assessment		Radiodiagnosis	
Topic: Anterior abdominal wall Number of competencies: (7) Number of procedures for certification: (NIL)									
AN44.1	Describe & demonstrate the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN44.2	Describe & identify the Fascia, nerves & blood vessels of anterior abdominal wall	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN44.3	Describe the formation of rectus sheath and its contents	K	KH	Y	Lecture	Written/ Viva voce			
AN44.4	Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN44.5	Explain the anatomical basis of inguinal hernia.	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN44.6	Describe & demonstrate attachments of muscles of anterior abdominal wall	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN44.7	Enumerate common Abdominal incisions	K	KH	N	Lecture	Written		General Surgery	
Topic: Posterior abdominal wall Number of competencies: (3) Number of procedures for certification: (NIL)									
AN45.1	Describe Thoracolumbar fascia	K	KH	Y	Lecture	Written			
AN45.2	Describe & demonstrate Lumbar plexus for its root value, formation & branches	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN45.3	Mention the major subgroups of back muscles, nerve supply and action	K	KH	N	Lecture	Written			
Topic: Male external genitalia Number of competencies: (5) Number of procedures for certification: (NIL)									
AN46.1	Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN46.2	Describe parts of Epididymis	K	KH	Y	Lecture, Practical	Written/ Viva voce			
AN46.3	Describe Penis under following headings: (parts, components, blood supply and lymphatic drainage)	K	KH	Y	Lecture, Practical	Written/ Viva voce			
AN46.4	Explain the anatomical basis of Varicocoele	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN46.5	Explain the anatomical basis of Phimosis & Circumcision	K	KH	N	Lecture	Written		General Surgery	
Topic: Abdominal cavity Number of competencies: (14) Number of procedures for certification: (NIL)									
AN47.1	Describe & identify boundaries and recesses of Lesser & Greater sac	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN47.2	Name & identify various peritoneal folds & pouches with its explanation	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN47.3	Explain anatomical basis of Ascites & Peritonitis	K	KH	N	Lecture	Written		General Surgery	
AN47.4	Explain anatomical basis of Subphrenic abscess	K	KH	N	Lecture	Written		General Surgery	
AN47.5	Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN47.6	Explain the anatomical basis of Splenic notch, Accessory spleens, Kehr's sign, Different types of vagotomy, Liver biopsy (site of needle puncture), Referred pain in cholecystitis, Obstructive jaundice, Referred pain around umbilicus, Radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach	K	KH	N	Lecture	Written		General Surgery	
AN47.7	Mention the clinical importance of Calot's triangle	K	KH	N	Lecture	Written		General Surgery	
AN47.8	Describe & identify the formation, course relations and tributaries of Portal vein, Inferior vena cava & Renal vein	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN47.9	Describe & identify the origin, course, important relations and branches of Abdominal aorta, Coeliac trunk, Superior mesenteric, Inferior mesenteric & Common iliac artery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN47.10	Enumerate the sites of portosystemic anastomosis	K	KH	Y	Lecture	Written		General Surgery	
AN47.11	Explain the anatomic basis of hematemesis& caput medusae in portal hypertension	K	KH	Y	Lecture,	Written/ Viva voce		General Surgery	
AN47.12	Describe important nerve plexuses of posterior abdominal wall	K	KH	N	Lecture	Written			
AN47.13	Describe & demonstrate the attachments, openings, nerve supply & action of the thoracoabdominal diaphragm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN47.14	Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia	K	KH	N	Lecture	Written		General Surgery	
Topic: Pelvic wall and viscera Number of competencies: (8) Number of procedures for certification: (NIL)									
AN48.1	Describe & identify the muscles of Pelvic diaphragm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN48.2	Describe & demonstrate the (position, features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and clinical aspects of) important male & female pelvic viscera	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN48.3	Describe & demonstrate the origin, course, important relations and branches of internal iliac artery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN48.4	Describe the branches of sacral plexus	K	KH	Y	Lecture	Written			
AN48.5	Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation	K	KH	N	Lecture	Written		General Surgery	
AN48.6	Describe the neurological basis of Automatic bladder	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN48.7	Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer	K	KH	N	Lecture	Written		General Surgery	
AN48.8	Mention the structures palpable during vaginal & rectal examination	K	KH	N	Lecture	Written		Obstetrics & Gynaecology General Surgery	
Topic: Perineum Number of competencies: (5) Number of procedures for certification: (NIL)									
AN49.1	Describe & demonstrate the superficial & deep perineal pouch (boundaries and contents)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.2	Describe & identify Perineal body	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.3	Describe & demonstrate Perineal membrane in male & female	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN49.4	Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Surgery	
AN49.5	Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
Topic: Vertebral column Number of competencies: (4) Number of procedures for certification: (NIL)									
AN50.1	Describe the curvatures of the vertebral column	K	KH	Y	Lecture	Written/ Viva voce			
AN50.2	Describe & demonstrate the type, articular ends, ligaments and movements of Intervertebral joints, Sacroiliac joints & Pubic symphysis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN50.3	Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
AN50.4	Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida	K	KH	N	Lecture	Written		Orthopedics	
Topic: Sectional Anatomy Number of competencies: (2) Number of procedures for certification: (NIL)									
AN51.1	Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Radiodiagnosis	
AN51.2	Describe & identify the midsagittal section of male and female pelvis	K	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Radiodiagnosis	
Topic: Histology & Embryology Number of competencies: (8) Number of procedures for certification: (NIL)									
AN52.1	Describe & identify the microanatomical features of Gastro-intestinal system: Oesophagus, Fundus of stomach, Pylorus of stomach, Duodenum, Jejunum, Ileum, Large intestine, Appendix, Liver, Gall bladder, Pancreas & Suprarenal gland	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN52.2	Describe & identify the microanatomical features of: Urinary system: Kidney, Ureter & Urinary bladder Male Reproductive System: Testis, Epididymis, Vas deferens, Prostate & penis Female reproductive system: Ovary, Uterus, Uterine tube, Cervix, Placenta & Umbilical cord	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN52.3	Describe & identify the microanatomical features of Cardiooesophageal junction, Corpus luteum	K/S	SH	N	Lecture, Practical	Written/ skill assessment			
AN52.4	Describe the development of anterior abdominal wall	K	KH	N	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN52.5	Describe the development and congenital anomalies of Diaphragm	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.6	Describe the development and congenital anomalies of: Foregut, Midgut & Hindgut	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.7	Describe the development of Urinary system	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.8	Describe the development of male & female reproductive system	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
Topic: Osteology Number of competencies: (4) Number of procedures for certification: (NIL)									
AN53.1	Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		General Surgery, Obstetrics & Gynaecology	
AN53.2	Demonstrate the anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN53.3	Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN53.4	Explain and demonstrate clinical importance of bones of abdominopelvic region (sacralization of lumbar vertebra, Lumbarization of 1st sacral vertebra, types of bony pelvis & Coccyx)	K/S	SH	N	Lecture, DOAP session	Viva voce/ skill assessment			
Topic: Radiodiagnosis Number of competencies: (3) Number of procedures for certification: (NIL)									
AN54.1	Describe & identify features of plain X ray abdomen	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	
AN54.2	Describe & identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography & Hysterosalpingography)	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN54.3	Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen	K	KH	N	Lecture	Viva voce		Radiodiagnosis	
Topic: Surface marking Number of competencies: (2) Number of procedures for certification: (NIL)									
AN55.1	Demonstrate the surface marking of; Regions and planes of abdomen, Superficial inguinal ring, Deep inguinal ring , McBurney's point, Renal Angle & Murphy's point	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Surgery	
AN55.2	Demonstrate the surface projections of: Stomach, Liver, Fundus of gall bladder, Spleen, Duodenum, Pancreas, Ileocaecal junction, Kidneys & Root of mesentery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		General Surgery	
Topic: Meninges & CSF Number of competencies: (2) Number of procedures for certification: (NIL)									
AN56.1	Describe & identify various layers of meninges with its extent & modifications	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	
AN56.2	Describe circulation of CSF with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
Topic: Spinal Cord Number of competencies: (5) Number of procedures for certification: (NIL)									
AN57.1	Identify external features of spinal cord	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN57.2	Describe extent of spinal cord in child & adult with its clinical implication	K	KH	Y	Lecture	Written/ Viva voce			
AN57.3	Draw & label transverse section of spinal cord at mid-cervical & mid-thoracic level	K	KH	Y	Lecture	Written/ Viva voce			
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN57.5	Describe anatomical basis of syringomyelia	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Medulla Oblongata Number of competencies: (4) Number of procedures for certification: (NIL)									
AN58.1	Identify external features of medulla oblongata	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/ skill assessment			
AN58.2	Describe transverse section of medulla oblongata at the level of 1) pyramidal decussation, 2) sensory decussation 3) ION	K	KH	Y	Lecture	Written/ Viva voce			
AN58.3	Enumerate cranial nerve nuclei in medulla oblongata with their functional group	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN58.4	Describe anatomical basis & effects of medial & lateral medullary syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Pons Number of competencies: (3) Number of procedures for certification: (NIL)									
AN59.1	Identify external features of pons	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN59.2	Draw & label transverse section of pons at the upper and lower level	K	KH	Y	Lecture	Written/ Viva voce			
AN59.3	Enumerate cranial nerve nuclei in pons with their functional group	K	KH	Y	Lecture	Written/ Viva voce			
Topic: Cerebellum Number of competencies: (3) Number of procedures for certification: (NIL)									
AN60.1	Describe & demonstrate external & internal features of cerebellum	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN60.2	Describe connections of cerebellar cortex and intracerebellar nuclei	K	KH	Y	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Midbrain Number of competencies: (3) Number of procedures for certification: (NIL)									
AN61.1	Identify external & internal features of midbrain	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			
AN61.2	Describe internal features of midbrain at the level of superior & inferior colliculus	K	KH	Y	Lecture	Written/ Viva voce			
AN61.3	Describe anatomical basis & effects of Benedikt's and Weber's syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
Topic: Cranial nerve nuclei & Cerebral hemispheres Number of competencies: (6) Number of procedures for certification: (NIL)									
AN62.1	Enumerate cranial nerve nuclei with its functional component	K	KH	Y	Lecture	Written/ Viva voce			
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN62.3	Describe the white matter of cerebrum	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.4	Enumerate parts & major connections of basal ganglia & limbic lobe	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Ventricular System Number of competencies: (2) Number of procedures for certification: (NIL)									
AN63.1	Describe & demonstrate parts, boundaries & features of IIIrd, IVth & lateral ventricle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	Lecture	Written		Pediatrics	Physiology
Topic: Histology & Embryology Number of competencies: (3) Number of procedures for certification: (NIL)									
AN64.1	Describe & identify the microanatomical features of Spinal cord, Cerebellum & Cerebrum	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN64.2	Describe the development of neural tube, spinal cord, medulla oblongata, pons, midbrain, cerebral hemisphere & cerebellum	K	KH	Y	Lecture	Written/ Viva voce			
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
Topic: Epithelium histology Number of competencies: (2) Number of competencies for certification: (01)									
AN65.1	Identify epithelium under the microscope & describe the various types that correlate to its function	K/S	P	Y	Lecture, Practical	Written/ skill assessment	1		
AN65.2	Describe the ultrastructure of epithelium	K	KH	N	Lecture, Practical	Written			
Topic: Connective tissue histology Number of competencies: (2) Number of procedures for certification: (NIL)									
AN66.1	Describe & identify various types of connective tissue with functional correlation	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			Physiology
AN66.2	Describe the ultrastructure of connective tissue	K	KH	N	Lecture, Practical	Written		Pathology	
Topic: Muscle histology Number of competencies: (3) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN67.1	Describe & identify various types of muscle under the microscope	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN67.2	Classify muscle and describe the structure-function correlation of the same	K	KH	Y	Lecture, Practical	Written			Physiology
AN67.3	Describe the ultrastructure of muscular tissue	K	KH	N	Lecture, Practical	Written			
Topic: Nervous tissue histology Number of competencies: (3) Number of procedures for certification: (NIL)									
AN68.1	Describe & Identify multipolar & unipolar neuron, ganglia, peripheral nerve	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
AN68.2	Describe the structure-function correlation of neuron	K	KH	Y	Lecture, Practical	Written			Physiology
AN68.3	Describe the ultrastructure of nervous tissue	K	KH	N	Lecture, Practical	Written			
Topic: Blood Vessels Number of competencies: (3) Number of procedures for certification: (NIL)									
AN69.1	Identify elastic & muscular blood vessels, capillaries under the microscope	K/S	SH	Y	Lecture, Practical	Skill assessment			
AN69.2	Describe the various types and structure-function correlation of blood vessel	K	KH	Y	Lecture, Practical	Written			Physiology
AN69.3	Describe the ultrastructure of blood vessels	K	KH	Y	Lecture, Practical	Written			
Topic: Glands & Lymphoid tissue Number of competencies: (2) Number of procedures for certification: (NIL)									
AN70.1	Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN70.2	Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node, spleen, thymus, tonsil and correlate the structure with function	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
Topic: Bone & Cartilage Number of competencies: (2) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN71.1	Identify bone under the microscope; classify various types and describe the structure-function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN71.2	Identify cartilage under the microscope & describe various types and structure- function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
Topic: Integumentary System Number of competencies: (1) Number of procedures for certification: (NIL)									
AN72.1	Identify the skin and its appendages under the microscope and correlate the structure with function	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			
Topic: Chromosomes Number of competencies: (3) Number of procedures for certification: (NIL)									
AN73.1	Describe the structure of chromosomes with classification	K	KH	Y	Lecture	Written			
AN73.2	Describe technique of karyotyping with its applications	K	KH	Y	Lecture	Written			
AN73.3	Describe the Lyon's hypothesis	K	KH	Y	Lecture	Written			
Topic: Patterns of Inheritance Number of competencies: (4) Number of procedures for certification: (NIL)									
AN74.1	Describe the various modes of inheritance with examples	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.3	Describe multifactorial inheritance with examples	K	KH	Y	Lecture	Written		General Medicine	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Haemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	K	KH	N	Lecture	Written		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Principle of Genetics, Chromosomal Aberrations & Clinical Genetics Number of competencies: (5) Number of procedures for certification: (NIL)									
AN75.1	Describe the structural and numerical chromosomal aberrations	K	KH	Y	Lecture	Written		Pediatrics	
AN75.2	Explain the terms mosaics and chimeras with example	K	KH	N	Lecture	Written		Pediatrics	
AN75.3	Describe the genetic basis & clinical features of Prader Willi syndrome, Edward syndrome & Patau syndrome	K	KH	N	Lecture	Written		Pediatrics	
AN75.4	Describe genetic basis of variation: polymorphism and mutation	K	KH	Y	Lecture	Written		Pediatrics	
AN75.5	Describe the principles of genetic counselling	K	KH	Y	Lecture	Written		Pediatrics, Obstetrics & Gynaecology	
Topic: Introduction to embryology Number of competencies: (2) Number of procedures for certification: (NIL)									
AN76.1	Describe the stages of human life	K	KH	Y	Lecture	Written			
AN76.2	Explain the terms- phylogeny, ontogeny, trimester, viability	K	KH	Y	Lecture	written			
Topic: Gametogenesis and fertilization Number of competencies: (6) Number of procedures for certification: (NIL)									
AN77.1	Describe the uterine changes occurring during the menstrual cycle	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.2	Describe the synchrony between the ovarian and menstrual cycles	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.3	Describe spermatogenesis and oogenesis along with diagrams	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.4	Describe the stages and consequences of fertilisation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN77.5	Enumerate and describe the anatomical principles underlying contraception	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.6	Describe teratogenic influences; fertility and sterility, surrogate motherhood, social significance of “sex-ratio”.	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
Topic: Second week of development Number of competencies: (5) Number of procedures for certification: (NIL)									
AN78.1	Describe cleavage and formation of blastocyst	K	KH	Y	Lecture	Written			
AN78.2	Describe the development of trophoblast	K	KH	Y	Lecture	Written			
AN78.3	Describe the process of implantation & common abnormal sites of implantation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN78.4	Describe the formation of extra-embryonic mesoderm and coelom, bilaminar disc and prochordal plate	K	KH	Y	Lecture	Written			
AN78.5	Describe in brief abortion; decidual reaction, pregnancy test	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
Toic: 3rd to 8th week of development Number of competencies: (6) Number of procedures for certification: (NIL)									
AN79.1	Describe the formation & fate of the primitive streak	K	KH	Y	Lecture	Written			
AN79.2	Describe formation & fate of notochord	K	KH	Y	Lecture	Written			
AN79.3	Describe the process of neurulation	K	KH	Y	Lecture	Written			
AN79.4	Describe the development of somites and intra-embryonic coelom	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN79.5	Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN79.6	Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Fetal membranes Number of competencies: (7) Number of procedures for certification: (NIL)									
AN80.1	Describe formation, functions & fate of-chorion: amnion; yolk sac; allantois & decidua	K	KH	Y	Lecture	Written			
AN80.2	Describe formation & structure of umbilical cord	K	KH	Y	Lecture	Written			
AN80.3	Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.4	Describe embryological basis of twinning in monozygotic & dizygotic twins	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.5	Describe role of placental hormones in uterine growth & parturition	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.6	Explain embryological basis of estimation of fetal age.	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN80.7	Describe various types of umbilical cord attachments	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
Topic: Prenatal Diagnosis Number of competencies: (3) Number of procedures for certification: (NIL)									
AN81.1	Describe various methods of prenatal diagnosis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.2	Describe indications, process and disadvantages of amniocentesis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.3	Describe indications, process and disadvantages of chorion villus biopsy	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
Topic: Ethics in Anatomy Number of competencies: (1) Number of procedures for certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN 82.1	Demonstrate respect and follow the correct procedure when handling cadavers and other biologic tissue	S	SH	Y	Group Activity	NIL		AETCOM	
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Physiology									
PY3.1	Describe the structure and functions of a neuron and neuroglia; Discuss Nerve Growth Factor & other growth factors/cytokines	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.7	Describe the different types of muscle fibres and their structure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY4.1	Describe the structure and functions of digestive system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY5.1	Describe the functional Anatomy of heart including chambers, sounds; and Pacemaker tissue and conducting system.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY9.1	Describe and discuss sex determination; sex differentiation and their abnormalities and outline psychiatry and practical implication of sex determination.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.1	Describe and discuss the organization of nervous system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.2	Describe and discuss the functions and properties of synapse, reflex, receptors	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.3	Describe and discuss somatic sensations & sensory tracts	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.4	Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture and equilibrium & vestibular apparatus	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.5	Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.6	Describe and discuss Spinal cord, its functions, lesion & sensory disturbances	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.7	Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
PY10.11	Demonstrate the correct clinical examination of the nervous system: Higher functions, Sensory system, motor system, reflexes, Cranial Nerves in a normal volunteer or simulated environment	S	P	Y	DOAP sessions	Skill assessment / Viva voce / OSCE	1 each (total 5)		Human Anatomy
Biochemistry									
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
Pathology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group	Written/ Viva voce		Human Anatomy, General Surgery	
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy Physiology, General Medicine, General Surgery	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopedics	Microbiology
Forensic Medicine & Toxicology									
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden infants death syndrome and Munchausen's syndrome by proxy.	K	KH	Y	Lectures, Small group discussion, Autopsy, DOAP session	Written/Viva voce/ OSCE		Pediatrics, Human Anatomy	
FM3.1	Identification Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion, stature, age determination using morphology, teeth-eruption, decay, bite marks, bones ossification centres, medico-legal aspects of age.	K	KH	Y	Lectures, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce/skill assessment		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Anesthesiology									
AS4.2	Describe the Anatomy of the airway and its implications for general anaesthesia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS5.2	Describe the correlative Anatomy of the brachial plexus, subarachnoid and epidural spaces	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS5.3	Observe and describe the principles and steps/ techniques involved in peripheral nerve blocks	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy	
AS8.1	Describe the anatomical correlates and physiologic principles of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy Physiology	
ENT									
EN1.1	Describe the Human Anatomy & physiology of ear, nose, throat, head & neck.	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/Skill assessment		Human Anatomy	
Ophthalmology									
OP2.1	Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP4.1	Enumerate describe and discuss the types and causes of corneal ulceration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP6.7	Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Human Anatomy	
OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Pathology	
Dentistry									
DE1.1	Enumerate the parts of the tooth	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
DE5.1	Enumerate the parts of the tooth and supporting structures	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
General Medicine									
IM3.1	Define discuss describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small Group discussion	short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM13.9	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	S	K	Y	Bedside clinic	Skill assessment/ short case		Human Anatomy	General Surgery
IM17.1	Define and classify headache and describe the presenting features, precipitating factors, aggravating and relieving factors of various kinds of headache	K	KH	Y	Lecture, Small group discussion	short note/ Viva voce		Human Anatomy	
IM18.1	Describe the functional and the vascular anatomy of the brain	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Human Anatomy	
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Human Anatomy, Physiology	
Obstetrics & Gynaecology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OG2.1	Describe and discuss the development and anatomy of the female reproductive tract, relationship to other pelvic organs, applied anatomy as related to Obstetrics and Gynaecology.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Human Anatomy	
OG4.1	Describe and discuss the basic embryology of fetus , factors influencing fetal growth and development, anatomy and physiology of placenta, and teratogenesis	K	K	Y	Lecture, Small group discussion	Theory		Human Anatomy	
OG14.1	Enumerate and discuss the diameters of maternal pelvis and types	K	KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce/ skill assessment		Human Anatomy	
General Surgery									
SU19.1	Describe the etiology and classification of cleft lip and palate	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU19.2	Describe the Principles of reconstruction of cleft lip and palate	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU22.1	Describe the Applied anatomy, and physiology of thyroid	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU22.5	Describe the applied anatomy of parathyroid.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU23.1	Describe the applied anatomy of adrenal glands	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU24.1	Describe the clinical features, principles of investigation, prognosis and management of pancreatitis.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
SU25.1	Describe applied anatomy appropriate investigations for breast disease	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.2	Describe the clinical features, investigations and principles of management of congenital anomalies of Genitourinary system.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.5	Describe the applied anatomy and physiology of esophagus	K	K	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Human Anatomy, Physiology	
SU28.7	Describe the applied anatomy and physiology of stomach.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.10	Describe the applied anatomy of liver. Describe the Clinical features, Investigations and principles of management of Liver abscess, hydatid disease, Injuries and Tumors of the liver.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.11	Describe the applied anatomy of Spleen. Describe the clinical features, Investigations and principles of management of splenic injuries. Describe the Post-splenectomy sepsis- prophylaxis.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.12	Describe the applied anatomy of biliary system. Describe the clinical features, investigations and principles of management of diseases of biliary system.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.13	Describe the applied anatomy of small and large intestines	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU28.16	Describe applied anatomy including congenital anomalies of the rectum and anal canal	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
SU30.2	Describe the applied anatomy, clinical features, investigations and principles of management of Undescended testis.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU30.3	Describe the applied anatomy, clinical features, investigations and principles of management of Epididymo-orchitis	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU30.4	Describe the applied anatomy, clinical features, investigations and principles of management of Varicocele	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
SU30.5	Describe the applied anatomy, clinical features, investigations and principles of management of Hydrocele	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
Orthopaedics									
OR2.1	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fracture of clavicle	K/S	KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	1	Human Anatomy	
OR2.2	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fractures of proximal humerus	K	K/KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.3	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of supra condylar fracture of humerus	K	KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.4	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft of humerus and intercondylar fracture humerus with emphasis on neurovascular deficit	K/S	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.5	Describe and discuss the aetiopathogenesis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galeazzi and Monteggia injury	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.6	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of distal radius	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.7	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability	K	K/KH/SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.8	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of spine injuries with emphasis on mobilisation of the patient	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.9	Describe and discuss the mechanism of injury, Clinical features, investigations and principle of management of acetabular fracture	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.10	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of proximal femur	K/S/A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.11	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of (a) Fracture patella (b) Fracture distal femur © Fracture proximal tibia with special focus on neurovascular injury and compartment syndrome	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.12	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fat embolism as a complication	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.13	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of: (a) Fracture both bones leg (b) Calcaneus (c) Small bones of foot	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.14	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of ankle fractures	K/S/C	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.15	Plan and interpret the investigations to diagnose complications of fractures like malunion, non-union, infection, compartmental syndrome	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE	2	Human Anatomy	
OR2.16	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of open fractures with focus on secondary infection, prevention and management	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR11.1	Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture, Small Group discussion, case discussion	Written/ Viva voce/ OSCE		Human Anatomy	General Medicine, General surgery
OR12.1	Describe and discuss the Clinical features, Investigations and principles of management of Congenital and acquired malformations and deformities of: a. limbs and spine - Scoliosis and spinal bifida b. Congenital dislocation of Hip, Torticollis, c. congenital talipes equino varus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE		Human Anatomy	
Physical Medicine & Rehabilitation									
PM2.1	Describe the causes of disability in the patient with a cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	General Medicine
PM3.1	Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	Pediatrics
Pediatrics									
PE32.1	Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Down's Syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

PHYSIOLOGY (CODE: PY)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PHYSIOLOGY									
Topic: General Physiology Number of competencies: (09) Number of procedures that require certification : (NIL)									
PY1.1	Describe the structure and functions of a mammalian cell	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.2	Describe and discuss the principles of homeostasis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.3	Describe intercellular communication	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.4	Describe apoptosis – programmed cell death	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	
PY1.5	Describe and discuss transport mechanisms across cell membranes	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.6	Describe the fluid compartments of the body, its ionic composition & measurements	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY1.7	Describe the concept of pH & Buffer systems in the body	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY1.8	Describe and discuss the molecular basis of resting membrane potential and action potential in excitable tissue	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY1.9	Demonstrate the ability to describe and discuss the methods used to demonstrate the functions of the cells and its products, its communications and their applications in Clinical care and research.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Haematology Number of competencies: (13) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY2.1	Describe the composition and functions of blood components	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.2	Discuss the origin, forms, variations and functions of plasma proteins	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY2.3	Describe and discuss the synthesis and functions of Haemoglobin and explain its breakdown. Describe variants of haemoglobin	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY2.4	Describe RBC formation (erythropoiesis & its regulation) and its functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.5	Describe different types of anaemias & Jaundice	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	Biochemistry
PY2.6	Describe WBC formation (granulopoiesis) and its regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.7	Describe the formation of platelets, functions and variations.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.8	Describe the physiological basis of hemostasis and, anticoagulants. Describe bleeding & clotting disorders (Hemophilia, purpura)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	
PY2.9	Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion	K	KH	Y	Lecture, Small group discussion, ECE- Visit to blood bank	Written/Viva voce		Pathology	
PY2.10	Define and classify different types of immunity. Describe the development of immunity and its regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY2.11	Estimate Hb, RBC, TLC, RBC indices, DLC, Blood groups, BT/CT	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce		Pathology	
PY2.12	Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc	K	KH	Y	Demonstration	Written /Viva voce		Pathology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY2.13	Describe steps for reticulocyte and platelet count	K	KH	Y	Demonstration sessions	Written /Viva voce		Pathology	
Topic: Nerve and Muscle Physiology Number of competencies: (18) Number of procedures that require certification: (NIL)									
PY3.1	Describe the structure and functions of a neuron and neuroglia; Discuss Nerve Growth Factor & other growth factors/cytokines	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.2	Describe the types, functions & properties of nerve fibers	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.3	Describe the degeneration and regeneration in peripheral nerves	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY3.4	Describe the structure of neuro-muscular junction and transmission of impulses	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Anaesthesiology	
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Anaesthesiology, Pharmacology	
PY3.6	Describe the pathophysiology of Myasthenia gravis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology	
PY3.7	Describe the different types of muscle fibres and their structure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY3.8	Describe action potential and its properties in different muscle types (skeletal & smooth)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.9	Describe the molecular basis of muscle contraction in skeletal and in smooth muscles	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.10	Describe the mode of muscle contraction (isometric and isotonic)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.11	Explain energy source and muscle metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY3.12	Explain the gradation of muscular activity	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY3.14	Perform Ergography	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.15	Demonstrate effect of mild, moderate and severe exercise and record changes in cardiorespiratory parameters	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.16	Demonstrate Harvard Step test and describe the impact on induced physiologic parameters in a simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.17	Describe Strength-duration curve	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.18	Observe with Computer assisted learning (i) amphibian nerve - muscle experiments (ii) amphibian cardiac experiments	S	KH	Y	Demonstration, Computer assisted learning methods	Practical / Viva voce			
Topic: Gastro-intestinal Physiology Number of competencies: (10) Number of procedures that require certification: (NIL)									
PY4.1	Describe the structure and functions of digestive system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY4.2	Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.3	Describe GIT movements, regulation and functions. Describe defecation reflex. Explain role of dietary fibre.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY4.4	Describe the physiology of digestion and absorption of nutrients	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY4.5	Describe the source of GIT hormones, their regulation and functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY4.6	Describe the Gut-Brain Axis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY4.7	Describe & discuss the structure and functions of liver and gall bladder	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.8	Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests	K	KH	Y	Lecture, Small group discussion, Demonstration Esophageal Manometry & endoscopy	Written/Viva voce			Biochemistry
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastro-oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Biochemistry
PY4.10	Demonstrate the correct clinical examination of the abdomen in a normal volunteer or simulated environment	S	SH	Y	DOAP session	Skill assessment/ Viva voce/OSCE			
Topic: Cardiovascular Physiology (CVS) Number of competencies: (16) Number of procedures that require certification: (03)									
PY5.1	Describe the functional anatomy of heart including chambers, sounds; and Pacemaker tissue and conducting system.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY5.2	Describe the properties of cardiac muscle including its morphology, electrical, mechanical and metabolic functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.3	Discuss the events occurring during the cardiac cycle	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.4	Describe generation, conduction of cardiac impulse	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.5	Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
PY5.7	Describe and discuss haemodynamics of circulatory system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.8	Describe and discuss local and systemic cardiovascular regulatory mechanisms	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.9	Describe the factors affecting heart rate, regulation of cardiac output & blood pressure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.10	Describe & discuss regional circulation including microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY5.11	Describe the patho-physiology of shock, syncope and heart failure	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY5.12	Record blood pressure & pulse at rest and in different grades of exercise and postures in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce	1 each x 3		
PY5.13	Record and interpret normal ECG in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce		General Medicine	
PY5.14	Observe cardiovascular autonomic function tests in a volunteer or simulated environment	S	SH	N	DOAP sessions	Skill assessment/ Viva voce			
PY5.15	Demonstrate the correct clinical examination of the cardiovascular system in a normal volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce			
PY5.16	Record Arterial pulse tracing using finger plethysmography in a volunteer or simulated environment	S	SH	N	DOAP sessions, Computer assisted learning methods	Practical/OSPE/ Viva voce		General Medicine	
Topic: Respiratory Physiology Number of competencies: (10) Number of procedures that require certification: (01)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY6.1	Describe the functional anatomy of respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.2	Describe the mechanics of normal respiration, pressure changes during ventilation, lung volume and capacities, alveolar surface tension, compliance, airway resistance, ventilation, V/P ratio, diffusion capacity of lungs	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.3	Describe and discuss the transport of respiratory gases: Oxygen and Carbon dioxide	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.4	Describe and discuss the physiology of high altitude and deep sea diving	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.5	Describe and discuss the principles of artificial respiration, oxygen therapy, acclimatization and decompression sickness.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.6	Describe and discuss the pathophysiology of dyspnoea, hypoxia, cyanosis asphyxia; drowning, periodic breathing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.7	Describe and discuss lung function tests & their clinical significance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY6.8	Demonstrate the correct technique to perform & interpret Spirometry	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce		Respiratory Medicine	
PY6.9	Demonstrate the correct clinical examination of the respiratory system in a normal volunteer or simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE	1		
PY6.10	Demonstrate the correct technique to perform measurement of peak expiratory flow rate in a normal volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/ Viva voce			
Topic: Renal Physiology Number of competencies: (09) Number of procedures that require certification: (NIL)									
PY7.1	Describe structure and function of kidney	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.2	Describe the structure and functions of juxta glomerular apparatus and role of renin-angiotensin system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY7.3	Describe the mechanism of urine formation involving processes of filtration, tubular reabsorption & secretion; concentration and diluting mechanism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.4	Describe & discuss the significance & implication of Renal clearance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5	Describe the renal regulation of fluid and electrolytes & acid-base balance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.6	Describe the innervations of urinary bladder, physiology of micturition and its abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.7	Describe artificial kidney, dialysis and renal transplantation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY7.8	Describe & discuss Renal Function Tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY7.9	Describe cystometry and discuss the normal cystometrogram	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Endocrine Physiology Number of competencies: (06) Number of procedures that require certification : (NIL)									
PY8.1	Describe the physiology of bone and calcium metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.2	Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas and hypothalamus	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.3	Describe the physiology of Thymus & Pineal Gland	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.4	Describe function tests: Thyroid gland; Adrenal cortex, Adrenal medulla and pancreas	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY8.5	Describe the metabolic and endocrine consequences of obesity & metabolic syndrome, Stress response. Outline the psychiatry component pertaining to metabolic syndrome.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.6	Describe & differentiate the mechanism of action of steroid, protein and amine hormones	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Reproductive Physiology Number of competencies: (12) Number of procedures that require certification: (NIL)									
PY9.1	Describe and discuss sex determination; sex differentiation and their abnormalities and outline psychiatry and practical implication of sex determination.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY9.2	Describe and discuss puberty: onset, progression, stages; early and delayed puberty and outline adolescent clinical and psychological association.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.3	Describe male reproductive system: functions of testis and control of spermatogenesis & factors modifying it and outline its association with psychiatric illness	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.4	Describe female reproductive system: (a) functions of ovary and its control; (b) menstrual cycle - hormonal, uterine and ovarian changes	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.5	Describe and discuss the physiological effects of sex hormones	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology, Community Medicine	
PY9.7	Describe and discuss the effects of removal of gonads on physiological functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY9.8	Describe and discuss the physiology of pregnancy, parturition & lactation and outline the psychology and psychiatry-disorders associated with it.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
PY9.9	Interpret a normal semen analysis report including (a) sperm count, (b) sperm morphology and (c) sperm motility, as per WHO guidelines and discuss the results	K	KH	Y	Lecture, Small group discussion	OSPE/Viva voce			
PY9.10	Discuss the physiological basis of various pregnancy tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
PY9.11	Discuss the hormonal changes and their effects during perimenopause and menopause	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
PY9.12	Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology	
Topic: Neurophysiology Number of competencies: (20) Number of procedures that require certification: (09)									
PY10.1	Describe and discuss the organization of nervous system	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.2	Describe and discuss the functions and properties of synapse, reflex, receptors	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.3	Describe and discuss somatic sensations & sensory tracts	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.4	Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture and equilibrium & vestibular apparatus	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.5	Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
PY10.6	Describe and discuss Spinal cord, its functions, lesion & sensory disturbances	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.7	Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
PY10.8	Describe and discuss behavioural and EEG characteristics during sleep and mechanism responsible for its production	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.9	Describe and discuss the physiological basis of memory, learning and speech	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.10	Describe and discuss chemical transmission in the nervous system. (Outline the psychiatry element).	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.11	Demonstrate the correct clinical examination of the nervous system: Higher functions, sensory system, motor system, reflexes, cranial nerves in a normal volunteer or simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE	1 each (total 5)		Human Anatomy
PY10.12	Identify normal EEG forms	S	S	Y	Small group teaching	OSPE/Viva voce		Psychiatry	
PY10.13	Describe and discuss perception of smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.14	Describe and discuss patho-physiology of altered smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.15	Describe and discuss functional anatomy of ear and auditory pathways & physiology of hearing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.16	Describe and discuss pathophysiology of deafness. Describe hearing tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.17	Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, refractive errors, colour blindness, physiology of pupil and light reflex	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY10.18	Describe and discuss the physiological basis of lesion in visual pathway	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
PY10.19	Describe and discuss auditory & visual evoke potentials	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
PY10.20	Demonstrate (i) Testing of visual acuity, colour and field of vision and (ii) hearing (iii) Testing for smell and (iv) taste sensation in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1 each (total 4)	ENT, Ophthalmology	
Topic: Integrated Physiology Number of competencies: (14) Number of procedures that require certification: (NIL)									
PY11.1	Describe and discuss mechanism of temperature regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.2	Describe and discuss adaptation to altered temperature (heat and cold)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.3	Describe and discuss mechanism of fever, cold injuries and heat stroke	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.4	Describe and discuss cardio-respiratory and metabolic adjustments during exercise; physical training effects	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.5	Describe and discuss physiological consequences of sedentary lifestyle	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.6	Describe physiology of Infancy	K	KH	N	Lecture, Small group discussion	Written/Viva voce		Pediatrics	
PY11.7	Describe and discuss physiology of aging; free radicals and antioxidants	K	KH	N	Lecture, Small group discussion	Written/Viva voce			
PY11.8	Discuss & compare cardio-respiratory changes in exercise (isometric and isotonic) with that in the resting state and under different environmental conditions (heat and cold)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY11.9	Interpret growth charts	K	KH	N	Small group teaching	Practical/OSPE/ Viva voce		Pediatrics	
PY11.10	Interpret anthropometric assessment of infants	K	KH	N	Small group teaching	Practical/OSPE/ Viva voce		Pediatrics	
PY11.11	Discuss the concept, criteria for diagnosis of Brain death and its implications	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY11.12	Discuss the physiological effects of meditation	K	KH	N	Lecture, Small group discussion	Written/Viva voce			
PY11.13	Obtain history and perform general examination in the volunteer / simulated environment	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce			
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine, Anaesthesiology	
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									
Integration									
Human Anatomy									
AN3.1	Classify muscle tissue according to structure & action	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.1	Differentiate between blood vascular and lymphatic system	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.2	Differentiate between pulmonary and systemic circulation	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN5.6	Describe the concept of anastomoses and collateral circulation with significance of end-arteries	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN5.7	Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses	K	KH	N	Lecture	Written			Physiology
AN5.8	Define thrombosis, infarction & aneurysm	K	KH	N	Lecture	Written		Pathology	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN7.2	List components of nervous tissue and their functions	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.3	Describe parts of a neuron and classify them based on number of neurites, size & function	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	Lecture	Written		General Medicine	Physiology
AN7.7	Describe various types of synapse	K	KH	N	Lecture	Written			Physiology
AN21.9	Describe & demonstrate mechanics and types of respiration	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/Viva voce/ skill assessment			Physiology
AN22.2	Describe & demonstrate external and internal features of each chamber of heart	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/Viva voce/ skill assessment			Physiology
AN22.3	Describe & demonstrate origin, course and branches of coronary arteries	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/Viva voce/ skill assessment			Physiology
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN24.3	Describe a bronchopulmonary segment	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.9	Demonstrate surface marking of lines of pleural reflection, Lung borders and fissures, Trachea, Heart borders, Apex beat & Surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Medicine, Pediatrics	Physiology
AN56.2	Describe circulation of CSF with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.5	Describe anatomical basis of syringomyelia	K	KH	N	Lecture	Written		General Medicine	Physiology
AN58.3	Enumerate cranial nerve nuclei in medulla oblongata with their functional group	K	KH	Y	Lecture	Written/ Viva voce			Physiology
AN58.4	Describe anatomical basis & effects of medial & lateral medullary syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
AN59.1	Identify external features of pons	K/S	SH	Y	Lecture, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	Lecture	Written		General Medicine	Physiology
AN61.3	Describe anatomical basis & effects of Benedikt's and Weber's syndromme	K	KH	N	Lecture	Written		General Medicine	Physiology
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN62.3	Describe the white matter of cerebrum	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.4	Enumerate parts & major connections of basal ganglia & limbic lobe	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		General Medicine	Physiology
AN63.1	Describe & demonstrate parts, boundaries & features of IIIrd, IVth & lateral ventricle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment			Physiology
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	Lecture	Written		Pediatrics	Physiology
AN66.1	Describe & identify various types of connective tissue with functional correlation	K/S	SH	Y	Lecture, Practical	Written/ skill assessment			Physiology
AN67.2	Classify muscle and describe the structure-function correlation of the same	K	KH	Y	Lecture, Practical	Written			Physiology
AN68.2	Describe the structure-function correlation of neuron	K	KH	Y	Lecture, Practical	Written			Physiology
AN69.2	Describe the various types and structure-function correlation of blood vessel	K	KH	Y	Lecture, Practical	Written			Physiology
Biochemistry									
BI1.1	Describe the molecular and functional organization of a cell and its sub-cellular components.	K	KH	Y	Lecture, Small group discussions	Written assessment and Viva voce			Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
BI3.7	Describe the common poisons that inhibit crucial enzymes of carbohydrate metabolism (eg; fluoride, arsenate)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Physiology
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.3	Describe the common disorders associated with nucleotide metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physiology
BI6.7	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	Physiology
BI11.4	Perform urine analysis to estimate and determine normal and abnormal constituents	S	P	Y	DOAP session	Skill assessment	1	General Medicine	Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Pathology									
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA27.3	Describe the etiology, types, stages pathophysiology pathology and complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	

Pharmacology

PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, antipsychotic, antidepressant drugs, anti-manics, opioid agonists and antagonists, drugs used for neurodegenerative disorders, antiepileptics Drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin angiotensin and aldosterone system	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: 1. Drugs used in anemias 2. Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	Pharmacology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Forensic Medicine & Toxicology									
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin.	S	KH	Y	Small group discussion, Lecture	Log book/ skill station/ Viva voce		Pathology, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & Rh blood group of a person.	S	SH	Y	Small group discussion, DOAP session	Log book/ skill station/ Viva voce		Pathology, Physiology	
Anesthesiology									
AS7.3	Observe and describe the management of an unconscious patient	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.4	Observe and describe the basic setup process of a ventilator	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine
AS8.1	Describe the anatomical correlates and physiologic principles of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy, Physiology	
AS8.2	Elicit and determine the level, quality and quantity of pain and its tolerance in patient or surrogate	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	
Ophtalmology									
OP1.1	Describe the physiology of vision.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
General Medicine									
IM1.1	Describe and discuss the epidemiology, pathogenesis clinical evolution and course of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Written		Pathology, Physiology	
IM1.3	Describe and discuss the aetiology microbiology pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.5	Describe discuss and differentiate the processes involved in R Vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.6	Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrhythmias anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.8	Describe and discuss the pathogenesis and development of common arrhythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology Community Medicine	
IM2.2	Discuss the aetiology of risk factors both modifiable and non modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
IM2.4	Discuss and describe the pathogenesis, natural history, evolution and complications of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, Physiology	
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.3	Describe and discuss the physiology of the hypothalamopituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	short notes		Pathology, Physiology	
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussions	short note/ Viva voce		Pathology, Physiology	General Surgery
IM18.6	Distinguish the lesion based on upper vs lower motor neuron, side, site and most probable nature of the lesion	K/S	SH	Y	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.7	Describe the clinical features and distinguish, based on clinical examination, the various disorders of speech	K/S	SH	N	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.8	Describe and distinguish, based on the clinical presentation, the types of bladder dysfunction seen in CNS disease	K	KH	Y	Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Human Anatomy, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM22.9	Enumerate the causes and describe the clinical and laboratory features of metabolic acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.10	Enumerate the causes of describe the clinical and laboratory features of metabolic alkalosis	K	KH	N	Lecture, small group discussion	Written/ Viva voce		Physiology	
IM22.11	Enumerate the causes and describe the clinical and laboratory features of respiratory acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.12	Enumerate the causes and describe the clinical and laboratory features of respiratory alkalosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.13	Identify the underlying acid based disorder based on an ABG report and clinical situation	S	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
Obstetrics & Gynaecology									
OG3.1	Describe the physiology of ovulation, menstruation, fertilization, implantation and gametogenesis	K	K	Y	Lecture, seminars	Theory		Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG7.1	Describe and discuss the changes in the genital tract, cardiovascular system, respiratory, haematology, renal and gastrointestinal systems in pregnancy	K	KH	Y	Lecture, seminars	Theory		Physiology	
Pediatrics									
PE7.2	Explain the physiology of lactation	K	KH	Y	Lecture, small group discussion	Written/ Viva voce		Physiology	
PE7.3	Describe the composition and types of breast milk and discuss the differences between cow's milk and human milk	K	KH	Y	Lecture, debate	Written/ Viva voce		Physiology	
PE10.1	Define, describe the etio-pathogenesis, classify including WHO classification, clinical features, complication and management of severe Acute Malnourishment and Moderate Acute Malnutrition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Biochemistry	
PE10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bed side clinics, Skill Lab	Skill station		Physiology, Biochemistry	
PE11.1	Describe the common etiology, clinical features and management of Obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	
PE11.2	Discuss the risk approach for obesity and discuss the prevention strategies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	P	Y	Bedside clinics, Skills lab	Document in log book	3	Biochemistry Physiology Pathology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Y	Bed side clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.13	Discuss the RDA, dietary sources of Vitamin K and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis, management and prevention of Deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE23.1	Discuss the Hemodynamic changes, clinical presentation, complications and management of Acyanotic Heart Diseases –VSD, ASD and PDA	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot's Physiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology Pathology	
PE23.6	Discuss the etio-pathogenesis and clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE29.1	Discuss the etio-pathogenesis, Clinical features, classification and approach to a child with anaemia	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, Physiology	
PE29.2	Discuss the etio-pathogenesis, clinical features and management of Iron Deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE29.3	Discuss the etiopathogenesis, Clinical features and management of VIT B12, Folate deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.4	Discuss the etio-pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sickle cell anaemia, Hereditary spherocytosis, Auto-immune hemolytic anaemia and hemolytic uremic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology Physiology	

General Surgery

SU1.1	Describe basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators	K	KH	Y	Lecture, Bed side clinic and Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
SU2.1	Describe Pathophysiology of shock. Types of shock. Principles of resuscitation including fluid replacement and monitoring	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
SU4.1	Elicit, document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
SU12.1	Enumerate the causes and consequences of malnutrition in the surgical patient.	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU12.2	Describe and Discuss the methods of estimation and replacement the Fluid and electrolyte requirements in the surgical patient	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU28.5	Describe the applied Anatomy and physiology of esophagus	K	K	Y	Lecture, Small group Discussion, Demonstration	Written/ Viva voce		Human Anatomy, Physiology	

Respiratory Medicine

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT2.1	Define and classify obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.2	Describe and discuss the epidemiology risk factors and evolution of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.4	Describe and discuss the physiology and pathophysiology of hypoxia and hypercapnea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.5	Describe and discuss the genetics of alpha 1 antitrypsin deficiency in emphysema	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.11	Describe, discuss and interpret pulmonary function tests	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Physiology, Pathology	

BIOCHEMISTRY (CODE: BI)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BIOCHEMISTRY									
Topic: Basic Biochemistry		Number of competencies: (01)			Number of procedures that require certification: (NIL)				
BI1.1	Describe the molecular and functional organization of a cell and its sub-cellular components.	K	KH	Y	Lecture, Small group discussion	Written assessment/ Viva voce			Physiology
Topic: Enzyme		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
BI2.1	Explain fundamental concepts of enzyme, isoenzyme, alloenzyme, coenzyme & co-factors. Enumerate the main classes of IUBMB nomenclature.	K	KH	Y	Lecture, case discussion	Written assessment/ Viva voce			
BI2.2	Observe the estimation of SGOT & SGPT	K	K	Y	Demonstration	Viva voce			
BI2.3	Describe and explain the basic principles of enzyme activity	K	KH	Y	Lecture, case discussion	Written/ Viva voce			
BI2.4	Describe and discuss enzyme inhibitors as poisons and drugs and as therapeutic enzymes	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, General Medicine	
BI2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, General Medicine	
BI2.6	Discuss use of enzymes in laboratory investigations (Enzyme-based assays)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.7	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions.	K	KH	Y	Lecture, Small group discussion, DOAP sessions	Written/ Viva voce		Pathology, General Medicine	
Topic: Chemistry and Metabolism of Carbohydrates		Number of competencies: (10)			Number of procedures that require certification: (NIL)				
BI3.1	Discuss and differentiate monosaccharides, di-saccharides and polysaccharides giving examples of main carbohydrates as energy fuel, structural element and storage in the human body	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI3.2	Describe the processes involved in digestion and assimilation of carbohydrates and storage.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
BI3.3	Describe and discuss the digestion and assimilation of carbohydrates from food.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
BI3.4	Define and differentiate the pathways of carbohydrate metabolism, (glycolysis, gluconeogenesis, glycogen metabolism, HMP shunt).	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI3.5	Describe and discuss the regulation, functions and integration of carbohydrate along with associated diseases/disorders.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI3.6	Describe and discuss the concept of TCA cycle as a amphibolic pathway and its regulation.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
BI3.7	Describe the common poisons that inhibit crucial enzymes of carbohydrate metabolism (eg; fluoride, arsenate)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Physiology
BI3.8	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, General Medicine	
BI3.9	Discuss the mechanism and significance of blood glucose regulation in health and disease.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI3.10	Interpret the results of blood glucose levels and other laboratory investigations related to disorders of carbohydrate metabolism.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Topic: Chemistry and Metabolism of Lipids Number of competencies: (07) Number of procedures that require certification: (NIL)									
BI4.1	Describe and discuss main classes of lipids (Essential/non-essential fatty acids, cholesterol and hormonal steroids, triglycerides, major phospholipids and sphingolipids) relevant to human system and their major functions.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI4.2	Describe the processes involved in digestion and absorption of dietary lipids and also the key features of their metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI4.3	Explain the regulation of lipoprotein metabolism & associated disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.4	Describe the structure and functions of lipoproteins, their functions, interrelations & relations with atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.5	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.6	Describe the therapeutic uses of prostaglandins and inhibitors of eicosanoid synthesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.7	Interpret laboratory results of analytes associated with metabolism of lipids.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Chemistry and Metabolism of Proteins Number of competencies: (05) Number of procedures that require certification: (NIL)									
BI5.1	Describe and discuss structural organization of proteins.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI5.3	Describe the digestion and absorption of dietary proteins.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI5.4	Describe common disorders associated with protein metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI5.5	Interpret laboratory results of analytes associated with metabolism of proteins.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Metabolism and homeostasis Number of competencies: (15) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI6.1	Discuss the metabolic processes that take place in specific organs in the body in the fed and fasting states.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.2	Describe and discuss the metabolic processes in which nucleotides are involved.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI6.3	Describe the common disorders associated with nucleotide metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physiology
BI6.4	Discuss the laboratory results of analytes associated with gout & Lesch Nyhan syndrome.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.5	Describe the biochemical role of vitamins in the body and explain the manifestations of their deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.6	Describe the biochemical processes involved in generation of energy in cells.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI6.7	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.8	Discuss and interpret results of Arterial Blood Gas (ABG) analysis in various disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.10	Enumerate and describe the disorders associated with mineral metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
Topic: Molecular biology Number of competencies: (07) Number of procedures that require certification: (NIL)									
BI7.1	Describe the structure and functions of DNA and RNA and outline the cell cycle.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.2	Describe the processes involved in replication & repair of DNA and the transcription & translation mechanisms.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.3	Describe gene mutations and basic mechanism of regulation of gene expression.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI7.4	Describe applications of molecular technologies like recombinant DNA technology, PCR in the diagnosis and treatment of diseases with genetic basis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
BI7.5	Describe the role of xenobiotics in disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.6	Describe the anti-oxidant defence systems in the body.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI7.7	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Nutrition Number of competencies: (05) Number of procedures that require certification: (NIL)									
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.3	Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI8.4	Describe the causes (including dietary habits), effects and health risks associated with being overweight/ obesity.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables.(macro-molecules & its importance)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
Topic: Extracellular Matrix Number of competencies: (03) Number of procedures that require certification: (NIL)									
BI9.1	List the functions and components of the extracellular matrix (ECM).	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI9.2	Discuss the involvement of ECM components in health and disease.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI9.3	Describe protein targeting & sorting along with its associated disorders.	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Oncogenesis and immunity Number of competencies: (05) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI10.1	Describe the cancer initiation, promotion oncogenes & oncogene activation. Also focus on p53 & apoptosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	Physiology
BI10.5	Describe antigens and concepts involved in vaccine development.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
Topic: Biochemical Laboratory Tests Number of competencies: (24) Number of procedures that require certification: (05)									
BI11.1	Describe commonly used laboratory apparatus and equipments, good safe laboratory practice and waste disposal.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.2	Describe the preparation of buffers and estimation of pH.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.3	Describe the chemical components of normal urine.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.4	Perform urine analysis to estimate and determine normal and abnormal constituents	S	P	Y	DOAP session	Skill assessment	1	General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI11.5	Describe screening of urine for inborn errors & describe the use of paper chromatography	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.6	Describe the principles of colorimetry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.7	Demonstrate the estimation of serum creatinine and creatinine clearance	S	P	Y	Practical	Skills assessment	1		
BI11.8	Demonstrate estimation of serum proteins, albumin and A:G ratio	S	P	Y	Practical	Skills assessment	1		
BI11.9	Demonstrate the estimation of serum total cholesterol and HDL-cholesterol	S	P	Y	Practical	Skills assessment			
BI11.10	Demonstrate the estimation of triglycerides	S	P	Y	Practical	Skills assessment			
BI11.11	Demonstrate estimation of calcium and phosphorous	S	P	Y	Practical	Skills assessment			
BI11.12	Demonstrate the estimation of serum bilirubin	S	P	Y	Practical	Skills assessment			
BI11.13	Demonstrate the estimation of SGOT/ SGPT	S	P	Y	Practical	Skills assessment			
BI11.14	Demonstrate the estimation of alkaline phosphatase	S	P	Y	Practical	Skills assessment			
BI11.15	Describe & discuss the composition of CSF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI11.16	Observe use of commonly used equipments/techniques in biochemistry laboratory including: •pH meter •Paper chromatography of amino acid •Protein electrophoresis •TLC, PAGE •Electrolyte analysis by ISE •ABG analyzer •ELISA •Immunodiffusion •Autoanalyser •Quality control •DNA isolation from blood/ tissue	S	KH	Y	Demonstration	Skill assessment			
BI11.17	Explain the basis and rationale of biochemical tests done in the following conditions: - diabetes mellitus, - dyslipidemia, - myocardial infarction, - renal failure, gout, - proteinuria, - nephrotic syndrome, - edema, - jaundice, - liver diseases, pancreatitis, disorders of acid- base balance, thyroid disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI11.18	Discuss the principles of spectrophotometry.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.19	Outline the basic principles involved in the functioning of instruments commonly used in a biochemistry laboratory and their applications.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
BI11.20	Identify abnormal constituents in urine, interpret the findings and correlate these with pathological states.	S	SH	Y	DOAP sessions	Skill assessment	1		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
BI11.21	Demonstrate estimation of glucose, creatinine, urea and total protein in serum.	S	SH	Y	DOAP sessions	Skill assessment	1		
BI11.22	Calculate albumin: globulin (AG) ratio and creatinine clearance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.23	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.24	Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									
Integration									
Physiology									
PY3.11	Explain energy source and muscle metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.2	Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.4	Describe the physiology of digestion and absorption of nutrients	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY4.7	Describe & discuss the structure and functions of liver and gall bladder	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PY4.8	Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests	K	KH	Y	Lecture, Small group discussion, Demonstration Esophageal Manometry & endoscopy	Written/Viva voce			Biochemistry
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastro-oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Biochemistry
PY7.8	Describe & discuss Renal Function Tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
PY8.4	Describe function tests: Thyroid gland; Adrenal cortex, Adrenal medulla and pancreas	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry

Pathology

PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Pediatrics	
PA14.1	Describe iron metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.4	Describe the etiology, pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	

Dermatology, Venereology & Leprosy

DR17.1	Enumerate and identify the cutaneous findings in Vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill assessment Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	

Ophthalmology

OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Human Anatomy	

General Medicine

IM2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
IM2.12	Choose and interpret a lipid profile and identify the desirable lipid profile in the clinical context	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Biochemistry	
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology, Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM11.12	Perform and interpret a capillary blood glucose test	S	P	Y	Bed side clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	S	P	Y	Bed side clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Biochemistry	
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	

Pediatrics

PE9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Community Medicine, Biochemistry	
PE9.3	Explains the Calorific value of common Indian foods	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE10.1	Define Describe the etio-pathogenesis , Classify including WHO classification , clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bed side clinics, Skill Lab	Skill station		Physiology, Biochemistry	
PE11.1	Describe the common etiology, clinical features and management of Obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	
PE12.1	Discuss the (RDA) , dietary sources of Vitamin A and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.2	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin A	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.3	Identify the clinical features of dietary deficiency / excess of Vitamin A	S	SH	Y	Bed side clinics, Small group discussion	Document in log book		Biochemistry	
PE12.4	Diagnose patients with Vitamin A deficiency, Classify and plan management	S	SH	N	Bed side clinics, Skill Station	Document in log book		Biochemistry	
PE12.5	Discuss the Vitamin A prophylaxis program and their recommendations	K	K	Y	Lecture, Small group Discussion	Written/ Viva voce		Biochemistry	
PE12.6	Discuss the RDA, dietary sources of Vitamin D and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry, Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE12.9	Assess patients with Vitamin D deficiency, Diagnose, Classify and plan management	S	SH	Y	Bed side clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.11	Discuss the RDA, dietary sources of Vitamin E and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.12	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin E	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.13	Discuss the RDA , dietary sources of Vitamin K and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis , management and prevention of Deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.15	Discuss the RDA , dietary sources of Vitamin B and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.16	Describe the causes, clinical features, diagnosis and management of Deficiency of B complex Vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.17	Identify the clinical features of Vitamin B complex deficiency	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry	
PE12.18	Diagnose patients with Vitamin B complex deficiency and plan management	S	SH	Y	Bed side clinics, Skill lab	Document in log book		Biochemistry	
PE12.19	Discuss the RDA, dietary sources of Vitamin C and their role in Health and disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.20	Describe the causes, clinical features, diagnosis and management of Deficiency of Vitamin C (scurvy)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.21	Identify the clinical features Vitamin C deficiency	S	SH	N	Bed side clinics, Skill lab	Document in log book		Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE13.1	Discuss the RDA, dietary sources of Iron and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.2	Describe the causes, diagnosis and management of Fe deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	S	SH	Y	Bed side clinics, Skill Lab	Document in log book		Pathology, Biochemistry	
PE13.4	Interpret hemogram and Iron Panel	S	SH	Y	Bed side clinic, Small group discussion	Skill Assessment		Pathology, Biochemistry	
PE13.7	Discuss the RDA , dietary sources of Iodine and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.8	Describe the causes, clinical features, diagnosis and management of Deficiency of Iodine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.9	Identify the clinical features of Iodine deficiency disorders	S	SH	N	Lecture, Bed side clinic	Written/ Viva voce		Biochemistry	
PE13.10	Discuss the National Goiter control program and their recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Community Medicine	
PE13.11	Discuss the RDA, dietary sources of Calcium and its role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.12	Describe the causes, clinical features, diagnosis and management of Ca Deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.13	Discuss the RDA , dietary sources of Magnesium and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.14	Describe the causes, clinical features, diagnosis and management of Magnesium Deficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE19.1	Explain the components of the Universal immunization Program and the sub National Immunization Programs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.3	Vaccine description with regards to Classification of vaccines, Strain used, Dose, route, schedule, Risks benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, preterm, organ transplants, those who received blood and blood products, splenectomised children, Adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE21.11	Perform and interpret the common analytes in a Urine examination	S	SH	Y	Bed side clinic Labs, Skill lab	Skill assessment		Biochemistry, Pathology	
PE29.16	Discuss the Indications for Hemoglobin electrophoresis and interpret report	K	K	N	Small group discussion	Viva voce		Biochemistry	
PE33.6	Perform and interpret Urine Dip Stick for Sugar	S	P	Y	DOAP session	Skill assessment	3	Biochemistry	

General Surgery

SU1.1	Describe basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators.	K	KH	Y	Lecture, Bed side clinic and Small group discussion.	Written/ Viva voce.		Physiology, Biochemistry	
SU1.2	Describe the factors that affect the metabolic response to injury.	K	KH	Y	Lecture, Bed side clinic and Small group discussion.	Written/ Viva voce.		Biochemistry	
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient.	K	KH	Y	Lecture, Small group discussion.	Written/ Viva voce		Biochemistry, Microbiology, Pathology	
SU12.3	Discuss the nutritional requirements of surgical patients, the methods of providing nutritional support and their complications.	K	KH	Y	Lecture, Small group discussion, Bedside clinic discussion	Written/ Viva voce		Biochemistry	

PHARMACOLOGY (CODE: PH)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PHARMACOLOGY									
KNOWLEDGE: Topic: Pharmacology		Number of competencies: (64)			Number of procedures that require certification : (NIL)				
PH1.1	Define and describe the principles of pharmacology and pharmacotherapeutics	K	K	Y	Lecture	Written/ Viva voce			
PH1.2	Describe the basis of Evidence based medicine and Therapeutic drug monitoring	K	KH	Y	Lecture	Written/ Viva voce			
PH1.3	Enumerate and identify drug formulations and drug delivery systems	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
PH1.4	Describe absorption, distribution, metabolism & excretion of drugs	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.5	Describe general principles of mechanism of drug action	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.6	Describe principles of Pharmacovigilance & ADR reporting systems	K	KH	Y	Lecture, Practical	Written/ Viva voce			
PH1.7	Define, identify and describe the management of adverse drug reactions (ADR)	K/S	KH	Y	Lecture, Practical	Written/ Viva voce			
PH1.8	Identify and describe the management of drug interactions	K/S	KH	Y	Lecture, Practical	Written/ Viva voce			
PH1.9	Describe nomenclature of drugs i.e. generic, branded drugs	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
PH1.10	Describe parts of a correct, complete and legible generic prescription. Identify errors in prescription and correct appropriately	K/S	SH	Y	Lecture, Practical	Written/ Viva voce			
PH1.11	Describe various routes of drug administration, eg., oral, SC, IV, IM, SL	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction.	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine	
PH1.13	Describe mechanism of action, types, doses, side effects, indications and contraindications of adrenergic and anti-adrenergic drugs	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.14	Describe mechanism of action, types, doses, side effects, indications and contraindications of cholinergic and anticholinergic drugs	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			
PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.16	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti-histaminics, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.17	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of local anesthetics	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.18	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre-anesthetic medications	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti-psychotic, anti-depressant drugs, anti-maniacs, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti-epileptics drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.20	Describe the effects of acute and chronic ethanol intake	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.21	Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	Forensic Medicine
PH1.23	Describe the process and mechanism of drug deaddiction	K/S	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
PH1.24	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs affecting renal systems including diuretics, antidiuretics- vasopressin and analogues	K	KH	Y	Lecture	Written/ Viva voce			
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin-angiotensin and aldosterone system	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the antiarrhythmics	K	KH	N	Lecture	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.32	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid-peptic disease and GERD 2. Antiemetics and prokinetics 3. Antidiarrhoeals 4 .Laxatives 5. Inflammatory Bowel Disease 6. Irritable Bowel Disorders, biliary and pancreatic diseases	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		General Medicine	
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: 1.Drugs used in anemias 2.Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	Pharmacology
PH1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.37	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used as sex hormones, their analogues and anterior Pituitary hormones	K	KH	Y	Lecture	Written/ Viva voce			
PH1.38	Describe the mechanism of action, types, doses, side effects, indications and contraindications of corticosteroids	K	KH	Y	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.40	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.42	Describe general principles of chemotherapy	K	KH	Y	Lecture	Written/ Viva voce			
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology
PH1.44	Describe the first line antitubercular dugs, their mechanisms of action, side effects and doses.	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	
PH1.45	Describe the dugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology
PH1.48	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV	K	KH	Y	Lecture	Written/Viva voce			Microbiology
PH1.49	Describe mechanism of action, classes, side effects, indications and contraindications of anticancer drugs	K	KH	Y	Lecture	Written/Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.50	Describe mechanisms of action, types, doses, side effects, indications and contraindications of immunomodulators and management of organ transplant rejection	K	KH	Y	Lecture	Written/ Viva voce			
PH1.51	Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents	K	KH/	Y	Lecture	Written/ Viva voce			
PH1.52	Describe management of common poisoning, insecticides, common sting and bites	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.53	Describe heavy metal poisoning and chelating agents	K	KH	N	Lecture	Written/ Viva voce			
PH1.54	Describe vaccines and their uses	K	KH	Y	Lecture	Written/ Viva voce			
PH1.55	Describe and discuss the following National Health Programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
PH1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	
PH1.57	Describe drugs used in skin disorders	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PH1.58	Describe drugs used in Ocular disorders	K	KH	Y	Lecture	Written/ Viva voce		Ophthalmology	
PH1.59	Describe and discuss the following: Essential medicines, Fixed dose combinations, Over the counter drugs, Herbal medicines	K	KH	Y	Lecture	Written/ Viva voce			
PH1.60	Describe and discuss Pharmacogenomics and Pharmacoeconomics	K	KH	N	Lecture	Written/ Viva voce			
PH1.61	Describe and discuss dietary supplements and nutraceuticals	K	KH	N	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.62	Describe and discuss antiseptics and disinfectants	K	KH	Y	Lecture	Written/ Viva voce			
PH1.63	Describe Drug Regulations, acts and other legal aspects	K	KH	Y	Lecture	Written/ Viva voce			
PH1.64	Describe overview of drug development, Phases of clinical trials and Good Clinical Practice	K	KH	Y	Lecture	Written/ Viva voce			
SKILLS: Topic: Clinical Pharmacy Number of competencies: (04) Number of procedures that require certification : (NIL)									
PH2.1	Demonstrate understanding of the use of various dosage forms (oral/local/parenteral; solid/liquid)	S/C	SH	Y	DOAP sessions	Skills assessment			
PH2.2	Prepare oral rehydration solution from ORS packet and explain its use	S/C	SH	Y	DOAP sessions	Skills assessment			
PH2.3	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment	S	SH	Y	DOAP sessions	Skills assessment			
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP sessions	Skills assessment		Pediatrics, General Medicine	
SKILLS: Topic: Clinical Pharmacology Number of competencies: (08) Number of procedures that require certification : (04)									
PH3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	S/C	P	Y	Skill station	Skill station	5	General Medicine	
PH3.2	Perform and interpret a critical appraisal (audit) of a given prescription	S	P	Y	Skill Lab	Maintenance of log book	3		
PH3.3	Perform a critical evaluation of the drug promotional literature	S	P	Y	Skill Lab	Maintenance of log book/ Skill station	3	General Medicine	
PH3.4	To recognise and report an adverse drug reaction	S	SH	Y	Skill station	Maintenance of log book/ Skill station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH3.5	To prepare and explain a list of P-drugs for a given case/condition	S	P	Y	Skill station	Maintenance of log book	3	General Medicine	
PH3.6	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs	S	SH	N	Skill station	maintenance of log book			
PH3.7	Prepare a list of essential medicines for a healthcare facility	S	SH	Y	Skill station	Maintenance of log book			
PH3.8	Communicate effectively with a patient on the proper use of prescribed medication	C/A	SH	Y	Skill Lab	Skill station			
SKILLS: Topic: Experimental Pharmacology Number of competencies: (02) Number of procedures that require certification :(NIL)									
PH4.1	Administer drugs through various routes in a simulated environment using mannequins	S	SH	Y	DOAP sessions	Skills assessment			
PH4.2	Demonstrate the effects of drugs on blood pressure (vasopressor and vaso-depressors with appropriate blockers) using computer aided learning	S	SH	Y	Skill lab	Skill station			
Communication Topic: Pharmacology Number of competencies: (07) Number of procedures that require certification : (NIL)									
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	A/C	SH	Y	Small group discussion	skill station		General Medicine	
PH5.2	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines	A/C	SH	Y	Small group discussion	Skill station			
PH5.3	Motivate patients with chronic diseases to adhere to the prescribed management by the health care provider	A/C	SH	Y	Small group discussion	short note/skill station			
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	A/C	SH	Y	Small group discussion	short note/ viva voce		General Medicine	
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	K	KH	Y	Small group discussion	short note/ Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	A/C	SH	Y	Small group discussion	Skill station		Psychiatry	
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	K	KH	Y	Small group discussion	short note/ Viva voce			Forensic Medicine

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Physiology									
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Anaesthesiology, Pharmacology	

Microbiology									
MI1.6	Describe the mechanisms of drug resistance, methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy.	K	K	Y	Lecture , Small group discussion	Written Viva			Pharmacology
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course, the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid Peptic Disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology

Community Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM3.8	Describe the mode of action & application cycle of commonly used insecticides and rodenticides	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
CM19.1	Define and describe the concept of Essential Medicine List (EML)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
CM19.2	Describe roles of essential medicine in primary health care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
CM19.3	Describe counterfeit medicine and its prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology

Forensic Medicine & Toxicology

FM4.11	Describe and discuss euthanasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.12	Discuss legal and ethical issues in relation to stem cell research	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.17	Describe and discuss ethical Principles: Respect for autonomy, non-maleficence, beneficence & justice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.22	Explain Oath – Hippocrates, Charaka and Sushruta and procedure for administration of Oath	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.23	Describe the modified Declaration of Geneva and its relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.25	Clinical research & Ethics: Discuss human experimentation including clinical trials	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.26	Discuss the constitution and functions of ethical committees	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM4.27	Describe and discuss Ethical Guidelines for Biomedical Research on Human Subjects & Animals	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	Pharmacology
FM8.1	Describe the history of Toxicology	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM8.2	Define the terms Toxicology, Forensic Toxicology, Clinical Toxicology and poison	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.3	Describe the various types of poisons, Toxicokinetics & Toxicodynamics and diagnosis of poisoning in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.4	Describe the Laws in relations to poisons including NDPS Act, Medico-legal aspects of poisons	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.5	Describe Medico-legal autopsy in cases of poisoning including preservation and dispatch of viscera for chemical analysis	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSPE		Pharmacology	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce /OSCE		Pharmacology	
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce /OSCE		Pharmacology, General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Caustics Inorganic – sulphuric, nitric, and hydrochloric acid Organic- Carbolic Acid (phenol), Oxalic and acetylsalicylic acids.	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lectures, Small group discussion Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	Pharmacology
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepines, phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv. Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis vi. Gastro-Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	Lectures, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	Pharmacology
Dermatology, Venereology & Leprosy									
DR5.3	Enumerate and describe the pharmacology, administration and adverse reaction of pharmacotherapies for scabies	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pediatrics	Pharmacology
DR7.3	Describe the pharmacology and action of antifungal (systemic and topical). agents Enumerate side effects of antifungal therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology ,Pharmacology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR8.7	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for common viral illnesses of the skin	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
DR9.4	Enumerate, describe and identify lepra reactions and supportive measures and therapy of lepra reactions	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on National Guidelines	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on WHO guidelines	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Psychiatry
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR14.5	Enumerate the indications and describe the pharmacology indications and adverse reactions of drugs used in the urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
DR15.3	Enumerate the indications and describe the pharmacology indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery	Microbiology, Pharmacology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Anesthesiology									
AS3.6	Choose and write a prescription for appropriate premedications for patients undergoing surgery	S	SH	Y	DOAP session, Bedside clinic session	Skill station		Pharmacology	
AS4.1	Describe and discuss the pharmacology of drugs used in induction and maintenance of general anaesthesia (including intravenous and inhalation induction agents, opiate and non-opiate analgesics, depolarising and non-depolarising muscle relaxants, anticholinesterases	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pharmacology	
AS4.3	Observe and describe the principles and the practical aspects of induction and maintenance of anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	
AS5.4	Observe and describe the pharmacology and correct use of commonly used drugs and adjuvant agents in regional anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	
AS8.3	Describe the pharmacology and use of drugs in the management of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	
AS8.4	Describe the principles of pain management in palliative care	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	General Medicine
AS8.5	Describe the principles of pain management in the terminally ill	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	General Medicine
AS10.4	Define and describe common medical and medication errors in anaesthesia	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Pharmacology	General Medicine

Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PS4.4	Describe the treatment of alcohol and substance abuse disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS4.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in alcohol and substance abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS5.3	Describe the treatment of schizophrenia including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS5.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in schizophrenia	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	
PS6.4	Describe the treatment of depression including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS6.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in depression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS7.4	Describe the treatment of bipolar disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS7.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in bipolar disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.4	Describe the treatment of anxiety disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in anxiety disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS10.4	Describe the treatment of somatoform disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PS11.4	Describe the treatment of personality disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS11.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in personality disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS12.4	Describe the treatment of psychosomatic disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS12.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychosomatic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS13.4	Describe the treatment of psychosexual and gender identity disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS18.1	Enumerate the indications and describe the pharmacology, dose and side effects of commonly use drugs in psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
General Medicine									
IM1.24	Describe and discuss the pharmacology of drugs including indications & contraindications in the management of heart failure including diuretics, ACE inhibitors, Beta blockers, aldosterone antagonists and cardiac glycosides	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Written		Microbiology Pharmacology	
IM1.30	Administer an intramuscular injection with an appropriate explanation to the patient	S	SH	Y	Bedside clinic, Skill assessment	log book documentation of completion		Pharmacology	
IM2.15	Discuss and describe the medications used in patients with an acute coronary syndrome based on the clinical presentation	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology, Biochemistry	
IM2.20	Discuss and describe the assessment and relief of pain in acute coronary syndromes	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	
IM2.23	Describe and discuss the indications for nitrates, anti platelet agents, gpIIb - IIIa inhibitors, beta blockers, ACE inhibitors etc in the management of coronary syndromes	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		Pharmacology	
IM3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.13	Select, describe and prescribe based on culture and sensitivity appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM4.22	Describe and discuss the pharmacology, indications, adverse reactions, interactions of antimalarial drugs and basis of resistance	K	KH	Y	Small group, Lecture	Written/ Viva voce		Pharmacology	
IM4.23	Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and National Programs	S	SH	Y	Skill assessment	Skill assessment		Microbiology, Pharmacology	
IM4.26	Counsel the patient on malarial prevention	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pharmacology	
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group	Skill Assessment/ Written/ Viva voce		Pharmacology	General Surgery
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM6.17	Discuss and describe the principles of HAART, the classes of antiretrovirals used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.18	Discuss and describe the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM7.21	Select, prescribe and communicate appropriate medications for relief of joint pain	K/C	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	Orthopedics
IM7.22	Select, prescribe and communicate preventive therapy for crystalline arthropathies	K/C	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	
IM7.23	Select, prescribe and communicate treatment option for systemic rheumatologic conditions	K/C	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	
IM7.24	Describe the basis for biologic and disease modifying therapy in rheumatologic diseases	K	KH	Y	Bed side clinic, Small group discussion	Skill assessment/ written		Pharmacology	
IM8.14	Develop an appropriate treatment plan for essential hypertension	K	KH	Y	Small group discussion	Skill assessment/ Written/ Viva voce		Pharmacology	
IM8.15	Recognise, prioritise and manage hypertensive emergencies	S	SH	Y	DOAP session	Skill assessment/ written		Pharmacology	
IM9.14	Prescribe replacement therapy with iron, B12, folate	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ written		Pharmacology	
IM9.15	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Community Medicine	
IM10.25	Identify and describe the priorities in the management of ARF including diet, volume management, alteration in doses of drugs, monitoring and indications for dialysis	K/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM11.16	Discuss and describe the pharmacologic therapies for diabetes their indications, contraindications, adverse reactions and interactions	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM11.18	Describe and discuss the pharmacology, indications, adverse reactions and interactions of drugs used in the prevention and treatment of target organ damage and complications of Type II Diabetes including neuropathy, nephropathy, retinopathy, hypertension, dyslipidemia and cardiovascular disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM11.19	Demonstrate and counsel patients on the correct technique to administer insulin	S/C	SH	Y	DOAP session	Skill assessment		Pharmacology	
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Viva voce/ short note		Pharmacology	General Surgery
IM12.14	Write and communicate to the patient appropriately a prescription for thyroxine based on age, sex, and clinical and biochemical status	S/C	SH	Y	Skill assessment	Skill assessment		Pharmacology	
IM12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and General Surgery in the management of thyrotoxicosis	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	General Surgery
IM13.6	Describe and distinguish the difference between curative and palliative care in patients with cancer	K	K	N	Lecture, Small group discussion	short note/ Viva voce		Pharmacology	
IM13.13	Describe and assess pain and suffering objectively in a patient with cancer	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	General Surgery
IM13.14	Describe the indications for General Surgery, radiation and chemotherapy for common malignancies	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	General Surgery
IM13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	Anesthesiology
IM14.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for obesity	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology	
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Viva voce/ short note		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology, Microbiology	General Surgery
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology, Microbiology	
IM16.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial and viral diarrhea	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	
IM16.16	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy including immunotherapy	K	K	Y	Lecture, small group discussion	short note/ Viva voce		Pharmacology	
IM17.11	Describe the indications, pharmacology, dose, side effects of abortive therapy in migraine	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Pharmacology	
IM17.12	Describe the indications, pharmacology, dose, side effects of prophylactic therapy in migraine	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Pharmacology	
IM17.13	Describe the pharmacology, dose, adverse reactions and regimens of drugs used in the treatment of bacterial, tubercular and viral meningitis	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Pharmacology	
IM17.14	Counsel patients with migraine on lifestyle changes and need for prophylactic therapy	A/C	SH	N	DOAP session	Skill Assessment		Pharmacology	
IM19.8	Discuss and describe the pharmacology, dose, side effects and interactions used in the drug therapy of Parkinson's syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM19.9	Enumerate the indications for use of surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Surgery
IM20.1	Enumerate the poisonous snakes of your area and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.7	Enumerate the indications and describe the pharmacology, dose, adverse reactions, hypersensitivity reactions of anti-snake venom	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM20.8	Describe the diagnosis, initial approach, stabilisation and therapy of scorpion envenomation	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM20.9	Describe the diagnosis, initial approach, stabilisation and therapy of bee sting allergy	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM21.1	Describe the initial approach to the stabilisation of the patient who presents with poisoning	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico-legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico-legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico-legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM22.3	Describe the approach to the management of hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	

Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE13.5	Propose a management plan for Fe Deficiency Anaemia	S	SH	Y	Bed side clinics, Skill lab	Skill Assessment		Pathology, Pharmacology	
PE13.6	Discuss the National Anaemia Control Program and its recommendations	K	K	Y	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology, Community Medicine	
PE14.1	Discuss the risk factors, clinical features, diagnosis and management of Lead Poisoning	K	KH	N	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology	
PE14.3	Discuss the risk factors, clinical features, diagnosis and management of Organo phosphorous poisoning	K	KH	N	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology	General Medicine
PE14.4	Discuss the risk factors, clinical features, diagnosis and management of paracetamol Poisoning	K	KH	N	Lecture, Small group Discussion	Written/ Viva voce		Pharmacology	
PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti- emetics in acute diarrheal diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
General Surgery									
SU13.2	Discuss the Principles of immunosuppressive therapy. Enumerate indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	

Physical Medicine & Rehabilitation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM3.5	Enumerate the indications and describe the therapies for spasticity including medications, serial casts, nerve blocks, botulinum toxin injections	K	KH	Y	Lectures, Small group discussion			Pharmacology	Pediatrics, Orthopedics
PM7.6	Enumerate the indications and describe the pharmacology and side effects of commonly used drugs in neuropathic bladder	K	KH	Y	Lectures, Small group discussion	Written / Viva voce		Pharmacology	General Medicine
Respiratory Medicine									
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Pharmacology	
CT1.14	Describe and discuss the pharmacology of various antituberculous agents, their indications, contraindications, interactions and adverse reactions	K	KH	Y	Lecture, Small group discussion	short note/ Viva voce		Pharmacology, Microbiology	
CT1.15	Prescribe an appropriate antituberculosis regimen based on the location of disease, smear positivity and negativity and co-morbidities based on current national guidelines including directly observed tuberculosis therapy (DOTS)	K	SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment		Pharmacology, Community Medicine	
CT2.16	Discuss and describe therapies for OAD including bronchodilators, leukotriene inhibitors, mast cell stabilisers, theophylline, inhaled and systemic steroids, oxygen and immunotherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
Orthopaedics									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/S H	Y	Lecture, Small group Discussion, Video assisted lecture	Written/ Viva voce/ OSCE	–	Pathology, Microbiology	General surgery

PATHOLOGY (CODE: PA)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PATHOLOGY									
Topic: Introduction to Pathology Number of competencies: (03) Number of procedures that require certification: (NIL)									
PA1.1	Describe the role of a pathologist in diagnosis and management of disease	K	K	Y	Departmental orientation	Written/ Viva voce			
PA1.2	Enumerate common definitions and terms used in Pathology	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA1.3	Describe the history and evolution of Pathology	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Cell Injury and Adaptation Number of competencies: (08) Number of procedures that require certification: (NIL)									
PA2.1	Demonstrate knowledge of the causes, mechanisms, types and effects of cell injury and their clinical significance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.2	Describe the etiology of cell injury. Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.3	Intracellular accumulation of fats, proteins, carbohydrates, pigments	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.4	Describe and discuss Cell death- types, mechanisms, necrosis, apoptosis (basic as contrasted with necrosis), autolysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.5	Describe and discuss pathologic calcifications, gangrene	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.6	Describe and discuss cellular adaptations: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA2.7	Describe and discuss the mechanisms of cellular aging and apoptosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
PA2.8	Identify and describe various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens	S	SH	Y	DOAP session	Skill assessment			
Topic: Amyloidosis Number of competencies: (02) Number of procedures that require certification: (NIL)									
PA3.1	Describe the pathogenesis and pathology of amyloidosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA3.2	Identify and describe amyloidosis in a pathology specimen	S	SH	N	DOAP session	Skill assessment			
Topic: Inflammation Number of competencies:(04) Number of procedures that require certification: (NIL)									
PA4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.2	Enumerate and describe the mediators of acute inflammation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.3	Define and describe chronic inflammation including causes, types, non-specific and granulomatous; and enumerate examples of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA4.4	Identify and describe acute and chronic inflammation in gross and microscopic specimens	S	SH	Y	DOAP session	Skill assessment			
Topic: Healing and repair Number of competencies: (01) Number of procedures that require certification:(NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA5.1	Define and describe the process of repair and regeneration including wound healing and its types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Hemodynamic disorders Number of competencies: (07) Number of procedures that require certification :(NIL)									
PA6.1	Define and describe edema, its types, pathogenesis and clinical correlations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA6.2	Define and describe hyperemia, congestion, hemorrhage	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.3	Define and describe shock, its pathogenesis and its stages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA6.4	Define and describe normal haemostasis and the etiopathogenesis and consequences of thrombosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.5	Define and describe embolism and its causes and common types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.6	Define and describe Ischaemia/infarction its types, etiology, morphologic changes and clinical effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.7	Identify and describe the gross and microscopic features of infarction in a pathologic specimen	S	SH	Y	DOAP session	Skill Assessment			
Topic: Neoplastic disorders Number of competencies: (05) Number of procedures that require certification: (NIL)									
PA7.1	Define and classify neoplasia. Describe the characteristics of neoplasia including gross, microscopy, biologic, behaviour and spread. Differentiate between benign from malignant neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.2	Describe the molecular basis of cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA7.3	Enumerate carcinogens and describe the process of carcinogenesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.4	Describe the effects of tumor on the host including paraneoplastic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.5	Describe immunology and the immune response to cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Microbiology
Topic: Basic diagnostic cytology Number of competencies:(03) Number of procedures that require certification:(NIL)									
PA8.1	Describe the diagnostic role of cytology and its application in clinical care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.2	Describe the basis of exfoliative cytology including the technique & stains used	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		General Surgery	
PA8.3	Observe a diagnostic cytology and its staining and interpret the specimen	S	KH	Y	DOAP session	Skill assessment			
Topic: Immunopathology and AIDS Number of competencies: (07) Number of procedures that require certification: (NIL)									
PA9.1	Describe the principles and mechanisms involved in immunity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
PA9.2	Describe the mechanism of hypersensitivity reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.4	Define autoimmunity. Enumerate autoimmune disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.5	Define and describe the pathogenesis of systemic Lupus Erythematosus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA9.7	Define and describe the pathogenesis of other common autoimmune diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Infections and Infestations Number of competencies: (04) Number of procedures that require certification:(NIL)									
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
Topic: Genetic and paediatric diseases Number of competencies: (03) Number of procedures that require certification :(NIL)									
PA11.1	Describe the pathogenesis and features of common cytogenetic abnormalities and mutations in childhood	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA11.2	Describe the pathogenesis and pathology of tumor and tumour-like conditions in infancy and childhood	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA11.3	Describe the pathogenesis of common storage disorders in infancy and childhood	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Topic: Environmental and nutritional diseases Number of competencies:(03) Number of procedures that require certification:(NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine
PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Pediatrics	
PA12.3	Describe the pathogenesis of obesity and its consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Introduction to haematology Number of competencies: (05) Number of procedures that require certification:(NIL)									
PA13.1	Describe hematopoiesis and extramedullary hematopoiesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.2	Describe the role of anticoagulants in hematology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.3	Define and classify anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.4	Enumerate and describe the investigation of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.5	Perform, Identify and describe the peripheral blood picture in anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
Topic: Microcytic anemia Number of competencies: (03) Number of procedures that require certification:(NIL)									
PA14.1	Describe iron metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PA14.2	Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA14.3	Identify and describe the peripheral smear in microcytic anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
Topic: Macrocytic anemia Number of competencies: (04) Number of procedures that require certification:(NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA15.2	Describe laboratory investigations of macrocytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA15.3	Identify and describe the peripheral blood picture of macrocytic anemia	S	SH	Y	DOAP session	Skill assessment			
PA15.4	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Hemolytic anemia Number of competencies: (07) Number of procedures that require certification: (01)									
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.4	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.5	Describe the peripheral blood picture in different hemolytic anaemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA16.6	Prepare a peripheral blood smear and identify hemolytic anaemia from it	S	P	Y	DOAP session	Skill assessment	1		
PA16.7	Discribe the correct technique to perform a cross match	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Aplastic anemia Number of competencies: (02) Number of procedures that require certification:(NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA 17.1	Enumerate the etiology, pathogenesis and findings in aplastic anemia	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA17.2	Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Leukocyte disorders Number of competencies: (02) Number of procedures that require certification:(NIL)									
PA18.1	Enumerate and describe the causes of leucocytosis leucopenia lymphocytosis and leukemoid reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA`18.2	Describe the etiology, genetics, pathogenesis classification, features, hematologic features of acute and chronic leukemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lymph node and spleen Number of competencies: (07) Number of procedures that require certification:(NIL)									
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.3	Identify and describe the features of tuberculous lymphadenitis in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment			
PA19.4	Describe and discuss the pathogenesis, pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA19.6	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA19.7	Identify and describe the gross specimen of an enlarged spleen	S	SH	Y	DOAP session	Skill assessment			
Topic: Plasma cell disorders Number of competencies: (01) Number of procedures that require certification: (NIL)									
PA20.1	Describe the features of plasma cell myeloma	S	SH	Y	DOAP session	Skill assessment			
Topic: Hemorrhagic disorders Number of competencies: (05) Number of procedures that require certification:(NIL)									
PA21.1	Describe normal hemostasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA21.2	Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP and haemophilia's	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA21.3	Differentiate platelet from clotting disorders based on the clinical and hematologic features	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.5	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of Vitamin K deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Blood banking and transfusion Number of competencies: (07) Number of procedures that require certification: (NIL)									
PA22.1	Classify and describe blood group systems (ABO and RH)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA22.2	Enumerate the indications, describe the principles, enumerate and demonstrate the steps of compatibility testing	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.5	Enumerate and describe infections transmitted by blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA22.6	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA22.7	Enumerate the indications and describe the principles and procedure of autologous transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Clinical Pathology Number of competencies: (03) Number of procedures that require certification: (NIL)									
PA23.1	Describe abnormal urinary findings in disease states and identify and describe common urinary abnormalities in a clinical specimen	S	SH	Y	DOAP session	Skill Assessment			
PA23.2	Describe abnormal findings in body fluids in various disease states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA23.3	Describe and interpret the abnormalities in a panel containing semen analysis, thyroid function tests, renal function tests or liver function tests	S	SH	Y	DOAP session	Skill Assessment			
Topic: Gastrointestinal tract Number of competencies: (07) Number of procedures that require certification: (NIL)									
PA24.1	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dentistry	
PA24.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.3	Describe and identify the microscopic features of peptic ulcer	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA24.4	Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.5	Describe and etiology and pathogenesis and pathologic features of Tuberculosis of the intestine	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.6	Describe and etiology and pathogenesis and pathologic and distinguishing features of Inflammatory bowel disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.7	Describe the etiology, pathogenesis, pathology and distinguishing features of carcinoma of the colon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Hepatobiliary system Number of competencies: (06) Number of procedures that require certification: (01)									
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.3	Describe the etiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.6	Interpret liver function and viral hepatitis serology panel. Distinguish obstructive from non-obstructive jaundice based on clinical features and liver function tests	S	P	Y	DOAP session	Skill assessment	1	General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Respiratory system		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
PA26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance,metastases and complications of tumors of the lung and pleura	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
Topic: Cardiovascular system		Number of competencies: (10)			Number of procedures that require certification: (NIL)				
PA27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of arteriosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA27.3	Describe the etiology, types, stages pathophysiology, pathology and complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
Topic: Urinary Tract Number of competencies: (16) Number of procedures that require certification: (NIL)									
PA28.1	Describe the normal histology of the kidney	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA28.2	Define, classify and distinguish the clinical syndromes and describe the etiology, pathogenesis, pathology, morphology, clinical and laboratory and urinary findings, complications of renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.4	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA28.6	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.7	Enumerate and describe the findings in glomerular manifestations of systemic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.8	Enumerate and classify diseases affecting the tubular interstitium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features progression and complications of vascular disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28.12	Define classify and describe the genetics, inheritance, etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.13	Define classify and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression and complications of renal stone disease and obstructive uropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA28.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA28.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of urothelial tumors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Male Genital Tract Number of competencies: (05) Number of procedures that require certification: (NIL)									
PA29.1	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.3	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign prostatic hyperplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.4	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA29.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
Topic: Female Genital Tract Number of competencies: (09) Number of procedures that require certification: (NIL)									
PA30.1	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.2	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.6	Describe the etiology and morphologic features of cervicitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.7	Describe the etiology, hormonal dependence, features and morphology of endometriosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.8	Describe the etiology and morphologic features of adenomyosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA30.9	Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Topic: Breast Number of competencies: (04) Number of procedures that require certification: (NIL)									
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.2	Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast	S	SH	N	DOAP session	Skill Assessment		General Surgery	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
Topic: Endocrine system Number of competencies: (09) Number of procedures that require certification: (NIL)									
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group	Written/ Viva voce		Physiology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.6	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
Topic: Bone and soft tissue Number of competencies: (05) Number of procedures that require certification: (NIL)									
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopaedics	Microbiology
PA33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA33.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Skin Number of competencies: (04) Number of procedures that require certification:(NIL)									
PA34.1	Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.2	Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors morphology clinical features and metastases of melanoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.4	Identify, distinguish and describe common tumors of the skin	S	SH	N	DOAP session	Skill Assessment		Dermatology, Venereology & Leprosy	
Topic: Central Nervous System Number of competencies:(03) Number of procedures that require certification: (01)									
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA35.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
Topic: Eye Number of competencies: (01) Number of procedures that require certification:(NIL)									
PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, S - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									
Integration									
Human Anatomy									
AN5.8	Define thrombosis, infarction & aneurysm	K	KH	N	Lecture	Written		Pathology	Physiology
AN66.2	Describe the ultrastructure of connective tissue	K	KH	N	Lecture, Practical	Written		Pathology	
AN70.1	Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN70.2	Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node, spleen, thymus, tonsil and correlate the structure with function	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
AN71.1	Identify bone under the microscope, Classify various types and describe the structure-function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
AN71.2	Identify cartilage under the microscope & describe various types and structure- function correlation of the same describe various types and structure-function correlation of the same	K/S	SH	Y	Lecture, Practical	Written/ skill assessment		Pathology	
Physiology									
PY1.4	Describe apoptosis – programmed cell death	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PY2.5	Describe different types of anemia & Jaundice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	Biochemistry
PY2.8	Describe the physiological basis of hemostasis and anticoagulants. Describe bleeding & clotting disorders (Hemophilia, purpura)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PY2.9	Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion	K	KH	Y	Lecture, Small group discussion, ECE- Visit to blood bank	Written/ Viva voce		Pathology	
PY2.11	Estimate Hb, RBC, TLC, RBC indices, DLC, Blood groups, BT/CT	S	SH	Y	DOAP sessions	Practical/OSPE/ viva voce		Pathology	
PY2.12	Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc	K	KH	Y	Demonstration	Written/ Viva voce		Pathology	
PY2.13	Describe steps for reticulocyte and platelet count	K	KH	Y	Demonstration sessions	Written/ Viva voce		Pathology	
PY3.6	Describe the pathophysiology of Myasthenia gravis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
Biochemistry									
BI2.4	Describe and discuss enzyme inhibitors as poisons and drugs and as therapeutic enzymes	K	KH	Y	Lecture, small group discussions	Written/ Viva voce		Pathology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
BI2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, small group discussions	Written/ Viva voce		Pathology, General Medicine	
BI2.6	Discuss use of enzymes in laboratory investigations (Enzyme-based assays)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.7	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion /DOAP sessions	Written/ Viva voce		Pathology, General Medicine	
BI3.8	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas eg, hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI7.7	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.4	Describe the causes (including dietary habits), effects and health risks associated with being overweight/obesity	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables (macro-molecules & its importance)	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
BI10.1	Describe the cancer initiation, promotion oncogenes & oncogene activation	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	Physiology
BI10.5	Describe antigens and concepts involved in vaccine development	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
BI11.17	Explain the basis and rationale of biochemical tests done in the following conditions: diabetes mellitus, dyslipidemia, myocardial infarction, renal failure, gout, proteinuria, nephrotic syndrome, edema, jaundice, liver diseases, pancreatitis, disorders of acid-base balance, thyroid disorders	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		General Medicine, Pathology	
Microbiology									
MI1.7	Describe the immunological mechanisms in health	K	KH	Y	Lecture	Written/ Viva voce			Pathology
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	Pathology
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic heart disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia	K	KH	Y	Lecture, Small group discussion	Written/ viva voce		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kala azar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, Small group discussion	Written/ viva voce		General Medicine	Pathology
MI2.7	Describe the epidemiology, the etio-pathogenesis, evolution, complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course, the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.6	Describe the etio-pathogenesis of Acid Peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis, and prevention of viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis	K	KH	Y	small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y	Lecture	Written		General Medicine	Pathology
Community Medicine									
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
Forensic Medicine & Toxicology									
FM2.1	Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical death and Brainstem death	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.2	Describe and discuss natural and unnatural deaths	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.3	Describe and discuss issues related to sudden natural deaths	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.5	Discuss moment of death, modes of death-coma, asphyxia and syncope	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM2.11	Describe and discuss autopsy procedures including post-mortem examination, different types of autopsies, aims and objectives of post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/viva voce/ OSPE			Pathology
FM2.12	Describe the legal requirements to conduct post-mortem examination and procedures to conduct medico-legal post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/viva voce/ OSPE			Pathology

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FM2.13	Describe and discuss obscure autopsy	K	KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/viva voce		Obstetrics & Gynaecology, Pathology	
FM6.1	Describe different types of specimens and tissues to be collected both in the living and dead: body fluids (blood, urine, semen, faeces, saliva), skin, nails, tooth pulp, vaginal smear, viscera, skull, specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Fingerprinting. Describe Locard's Exchange Principle	K	K/KH	Y	Lecture, Small group discussion	Written/viva voce			Pathology
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin	S	KH	Y	Small group discussion, Lecture	Log book/ skill station/ Viva voce		Forensic Medicne, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & RH blood group of a person	S	SH	Y	Small group discussion, DOAP session	Log book/ skill station/ Viva voce		Forensic Medicne, Physiology	
Dermatology, Venereology & Leprosy									
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment	1	General Medicine	Pathology, Microbiology
DR14.1	Describe the etiology, pathogenesis and clinical precipitating features and classification of Urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pathology
DR16.1	Identify and distinguish skin lesions of SLE	S	SH	Y	Bedside clinic discussion	Skill assessment	2	General Medicine	Pathology
DR16.2	Identify and distinguish Raynaud's phenomenon	S	SH	Y	Bedside clinic discussion	Skill assessment	2	General Medicine	Pathology
Anesthesiology									

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AS9.4	Enumerate blood products and describe the use of blood products in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	General Surgery
ENT									
EN1.2	Describe the pathophysiology of common diseases in ENT	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	
Ophthalmology									
OP7.2	Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Pathology	
Dentistry									
DE4.1	Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity	K	K	N	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.2	Discuss the role of etiological factors in the formation of precancerous /cancerous lesions	K	KH	Y	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.3	Identify potential pre-cancerous / cancerous lesions	S	SH	N	Observation, Bed side clinics	Skill assessment		Pathology	ENT
DE4.4	Counsel patients to risks of oral cancer with respect to tobacco, smoking, alcohol and other causative factors.	A/C	SH	Y	DOAP session	Document in Log book	2	Pathology	ENT
General Medicine									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM1.1	Describe and discuss the epidemiology, pathogenesis clinical evolution and course of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Written		Pathology, Physiology	
IM1.3	Describe and discuss the aetiology, microbiology, pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.5	Describe, discuss and differentiate the processes involved in R vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.6	Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrhythmias, anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.8	Describe and discuss the pathogenesis and development of common arrhythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.9	Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Community Medicine	
IM2.2	Discuss the aetiology of risk factors both modifiable and non-modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.4	Discuss and describe the pathogenesis natural history, evolution and complications of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.5	Define the various acute coronary syndromes and describe their evolution, natural history and outcomes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture , Small group discussion	short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Microbiology	
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	written		Pathology, Microbiology	
IM4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bed side clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM4.16	Enumerate the indications and describe the findings in tests of inflammation and specific rheumatologic tests, serologic testing for pathogens including HIV, bone marrow aspiration and biopsy	K	KH	N	Lecture, Small group discussion	written		Pathology	
IM4.17	Observe and assist in the performance of a bone marrow aspiration and biopsy in a simulated environment	S	SH	N	skills lab	log book documentation/ DOAP session		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, Physiology	
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM5.3	Describe and discuss the pathologic changes in various forms of liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM5.5	Describe and discuss the pathophysiology and clinical evolution of alcoholic liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.6	Describe and discuss the pathophysiology, clinical evolution and complications of cirrhosis and portal hypertension including ascites, spontaneous bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pharmacology	
IM5.12	Choose and interpret appropriate diagnostic tests including: CBC, bilirubin, function tests, Hepatitis serology and ascitic fluid examination in patient with liver diseases	S	KH	Y	Bedside clinic, DOAP session	Skill assessment		Pathology	
IM5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	S	SH	Y	Bedside clinic, Small group discussion	viva voce/ written		Pathology, Microbiology	
IM6.5	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related malignancies	K	KH	Y	Lecture, Small group discussion	short notes/ Viva voce		Pathology, Microbiology	
IM6.6	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related skin and oral lesions	K	KH	Y	Lecture, Small group discussion	short notes/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM6.10	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	K	KH	Y	Bed side clinic, DOAP session, Small group discussion	written/ Skill assessment		Pathology, Microbiology	
IM6.19	Enumerate the indications of and discuss about prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM7.1	Describe the pathophysiology of autoimmune disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.2	Describe the genetic basis of autoimmune disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.16	Enumerate the indications for and interpret the results of: CBC, anti CCP (Anti-cyclic citrullinated peptide), RA, ANA, DNA and other tests of autoimmunity	K	SH	Y	Bed side clinic, small group	Skill assessment/ written		Pathology	
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.3	Describe and discuss the genetic basis of hypertension	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.4	Define and classify hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.5	Describe and discuss the differences between primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.7	Describe and discuss the clinical manifestations of the various aetiologies of secondary causes of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.8	Describe, discuss and identify target organ damage due to hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM9.1	Define, describe and classify anemia based on red blood cell size and reticulocyte count	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.2	Describe and discuss the morphological characteristics, aetiology and prevalence of each of the causes of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.6	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bed side clinic, DOAP session, Small group discussion	Skill assessment/ written		Pathology	
IM9.7	Describe the appropriate diagnostic work up based on the presumed aetiology	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ written		Pathology	
IM9.8	Describe and discuss the meaning and utility of various components of the hemogram	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.9	Describe and discuss the various tests for iron deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.10	Order and interpret tests for anemia including hemogram, red cell indices, reticulocyte count, iron studies, B12 and folate.	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ written		Pathology	
IM9.11	Describe, perform and interpret a peripheral smear and stool occult blood	S	SH	P	Bed side clinic, DOAP session	Skill assessment/ written		Pathology	
IM9.12	Describe the indications and interpret the results of a bone marrow aspirations and biopsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.13	Describe, develop a diagnostic plan to determine the aetiology of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.18	Describe the indications for blood transfusion and the appropriate use of blood components	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM10.1	Define, describe and differentiate between acute and chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM10.2	Classify, describe and differentiate the pathophysiologic causes of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.3	Describe the pathophysiology and causes of pre renal ARF, renal and post renal ARF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.4	Describe the evolution, natural history and treatment of ARF	K	KH	Y	Lecture, small group	Written/ Viva voce		Pathology	
IM10.5	Describe and discuss the aetiology of CRF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.6	Stage Chronic Kidney Disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.7	Describe and discuss the pathophysiology and clinical findings of uraemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.8	Classify, describe and discuss the significance of proteinuria in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.9	Describe and discuss the pathophysiology of anemia and hyperparathyroidism in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.10	Describe and discuss the association between CKD glycemia and hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.11	Describe and discuss the relationship between CAD risk factors and CKD and in dialysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.16	Enumerate the indications for and interpret the results of: renal function tests, calcium, phosphorus, PTH, urine electrolytes, osmolality, Anion gap	K	KH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM10.17	Describe and calculate indices of renal function based on available laboratories including FENa (Fractional Excretion of Sodium) and CrCl (Creatinine Clearance)	S	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM11.2	Describe and discuss the epidemiology and pathogenesis and risk factors and clinical evolution of type 1 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM11.3	Describe and discuss the epidemiology and pathogenesis and risk factors, economic impact and clinical evolution of type 2 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.5	Describe and discuss the pathogenesis and temporal evolution of microvascular and macrovascular complications of diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.11	Order and interpret laboratory tests to diagnose diabetes and its complications including: glucoses, glucose tolerance test, glycosylated hemoglobin, urinary micro albumin, ECG, electrolytes, ABG, ketones, renal function tests and lipid profile	S	SH	Y	Bed side clinic, DOAP session, Small group discussion	Skill assessment		Pathology	
IM11.12	Perform and interpret a capillary blood glucose test	S	P	Y	Bed side clinic, DOAP session, Small group discussion	Skill assessment	2	Pathology, Biochemistry	
IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	S	P	Y	Bed side clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.3	Describe and discuss the physiology of the hypothalamo-pituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	short notes		Pathology, Physiology	
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Biochemistry	
IM13.2	Describe the genetic basis of selected cancers	K	K	N	Lecture, Small group discussion	short note/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology, Microbiology	
IM13.4	Describe the natural history, presentation, course, complications and cause of death for common cancers	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM13.15	Describe the need, tests involved, their utility in the prevention of common malignancies	K	KH	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pathology	
IM14.2	Describe and discuss the aetiology of obesity including modifiable and non-modifiable risk factors and secondary causes	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology	
IM14.3	Describe and discuss the monogenic forms of obesity	K	K	N	Lecture, Small group discussion	short note/ Viva voce		Pathology	
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Community Medicine	
IM14.5	Describe and discuss the natural history of obesity and its complications	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology	
IM15.1	Enumerate, describe and discuss the aetiology of upper and lower GI bleeding	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Pathology	General Surgery
IM15.2	Enumerate, describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Written/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Short note/ viva voce		Pathology, Physiology	General Surgery
IM15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Short note/ Viva voce		Pathology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM15.11	Develop document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Short note/ viva voce		Pathology	General Surgery
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Short note/ viva voce		Pathology	General Surgery
IM15.13	Observe cross matching and blood / blood component transfusion	S	SH	Y	Bedside clinic	Short note/ Viva voce/ Skill assessment		Pathology	General Surgery
IM16.4	Elicit and document and present an appropriate history that includes the natural history, dietary history, travel, sexual history and other concomitant illnesses	S	SH	Y	Bedside clinic skills lab	Skill assessment		Microbiology, Pathology	
IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce		Microbiology, Pathology	
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM16.15	Distinguish, based on the clinical presentation, Crohn's disease from ulcerative colitis	S	SH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	K	K	Y	Small group, Bedside clinic	Skill Assessment		Microbiology, Pathology	
IM17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	S	SH	Y	DOAP session	Skill assessment		Microbiology, Pathology	
IM17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	S	SH	Y	Small group discussion, Bedside clinic	Skill assessment		Microbiology, Pathology	
IM18.2	Classify cerebrovascular accidents and describe the aetiology, predisposing genetic and risk factors pathogenesis of hemorrhagic and non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
IM18.3	Elicit and document and present an appropriate history including onset, progression precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the cerebrovascular accident	S	SH	Y	Bedside clinic	Skill assessment		Pathology	
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM22.4	Enumerate the components and describe the genetic basis of the multiple endocrine neoplasia syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM25.7	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, blood biochemistry, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bed side clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
Obstetrics & Gynaecology									
OG10.2	Enumerate the indications and describe the appropriate use of blood and blood products, their complications and management	K	KH	Y	Lecture, Small group discussion			Pathology	
Pediatrics									
PE11.1	Describe the common etiology, clinical features and management of obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	
PE11.2	Discuss the risk approach for obesity and discuss the prevention strategies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE12.7	Describe the causes, clinical features, diagnosis and management of deficiency /excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	p	Y	Bedside clinics, Skills lab	Document in log book	3	Biochemistry, Physiology Pathology	
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Y	Bed side clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.13	Discuss the RDA , dietary sources of Vitamin K and their role in Health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis, management and prevention of Deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE13.1	Discuss the RDA, dietary sources of Iron and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.2	Describe the causes, diagnosis and management of Fe deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology Biochemistry	
PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	S	SH	Y	Bed side clinics, Skill Lab	Document in log book		Pathology, Biochemistry	
PE13.4	Interpret hemogram and Iron Panel	S	P	Y	Bed side clinic, Small group discussion	Skill Assessment	5	Pathology, Biochemistry	
PE13.5	Propose a management plan for Fe Deficiency Anaemia	S	SH	Y	Bed side clinics, Skill lab	Skill Assessment		Pathology, Pharmacology	
PE21.2	Enumerate the etio-pathogenesis, clinical features, complications and management of Acute post streptococcal Glomerular Nephritis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.3	Discuss the approach and referral criteria to a child with Proteinuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE21.5	Enumerate the etio-pathogenesis clinical features, complications and management of Acute Renal Failure in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.6	Enumerate the etio-pathogenesis, clinical features, complications and management of Chronic renal Failure in Children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.7	Enumerate the etio-pathogenesis clinical features, complications and management of Wilms Tumor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.11	Perform and interpret the common analytes in a Urine examination	S	SH	Y	Bed side clinic Labs, Skill lab	Skill assessment		Biochemistry, Pathology	
PE23.1	Discuss the Hemodynamic changes, clinical presentation, complications and management of Acyanotic Heart Diseases –VSD, ASD and PDA	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot's Physiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.6	Discuss the etio-pathogenesis and clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE24.1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE25.1	Discuss the etio-pathogenesis, clinical presentation and management of Malabsorption in children and its causes including celiac disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.4	Discuss the etio-pathogenesis, clinical features and management of Portal Hypertension in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology	
PE26.9	Interpret Liver Function Tests, viral markers, ultra sonogram report	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Pathology	
PE29.1	Discuss the etio-pathogenesis, clinical features, classification and approach to a child with anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.2	Discuss the etio-pathogenesis, clinical features and management of Iron Deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.3	Discuss the etiopathogenesis, clinical features and management of VIT B12, Folate deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.4	Discuss the etio-pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sickle cell anaemia, Hereditary spherocytosis, Auto-immune hemolytic anaemia and hemolytic uremic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PE29.6	Discuss the cause of thrombocytopenia in children: describe the clinical features and management of Idiopathic Thrombocytopenic Purpura (ITP)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.7	Discuss the etiology, classification, pathogenesis and clinical features of Hemophilia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.8	Discuss the etiology, clinical presentation and management of Acute Lymphoblastic Leukemia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.9	Discuss the etiology, clinical presentation and management of lymphoma in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
General Surgery									
SU2.1	Describe pathophysiology of shock, types of shock, principles of resuscitation including fluid replacement and monitoring	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
SU3.1	Describe the indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce.		Pathology	
SU5.1	Describe normal wound healing and factors affecting healing.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Microbiology, Pathology	
SU22.2	Describe the etiopathogenesis of thyroidal swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology,	
Respiratory Medicine									
CT2.1	Define and classify obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.2	Describe and discuss the epidemiology, risk factors and evolution of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
CT2.4	Describe and discuss the physiology and pathophysiology of hypoxia and hypercapnia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.5	Describe and discuss the genetics of alpha 1 antitrypsin deficiency in emphysema	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.6	Describe the role of the environment in the cause and exacerbation of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
CT2.7	Describe and discuss allergic and non-allergic precipitants of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology,	
CT2.11	Describe, discuss and interpret pulmonary function tests	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Physiology, Pathology	
Orthopaedics									
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/S H	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	General surgery
OR4.1	Describe and discuss the clinical features, investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE		Pathology	General surgery
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce OSCE		Pathology	General surgery, Radiotherapy
Radiotherapy									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
RT1.3	Enumerate, describe and discuss classification and staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, General Medicine
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture and Bed side clinic	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bed side clinic, Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

MICROBIOLOGY (CODE: MI)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MICROBIOLOGY									
Topic: General Microbiology and Immunity Number of competencies: (11) Number of procedures that require certification : (01)									
MI1.1	Describe the different causative agents of Infectious diseases+A208, the methods used in their detection, and discuss the role of microbes in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI1.2	Perform and identify the different causative agents of Infectious diseases by Gram Stain, ZN stain and stool routine microscopy	S	P	Y	DOAP session	Skill assessment	5		
MI1.3	Describe the epidemiological basis of common infectious diseases	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	K	KH	Y	Small group discussion, Case discussion	Written/Viva voce/ OSPE		General Surgery	
MI1.6	Describe the mechanisms of drug resistance, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
MI1.7	Describe the immunological mechanisms in health	K	KH	Y	Lecture	Written/ Viva voce			Pathology
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI1.9	Discuss the immunological basis of vaccines and describe the Universal Immunisation schedule	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection.	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI1.11	Describe the immunological mechanisms of transplantation and tumor immunity	K	KH	Y	Lecture	Written/ Viva voce			
Topic: CVS and Blood Number of competencies: (7) Number of procedures that require certification : (NIL)									
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic Heart Disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.6	Identify the causative agent of malaria and filariasis	K/S	SH	Y	DOAP session	Skill assessment		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI2.7	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
Topic: Gastrointestinal and hepatobiliary system Number of competencies: (8) Number of procedures that require certification : (NIL)									
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course and the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers	K	KH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology
Topic: Musculoskeletal system skin and soft tissue infections Number of competencies: (3) Number of procedures that require certification : (NIL)									
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections	K	KH	Y	Lecture	Written/ Viva voce		Orthopaedics	
MI4.3	Describe the etio-pathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy, General Surgery	
Topic: Central Nervous System infections Number of competencies: (3) Number of procedures that require certification : (NIL)									
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Pediatrics	
Topic: Respiratory tract infections Number of competencies: (3) Number of procedures that require certification : (02)									
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain)	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
Topic: Genitourinary & Sexually transmitted infections Number of competencies: (3) Number of procedures that require certification : (NIL)									
MI7.1	Describe the etio-pathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI7.2	Describe the etio-pathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy, Obstetrics & Gynaecology	
MI7.3	Describe the etio-pathogenesis, clinical features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Zoonotic diseases and miscellaneous Number of competencies: (16) Number of procedures that require certification : (01)									
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course, laboratory diagnosis and prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y	Lecture	Written		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.6	Describe the basics of Infection control	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	General Surgery	Community Medicine
MI8.8	Describe the methods used and significance of assessing the microbial contamination of food, water and air	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.9	Discuss the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing infectious diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI8.10	Demonstrate the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing Infectious diseases	S	SH	Y	DOAP session	Skill assessment			
MI8.11	Demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases	A	SH	Y	DOAP session	Skill assessment			
MI8.12	Discuss confidentiality pertaining to patient identity in laboratory results	A	KH	Y	Lecture, Small group discussion	Viva voce			
MI8.13	Choose the appropriate laboratory test in the diagnosis of the infectious disease	K	KH	Y	Small group discussions, Case discussion	Written/ Viva voce/ OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI8.14	Demonstrate confidentiality pertaining to patient identity in laboratory results	A	SH	Y	DOAP session	Skill assessment		AETCOM	
MI8.15	Choose and Interpret the results of the laboratory tests used in diagnosis of the infectious diseases	K/S	SH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE			
MI8.16	Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)	K	K	Y	Lecture	Written/ Viva voce			Community Medicine
	*causative agents of Infectious diseases are inclusive of bacterial, viral, parasites and fungal agents causing various clinical conditions.								
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Biochemistry									
BI10.5	Describe antigens and concepts involved in vaccine development.	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
Pathology									
PA7.5	Describe the immunology and the immune response to cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.1	Describe the principles and mechanisms involved in immunity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
PA9.2	Describe the mechanism of hypersensitivity reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PA9.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA22.5	Enumerate and describe infections transmitted by blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive Airway Disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology, microscopic appearance and complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic, features diagnosis and complications of infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopaedics	Microbiology
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
Pharmacology									
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics	Microbiology
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PH1.48	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV	K	KH	Y	Lecture	Written/Viva voce			Microbiology
Community Medicine									
CM3.3	Describe the aetiology and basis of water borne diseases/ jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Microbiology, General Medicine, Pediatrics	
CM3.6	Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
CM3.7	Identify and describe the identifying features and life cycles of vectors of Public Health importance and their control measures	S	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Microbiology	
CM5.7	Describe food hygiene	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
CM7.7	Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	Microbiology
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
CM14.1	Define and classify hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written/ Viva voce			Microbiology
CM14.2	Describe various methods of treatment of hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written/ Viva voce			Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
CM14.3	Describe laws related to hospital waste management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
Dermatology, Venereology & Leprosy									
DR6.1	Describe the etiology pathogenesis and diagnostic features of pediculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR7.1	Describe the etiology microbiology pathogenesis and clinical presentations and diagnostic features of dermatophytes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR7.2	Identify candida species in fungal scrapings and KOH mount	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR7.3	Describe the pharmacology and action of antifungal (systemic and topical) agents. Enumerate side effects of antifungal therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology ,Pharmacology
DR8.1	Describe the etiology microbiology pathogenesis and clinical presentations and diagnostic features of common viral infections of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR9.1	Classify, describe the epidemiology, etiology, microbiology, pathogenesis and clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology, Community Medicine
DR10.1	Identify and classify syphilis based on the presentation and clinical manifestations	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.2	Identify spirochete in a dark ground microscopy	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
DR10.6	Describe the etiology, diagnostic and clinical features of non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
DR10.7	Identify and differentiate based on the clinical features non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
DR11.1	Describe the etiology, pathogenesis and clinical features of the dermatologic manifestations of HIV and its complications including opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
DR11.2	Identify and distinguish the dermatologic manifestations of HIV its complications, opportunistic infections and adverse reactions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology Microbiology
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology, Microbiology
DR14.1	Describe the etiology, pathogenesis and clinical precipitating features and classification of Urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pathology
DR15.2	Identify staphylococcus on a gram stain	S	SH	Y	Bedside clinic	Skill assessment			Microbiology
DR15.3	Enumerate the indications and describe the pharmacology, indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	Microbiology, Pharmacology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Dentistry									
DE1.2	Discuss the role of causative microorganisms in the aetio-pathogenesis of dental caries	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology	
DE1.4	Discuss the role of dental caries as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology, General Medicine	
General Medicine									
IM1.3	Describe and discuss the aetiology, microbiology, pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.9	Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
IM1.22	Assist and demonstrate the proper technique in collecting specimen for blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Written		Microbiology, Pharmacology	
IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM3.2	Discuss and describe the aetiology of various kinds of pneumonia and their microbiology depending on the setting and immune status of the host	K	K	Y	Lecture, Small group discussion	short note/ Viva voce		Microbiology	
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	KH	Y	Lecture , Small group discussion	short note/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.10	Demonstrate the correct technique in a mannequin and interpret results of a blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.13	Select, describe and prescribe based on culture and sensitivity appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum.	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.14	Perform and interpret a sputum gram stain and AFB	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM3.19	Discuss, describe and enumerate the indications and communicate to patients on pneumococcal and influenza vaccines	S/C	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM4.1	Describe and discuss the febrile response and the influence of host immune status, risk factors and co-morbidities on the febrile response	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.2	Describe and discuss the influence of special populations on the febrile response including: the elderly, immune suppression, malignancy and neutropenia, HIV and travel	K	K	Y	Lecture, Small group discussion	Written		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g. Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM4.4	Describe and discuss the pathophysiology and manifestations of inflammatory causes of fever	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	Written		Pathology, Microbiology	
IM4.6	Discuss and describe the pathophysiology and manifestations of malaria	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.8	Discuss and describe the pathophysiology, aetiology and clinical manifestations of fever of unknown origin (FUO) including in a normal host, neutropenic host, nosocomial host and a host with HIV disease	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.9	Elicit document and present a medical history that helps delineate the aetiology of fever that includes the evolution and pattern of fever, associated symptoms, immune status, comorbidities, risk factors, exposure through occupation, travel and environment and medication use	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Microbiology	
IM4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bedside clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM4.13	Perform and interpret a sputum gram stain	S	SH	Y	DOAP session	Log book documentation		Microbiology	
IM4.14	Perform and interpret a sputum AFB	S	SH	Y	DOAP session	Log book documentation		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM4.15	Perform and interpret a malarial smear	S	SH	Y	DOAP session	Log book documentation/ Skill assessment		Microbiology	
IM4.19	Assist in the collection of blood and wound cultures	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.20	Interpret a PPD (Mantoux)	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.23	Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and national programs	S	SH	Y	Small group discussion	Skill assessment		Microbiology, Pharmacology	
IM4.26	Counsel the patient on malarial prevention	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	S	SH	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Pathology, Microbiology	
IM5.17	Enumerate the indications precautions and counsel patients on vaccination for hepatitis	K/C	SH	Y	written Small group discussion	Written/ Viva voce		Microbiology	
IM6.1	Describe and discuss the symptoms and signs of acute HIV seroconversion	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.2	Define and classify HIV AIDS based on the CDC criteria	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.3	Describe and discuss the relationship between CDC count and the risk of opportunistic infections	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.4	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM6.10	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	K	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment		Pathology, Microbiology	
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM6.14	Perform and interpret a gram stain of the sputum	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM6.17	Describe and discuss the principles of HAART, the classes of antiretroviral used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.18	Describe and discuss the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.19	Enumerate the indications of and discuss about prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	Short notes/ Viva voce		Pathology, Microbiology	General Surgery
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM16.1	Describe and discuss the aetiology of acute and chronic diarrhea including infectious and non-infectious causes	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
IM6.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce		Microbiology, Pathology	
IM16.9	Identify common parasitic causes of diarrhea under the microscope in a stool specimen	S	SH	Y	DOAP session	Skill assessment		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM16.10	Identify Vibrio cholera in a hanging drop specimen	S	SH	Y	DOAP session	Skill Assessment		Microbiology	
IM16.11	Enumerate the indications for stool cultures and blood cultures in patients with acute diarrhea	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Microbiology	
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lectures, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	K	K	Y	Small group discussion, Bedside clinic	Skill Assessment		Microbiology, Pathology	
IM17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	S	SH	Y	DOAP session	Skill assessment		Microbiology, Pathology	
IM17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	S	SH	Y	Small group discussion, Bedside clinic	Skill assessment		Microbiology, Pathology	
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic disease (eg. Leptospirosis, Rabies) and non febrile infectious disease (eg. Tetanus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.2	Describe and discuss the common causes pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.3	Describe and discuss the pathophysiology and manifestations of these diseases	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM25.9	Assist in the collection of blood and other specimen cultures	S	SH	Y	DOAP session	Log book documentation		Microbiology	
IM25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Pediatrics									
PE19.1	Explain the components of the Universal immunization Program and the sub National Immunization Programs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, preterm, organ transplants, those who received blood and blood products, splenectomised children, adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE21.1	Enumerate the etio-pathogenesis clinical features, complications and management of Urinary Tract infection in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE23.6	Discuss the etio-pathogenesis and clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE24.1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti- emetics in acute diarrheal diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE24.6	Discuss the causes, clinical presentation and management of persistent diarrhoea in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.12	Perform and interpret stool examination including Hanging Drop	S	P	N	Bed side clinics, Skills lab	log book	2	Microbiology	
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.12	Discuss the prevention of Hep B infection – Universal precautions and Immunisation	K	KH	Y	Lecture, Small group discussion activity	Written/ Viva voce		Microbiology	
PE30.1	Discuss the etio-pathogenesis, clinical features, complications, management and prevention of meningitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.2	Distinguish bacterial, viral and tuberculous meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.13	Discuss the etio-pathogenesis, clinical features, management and prevention of Poliomyelitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.21	Interpret and explain the findings in a CSF analysis	S	SH	Y	Small group discussion	Log book		Microbiology	Respiratory Medicine
PE34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine Pharmacology	Respiratory Medicine
PE34.6	Identify a BCG scar	S	P	Y	Bed side clinics, Skills lab	Skill Assessment	3	Microbiology	Respiratory Medicine
PE34.7	Interpret a Mantoux test	S	P	Y	Bed side clinics Skills lab	Skill assessment	3	Microbiology	Respiratory Medicine
PE34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	SH	N	Bed side clinics, Small group discussion	Log book		Microbiology	Respiratory Medicine
PE34.10	Discuss the various samples for demonstrating the organism eg Gastric Aspirate, Sputum, CSF, FNAC	K	KH	Y	Bed side clinics, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.11	Perform AFB staining	S	P	Y	DOAP session	Log book/journal	3	Microbiology	Respiratory Medicine
PE34.12	Enumerate the indications and Discuss the limitation of methods of culturing M.Tuberculi	K	KH	Y	Small group discussion	Written/ Viva voce		Microbiology	
General Surgery									
SU6.1	Define and describe the aetiology and pathogenesis of surgical infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Microbiology, Pathology	
SU13.1	Describe the immunological basis of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU13.2	Discuss the Principles of immunosuppressive therapy.Enumerate Indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
SU14.1	Describe aseptic techniques, sterilization and disinfection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU15.1	Describe Classification of hospital waste and appropriate methods of disposal	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU29.3	Describe the Clinical features, Investigations and principles of management of urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
Orthopaedics									
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	
Respiratory Medicine									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
CT1.2	Describe and discuss the microbiology of tubercle bacillus, mode of transmission, pathogenesis, clinical evolution and natural history of pulmonary and extra pulmonary forms (including lymph node, bone and CNS).	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
CT1.3	Discuss and describe the impact of confection with HIV and other co-morbid conditions like diabetes on the natural history of tuberculosis	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Pharmacology	
CT1.7	Perform and interpret a PPD (Mantoux) and describe and discuss the indications and pitfalls of the test	S	P	Y	DOAP session	Maintenance of log book		Microbiology	
CT1.10	Perform and interpret an AFB stain	S	P	Y	DOAP session	Skill assessment	1	Microbiology	
CT1.12	Enumerate the indications for tests including: serology, special cultures and polymerase chain reaction and sensitivity testing	K	KH	Y	Small group discussion, Lecture	Short note/ Viva voce		Microbiology	
CT1.13	Describe and discuss the origins, indications, technique of administration, efficacy and complications of the BCG vaccine	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	

FORENSIC MEDICINE INCLUDING TOXICOLOGY (CODE: FM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FORENSIC MEDICINE & TOXICOLOGY									
Topic: General Information		Number of competencies: (11)			Number of procedures that require certification: (NIL)				
FM1.1	Demonstrate knowledge of basics of Forensic Medicine like definitions of Forensic medicine, Clinical Forensic Medicine, Forensic Pathology, State Medicine, Legal Medicine and Medical Jurisprudence	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.2	Describe history of Forensic Medicine	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.3	Describe legal procedures including Criminal Procedure Code, Indian Penal Code, Indian Evidence Act, Civil and Criminal Cases, Inquest (Police Inquest and Magistrate's Inquest), Cognizable and Non-cognizable offences	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.4	Describe Courts in India and their powers: Supreme Court, High Court, Sessions court, Magistrate's Court, Labour Court, Family Court, Executive Magistrate Court and Juvenile Justice Board	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.5	Describe Court procedures including issue of Summons, conduct money, types of witnesses, recording of evidence oath, affirmation, examination in chief, cross examination, re-examination and court questions, recording of evidence & conduct of doctor in witness box	K	KH	N	Lecture, Small Group Discussion, Moot Court	Written/ Viva voce			
FM1.6	Describe Offenses in Court including Perjury; Court strictures vis-a-vis Medical Officer	K	KH	N	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.7	Describe Dying Declaration & Dying Deposition	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.8	Describe the latest decisions/notifications/resolutions/circulars/standing orders related to medico-legal practice issued by Courts/Government authorities etc.	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially - maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. - maintenance of medico-legal register like accident register. - documents of issuance of wound certificate - documents of issuance of drunkenness certificate. - documents of issuance of sickness and fitness certificate. - documents for issuance of death certificate. -documents of Medical Certification of Cause of Death - Form Number4 and 4A - documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	
FM1.10	Select appropriate cause of death in a particular scenario by referring ICD 10 code	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM1.11	Write a correct cause of death certificate as per ICD 10 document	S	SH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
Topic: Forensic Pathology Number of competencies: (35) Number of procedures that require certification : (NIL)									
FM2.1	Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical Death and Brainstem Death	K	KH	Y	Lecture/Small group discussion	Written/ Viva voce		Pathology	
FM2.2	Describe and discuss natural and unnatural deaths	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Pathology	
FM2.3	Describe and discuss issues related to sudden natural deaths	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Pathology	
FM2.4	Describe salient features of the Organ Transplantation and The Human Organ Transplant (Amendment) Act 2011 and discuss ethical issues regarding organ donation	K	KH	Y	Lecture/Small group discussion	Written/ Viva voce		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.5	Discuss moment of death, modes of death - coma, asphyxia and syncope	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce		Psychiatry, Pathology	
FM2.6	Discuss presumption of death and survivorship	K	KH	Y	Lecture, Small Group Discussion	Written/ Viva voce			
FM2.7	Describe and discuss suspended animation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.8	Describe and discuss postmortem changes including signs of death, cooling of body, post-mortem lividity, rigor mortis, cadaveric spasm, cold stiffening and heat stiffening	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.9	Describe putrefaction, mummification, adipocere and maceration	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.10	Discuss estimation of time since death	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.11	Describe and discuss autopsy procedures including post-mortem examination, different types of autopsies, aims and objectives of post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pathology	
FM2.12	Describe the legal requirements to conduct post-mortem examination and procedures to conduct medico-legal post-mortem examination	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pathology	
FM2.13	Describe and discuss obscure autopsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
FM2.14	Describe and discuss examination of clothing, preservation of viscera on post-mortem examination for chemical analysis and other medico-legal purposes, post-mortem artefacts	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM 2.15	Describe special protocols for conduction of medico-legal autopsies in cases of death in custody or following violation of human rights as per National Human Rights Commission Guidelines	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.16	Describe and discuss examination of mutilated bodies or fragments, charred bones and bundle of bones	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ OSPE			
FM2.17	Describe and discuss exhumation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.18	Crime Scene Investigation:- Describe and discuss the objectives of crime scene visit, the duties & responsibilities of doctors on crime scene and the reconstruction of sequence of events after crime scene investigation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM2.19	Investigation of anaesthetic, operative deaths: Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
FM2.20	Mechanical asphyxia: Define, classify and describe asphyxia and medico-legal interpretation of post-mortem findings in asphyxial deaths	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.21	Mechanical asphyxia: Describe and discuss different types of hanging and strangulation including clinical findings, causes of death, post-mortem findings and medico-legal aspects of death due to hanging and strangulation including examination, preservation and dispatch of ligature material	K	KH	Y	Lecture/Small group discussion, Autopsy DOAP session	Written/ Viva voce/ OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.22	Mechanical asphyxia: Describe and discuss patho-physiology, clinical features, post-mortem findings and medico-legal aspects of traumatic asphyxia, obstruction of nose & mouth, suffocation and sexual asphyxia	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.23	Describe and discuss types, patho-physiology, clinical features, post-mortem findings and medico-legal aspects of drowning, diatom test and, gettler test.	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.24	Thermal deaths: Describe the clinical features, post-mortem finding and medicolegal aspects of injuries due to physical agents like heat (heat-hyper-pyrexia, heat stroke, sun stroke, heat exhaustion/prostration, heat cramps [miner's cramp] or cold (systemic and localized hypothermia, frostbite, trench foot, immersion foot)	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce			
FM2.25	Describe types of injuries, clinical features, patho-physiology, post-mortem findings and medico-legal aspects in cases of burns, scalds, lightening, electrocution and radiations	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		General Surgery	
FM2.26	Describe and discuss clinical features, post-mortem findings and medico-legal aspects of death due to starvation and neglect	K	KH	Y	Lecture/Small group discussion	Written/ Viva voce			
FM2.27	Define and discuss infanticide, foeticide and stillbirth	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden Infants Death syndrome and Munchausen's syndrome by proxy	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/Viva voce / OSCE		Pediatrics, Human Anatomy	
FM2.29	Demonstrate respect to the directions of courts, while appearing as witness for recording of evidence under oath or affirmation, examination in chief, cross examination, re-examination and court questions, recording of evidence	A and C	SH	Y	Lecture, Small group discussion, Moot Court, Court visits, Role Play	Role Play during internal assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.30	Have knowledge/awareness of latest decisions/notifications/resolutions/circulars/standing orders related to medico-legal practice issued by Courts/Government authorities etc	A	K	Y	Lecture/Small group discussion	Written/ Viva voce			
FM2.31	Demonstrate ability to work in a team for conduction of medico-legal autopsies in cases of death following alleged negligence medical dowry death, death in custody or following violation of human rights as per National Human Rights Commission Guidelines on exhumation	A	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE			
FM2.32	Demonstrate ability to exchange information by verbal, or nonverbal communication to the peers, family members, law enforcing agency and judiciary	A and C	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	
FM2.33	Demonstrate ability to use local resources whenever required like in mass disaster situations	A and C	KH	Y	Lecture/Small group discussion	Written/ Viva voce		Community Medicine	
FM2.34	Demonstrate ability to use local resources whenever required like in mass disaster situations	A and C	KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Medicine, AETCOM	
FM2.35	Demonstrate professionalism while conducting autopsy in medicolegal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A and C	KH/SH		Lecture, small group discussions, DOAP session	Written/ Viva voce/ OSPE		AETCOM	
Topic: Clinical Forensic Medicine Number of competencies:(33) Number of procedures that require certification:(NIL)									
FM3.1	IDENTIFICATION Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion, stature, age determination using morphology, teeth-eruption, decay, bite marks, bones-ossification centres, medico-legal aspects of age	K	KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/Viva voce/ skill assessment		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.2	IDENTIFICATION Describe and discuss identification of criminals, unknown persons, dead bodies from the remains-hairs, fibers, teeth, anthropometry, dactylography, foot prints, scars, tattoos, poroscopy and superimposition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM3.3	Mechanical injuries and wounds: Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self-inflicted/fabricated wounds and their medico-legal aspects	K	KH	Y	Lecture, Small group discussion Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		General Surgery	
FM3.4	Mechanical injuries and wounds: Define injury, assault & hurt. Describe IPC pertaining to injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
FM3.5	Mechanical injuries and wounds: Describe accidental, suicidal and homicidal injuries. Describe simple, grievous and dangerous injuries. Describe ante-mortem and post-mortem injuries	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce			
FM3.6	Mechanical injuries and wounds: Describe healing of injury and fracture of bones with its medico-legal importance	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery	
FM3.7	Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.8	Mechanical injuries and wounds: Describe and discuss different types of weapons including dangerous weapons and their examination	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.9	Firearm injuries: Describe different types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/ OSCE		General Surgery, Orthopaedics	
FM3.11	Regional Injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
FM3.12	Regional Injuries Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
FM3.13	Describe different types of sexual offences. Describe various sections of IPC regarding rape including definition of rape (Section 375 IPC), Punishment for Rape (Section 376 IPC) and recent amendments notified till date	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE/OSPE		Obstetrics & Gynaecology	
FM3.14	SEXUAL OFFENCES Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.15	SEXUAL OFFENCES Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.16	SEXUAL OFFENCES Describe and discuss adultery and unnatural sexual offences- sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM3.17	Describe and discuss the sexual perversions fetishism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM3.18	Describe anatomy of male and female genitalia, hymen and its types. Discuss the medico-legal importance of hymen. Define virginity, defloration, legitimacy and its medicolegal importance	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.19	Discuss the medicolegal aspects of pregnancy and delivery, signs of pregnancy, precipitate labour superfoetation, superfecundation and signs of recent and remote delivery in living and dead	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.20	Discuss disputed paternity and maternity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.21	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC&PNDT) - Prohibition of Sex Selection Act 2003 and Domestic Violence Act 2005	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, AETCOM	
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Medicine	
FM3.23	Discuss Sterilization of male and female, artificial insemination, Test Tube Baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws	K	K/KH	Y	Lecture/Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.24	Discuss the relative importance of surgical methods of contraception (vasectomy and tubectomy) as methods of contraception in the National Family Planning Programme	K	K/KH	N	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.25	Discuss the major results of the National Family Health Survey	K	K/KH	N	Lecture	Written		Obstetrics & Gynaecology	
FM3.26	Discuss the national Guidelines for accreditation, supervision & regulation of ART Clinics in India	K	K/KH	Y	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.27	Define, classify and discuss abortion, methods of procuring MTP and criminal abortion and complication of abortion. MTP Act 1971	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, AETCOM	
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Pathology	
FM3.29	Describe and discuss child abuse and battered baby syndrome	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
FM3.30	Describe and discuss issues relating to torture, identification of injuries caused by torture and its sequelae, management of torture survivors	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM3.31	Torture and Human rights Describe and discuss guidelines and Protocols of National Human Rights Commission regarding torture	K	K/KH	N	Lecture/Small group discussion	Written/ Viva voce			
FM3.32	Demonstrate the professionalism while preparing reports in medicolegal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A and C	SH	Y	Lecture, Small group discussion	OSPE/Viva voce		AETCOM	
FM3.33	Should be able to demonstrate the professionalism while dealing with victims of torture and human right violations, sexual assaults- psychological consultation, rehabilitation	A and C	K/KH/S H	Y	Lecture/Small group discussion	Written/ Viva voce		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Medical Jurisprudence (Medical Law and ethics)		Number of competencies: (30)			Number of procedures that require certification : (NIL)				
FM4.1	Describe Medical Ethics and explain its historical emergence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.2	Describe the Code of Medical Ethics 2002 conduct, Etiquette and Ethics in medical practice and unethical practices & the dichotomy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.3	Describe the functions and role of Medical Council of India and State Medical Councils	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.4	Describe the Indian Medical Register	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.5	Rights/privileges of a medical practitioner, penal erasure, infamous conduct, disciplinary Committee, disciplinary procedures, warning notice and penal erasure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.6	Describe the Laws in Relation to medical practice and the duties of a medical practitioner towards patients and society	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.7	Describe and discuss the ethics related to HIV patients	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.8	Describe the Consumer Protection Act-1986 (Medical Indemnity Insurance, Civil Litigations and Compensations), Workman's Compensation Act & ESI Act	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.9	Describe the medico - legal issues in relation to family violence, violation of human rights, NHRC and doctors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.10	Describe communication between doctors, public and media	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.11	Describe and discuss euthanasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM4.12	Discuss legal and ethical issues in relation to stem cell research	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.13	Describe social aspects of Medico-legal cases with respect to victims of assault, rape, attempted suicide, homicide, domestic violence, dowry- related cases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.14	Describe & discuss the challenges in managing medico-legal cases including development of skills in relationship management – Human behaviour, communication skills, conflict resolution techniques	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.15	Describe the principles of handling pressure – definition, types, causes, sources and skills for managing the pressure while dealing with medico-legal cases by the doctor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.16	Describe and discuss Bioethics	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.17	Describe and discuss ethical Principles: Respect for autonomy, non-maleficence, beneficence & justice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.18	Describe and discuss medical negligence including civil and criminal negligence, contributory negligence, corporate negligence, vicarious liability, Res Ipsa Loquitor, prevention of medical negligence and defenses in medical negligence litigations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.19	Define Consent. Describe different types of consent and ingredients of informed consent. Describe the rules of consent and importance of consent in relation to age, emergency situation, mental illness and alcohol intoxication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.20	Describe therapeutic privilege, Malingering, Therapeutic Misadventure, Professional Secrecy, Human Experimentation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM4.21	Describe Products liability and Medical Indemnity Insurance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.22	Explain Oath – Hippocrates, Charaka and Sushruta and procedure for administration of Oath.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.23	Describe the modified Declaration of Geneva and its relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.24	Enumerate rights, privileges and duties of a Registered Medical Practitioner. Discuss doctor- patient relationship: professional secrecy and privileged communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.25	Clinical research & Ethics Discuss human experimentation including clinical trials	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.26	Discuss the constitution and functions of ethical committees	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.27	Describe and discuss Ethical Guidelines for Biomedical Research on Human Subjects & Animals	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		AETCOM, Pharmacology	
FM4.28	Demonstrate respect to laws relating to medical practice and Ethical code of conduct prescribed by Medical Council of India and rules and regulations prescribed by it from time to time	A and C	SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.29	Demonstrate ability to communicate appropriately with media, public and doctors	A and C	KH/SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
FM4.30	Demonstrate ability to conduct research in pursuance to guidelines or research ethics	A and C	KH/SH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
Topic: Forensic Psychiatry Number of competencies: (06) Number of procedures that require certification: (NIL)									
FM5.1	Classify common mental illnesses including post-traumatic stress disorder (PTSD)	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM5.2	Define, classify and describe delusions, hallucinations, illusion, lucid interval and obsessions with exemplification	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.3	Describe Civil and criminal responsibilities of a mentally ill person	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.4	Differentiate between true insanity from feigned insanity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry, General Medicine	
FM5.6	Describe the Indian Mental Health Act, 1987 with special reference to admission, care and discharge of a mentally ill person	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
Topic: Forensic Laboratory investigation in medical legal practice Number of competencies: (03) Number of procedures that require certification: (NIL)									
FM6.1	Describe different types of specimen and tissues to be collected both in the living and dead: Body fluids (blood, urine, semen, faeces saliva), Skin, Nails, tooth pulp, vaginal smear, viscera, skull, specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Fingerprinting. Describe Locard's Exchange Principle	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
FM6.2	Describe the methods of sample collection, preservation, labelling, dispatch, and interpretation of reports	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM6.3	Demonstrate professionalism while sending the biological or trace evidences to Forensic Science laboratory, specifying the required tests to be carried out, objectives of preservation of evidences sent for examination, personal discussions on interpretation of findings	A and C	KH/SH	Y	Lecture, Small group discussions, DOAP sessions	Viva voce / OSPE			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Emerging technologies in Forensic Medicine Number of competencies: (01) Number of procedures that require certification:(NIL)									
FM7.1	Enumerate the indications and describe the principles and appropriate use for: - DNA profiling Facial reconstruction - Polygraph (Lie Detector) - Narcoanalysis, - Brain Mapping, - Digital autopsy, - Virtual Autopsy, - Imaging technologies	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Toxicology: General Toxicology Number of competencies: (10) Number of procedures that require certification: (NIL)									
FM8.1	Describe the history of Toxicology	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.2	Define the terms Toxicology, Forensic Toxicology, Clinical Toxicology and poison	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.3	Describe the various types of poisons, Toxicokinetics, and Toxicodynamics and diagnosis of poisoning in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/viva voce		Pharmacology	
FM8.4	Describe the Laws in relations to poisons including NDPS Act, Medico-legal aspects of poisons	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
FM8.5	Describe Medico-legal autopsy in cases of poisoning including preservation and dispatch of viscera for chemical analysis	K	K/KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		Pharmacology	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM8.9	Describe the procedure of intimation of suspicious cases or actual cases of foul play to the police, maintenance of records, preservation and despatch of relevant samples for laboratory analysis.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
FM8.10	Describe the general principles of Analytical Toxicology and give a brief description of analytical methods available for toxicological analysis: Chromatography – Thin Layer Chromatography, Gas Chromatography, Liquid Chromatography and Atomic Absorption Spectroscopy	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Toxicology : Chemical Toxicology Number of competencies: (06) Number of procedures that require certification : (NIL)									
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: Caustics Inorganic – sulphuric, nitric, and hydrochloric acids; Organic- Carbolic Acid (phenol), Oxalic and acetylsalicylic acids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
Topic: Toxicology : Pharmaceutical Toxicology Number of competencies: (01) Number of procedures that require certification : (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepins phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv .Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis vi.Gastro-Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
Topic: Toxicology : Biotoxicology Number of competencies: (01) Number of procedures that require certification : (NIL)									
FM11.1	Describe features and management of Snake bite, scorpion sting, bee and wasp sting and spider bite	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/ Viva voce		General Medicine	
Topic: Toxicology : Sociomedical Toxicology Number of competencies: (01) Number of procedures that require certification : (NIL)									
FM12.1	Describe features and management of abuse/poisoning with following camicals: Tobacco, cannabis, amphetamines, cocaine, hallucinogens, designer drugs & solvent	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/ Viva voce		General Medicine	
Topic: Toxicology : Environmental Toxicology Number of competencies: (02) Number of procedures that require certification : (NIL)									
FM13.1	Describe toxic pollution of environment, its medico-legal aspects & toxic hazards of occupation and industry	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
FM13.2	Describe medico-legal aspects of poisoning in Workman's Compensation Act	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Skills in Forensic Medicine & Toxicology Number of competencies: (22) Number of procedures that require certification: (NIL)									
FM14.1	Examine and prepare Medico-legal report of an injured person with different etiologies in a simulated/ supervised environment	S	SH/P	Y	Bedside clinic (ward/ casualty), Small group discussion	Log book/ Skill station/ Viva voce / OSCE			
FM14.2	Demonstrate the correct technique of clinical examination in a suspected case of poisoning & prepare medico-legal report in a simulated/ supervised environment	S	SH	Y	Bedside clinic (ward/casualty), Small Group discussion	Log book/ Skill station/ Viva voce / OSCE		General Medicine	
FM14.3	Assist and demonstrate the proper technique in collecting, preserving and dispatch of the exhibits in a suspected case of poisoning, along with clinical examination	S	SH	Y	Bedside clinic, Small Group discussion, DOAP session	Skill lab/ Viva voce		General Medicine	
FM14.4	Conduct and prepare report of estimation of age of a person for medico-legal and other purposes & prepare medico-legal report in a simulated/ supervised environment	S	KH	Y	Small group discussion, Demonstration	Log book/ Skill station/ Viva voce / OSCE			
FM14.5	Conduct & prepare post-mortem examination report of varied etiologies (at least 15) in a simulated/ supervised environment	S	KH	Y	Small group discussion, Autopsy, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.6	Demonstrate and interpret medico-legal aspects from examination of hair (human & animal) fibre, semen & other biological fluids	S	KH	Y	Small group discussion, Lecture	Log book/ Skill station/ Viva voce / OSCE			
FM14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin	S	KH	Y	Small group discussion, Lecture	Log book/Skill station/Viva voce		Pathology, Physiology	
FM14.8	Demonstrate the correct technique to perform and identify ABO & RH blood group of a person	S	SH	Y	Small group discussion, DOAP session	Log book/Skill station/Viva voce		Pathology, Physiology	
FM14.9	Demonstrate examination of & present an opinion after examination of skeletal remains in a simulated/ supervised environment	S	SH	Y	Small group discussion, DOAP session	Log book/Skill station/Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM14.10	Demonstrate ability to identify & prepare medicolegal inference from specimens obtained from various types of injuries e.g. contusion, abrasion, laceration, firearm wounds, burns, head injury and fracture of bone	S	KH	Y	Small group discussion, DOAP session	Log book/Skill station/ Viva voce/ OSPE			
FM14.11	To identify & describe weapons of medicolegal importance which are commonly used e.g. lathi, knife, kripa, axe, gada, gupta, farsha, dagger, bhalla, razor & stick. Able to prepare report of the weapons brought by police and to give opinion regarding injuries present on the person as described in injury report/ PM report so as to connect weapon with the injuries. (Prepare injury report/ PM report must be provided to connect the weapon with the injuries)	S	KH	Y	Small group discussion, DOAP session	Log book/Skill station/ Viva voce/ OSPE			
FM14.12	Describe the contents and structure of bullet and cartridges used & to provide medico-legal interpretation from these	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/Viva voce			
FM14.13	To estimate the age of foetus by post-mortem examination	S	KH	Y	Small group discussion, DOAP session	Theory/ Clinical assessment/ Viva voce			
FM14.14	To examine & prepare report of an alleged accused in rape/unnatural sexual offence in a simulated/ supervised environment	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.15	To examine & prepare medico-legal report of a victim of sexual offence/unnatural sexual offence in a simulated/ supervised environment	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.16	To examine & prepare medico-legal report of drunk person in a simulated/ supervised environment	S	KH	Y	Small group discussion, Bed side clinic, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.17	To identify & draw medico-legal inference from common poisons e.g. dhatura, castor, cannabis, opium, aconite copper sulphate, pesticides compounds, marking nut, oleander, Nux vomica, abrus seeds, Snakes, capsicum, calotropis, lead compounds & tobacco.	S	KH	Y	Small group discussion, DOAP session	Log book/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM14.18	To examine & prepare medico-legal report of a person in police, judicial custody or referred by Court of Law and violation of human rights as requirement of NHRC, who has been brought for medical examination	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce / OSCE			
FM14.19	To identify & prepare medico-legal inference from histo-pathological slides of Myocardial Infarction, pneumonitis, tuberculosis, brain infarct, liver cirrhosis, brain haemorrhage, bone fracture, Pulmonary oedema, brain oedema, soot particles, diatoms & wound healing	S	KH	Y	Small group discussion, DOAP session	Log book/ Skill station/ Viva voce			
FM14.20	To record and certify dying declaration in a simulated/ supervised environment	S	KH	Y	Small group discussion, Role Play, Bed side clinic DOAP session	Log book/ Skill station/ Viva voce /OSCE			
FM14.21	To collect, preserve, seal and dispatch exhibits for DNA-Finger printing using various formats of different laboratories.	S	KH	Y	Small group discussion, Lecture	Log book/ Skill station/Viva voce			
FM14.22	To give expert medical/ medico-legal evidence in Court of law	S	KH	Y	Small group discussion, Lecture, DOAP session, role play, Court Visits	Log book/ Viva voce/OSCE			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Human Anatomy									
AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia	K	KH	Y	Lecture	Viva voce/Practicals		Forensic Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Pharmacology									
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Forensic Medicine
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	K	KH	Y	Small group discussion	short note/Viva voce			Forensic Medicine
Radiodiagnosis									
RD1.13	Describe the components of the PC & PNDT act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics & Gynaecology, Forensic Medicine	
Psychiatry									
PS19.3	Describe and discuss the basic legal and ethical issues in psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine AETCOM	
General Medicine									
IM20.1	Enumerate the poisonous snakes of your area and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.2	Describe, demonstrate in a volunteer or a mannequin and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	S	SH	Y	DOAP session	Skill assessment/ Written/ Viva voce		Forensic Medicine	
IM20.3	Describe the initial approach to the stabilisation of the patient who presents with snake bite	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
IM20.4	Elicit and document and present an appropriate history, the circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Forensic Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
Obstetrics & Gynaecology									
OG1.3	Define and Discuss still birth and abortion	K	KH	Y	Lecture, Small group discussions	Short notes		Forensic Medicine	
OG9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation	S	SH	Y	DOAP session, Bedside clinic	Viva voce		Forensic Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG20.1	Enumerate the indications and describe and discuss the legal aspects, indications, methods for first and second trimester MTP; complications and management of complications of medical termination of pregnancy	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Forensic Medicine	
OG20.2	In a simulated environment administer informed consent to a person wishing to undergo medical termination of pregnancy	S/A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine	
OG20.3	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC& PNDT) Act 1994 & its amendments	K	K/KH	Y	Lecture, Small group discussions	Written/ Viva voce		Forensic Medicine	
General Surgery									
SU8.1	Describe the principles of Ethics as it pertains to surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	
SU8.2	Demonstrate Professionalism and empathy to the patient undergoing surgery	A/C	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	
SU8.3	Discuss Medico legal issues in surgical practice	A/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment		Forensic Medicine, AETCOM	

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MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



VOLUME-II (2018)

**COMPETENCY BASED UNDERGRADUATE CURRICULUM
FOR THE
INDIAN MEDICAL GRADUATE
2018**



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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड

BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

FOREWORD

The Medical Council of India, aware of its responsibilities in creation of trained health manpower, has been engaged for the past few years in updating the medical curriculum for undergraduates and postgraduates to be in consonance with the changing health needs of the country. The task of updating and reorganization of the postgraduate curriculum in nearly 50 broad specialty disciplines to the competency pattern was accomplished by the Academic Cell of the Council with the help of subject experts and members of its Reconciliation Board and have been uploaded on the Council Website for use of the medical fraternity.

The Council visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. The student should be trained to effectively communicate with patients and their relatives in a manner respectful of the patient's preferences, values, beliefs, confidentiality and privacy and to this purpose, a book on Attitude, Ethics & Communication was prepared by the Medical Council of India; the teaching faculty of medical colleges have been receiving training on this module since 2015.

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-2-

Competency based Medical Education provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies. Keeping this objective as the core ingredient, the Medical Council of India with the help of panel of experts drawn from across the country, laid the basic framework for the revised undergraduate medical curriculum. Over the past four years, a group of highly committed medical professionals working as Members of the MCI Reconciliation Board developed this information into a document incorporating appropriate teaching-learning strategies, tools and techniques of teaching, and modes of assessment which have culminated in the current competency based undergraduate curriculum. We understand that maximum efforts were made to encourage integrated teaching between traditional subject areas using a problem-based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both the understanding and resolution of the problem. All efforts have been made to de-emphasize compartmentalisation of disciplines so as to achieve both horizontal and vertical integration in different phases. We are proud of their work accomplishment and congratulate them in the onerous task accomplished.

It gives us great satisfaction to state that the '**competency based undergraduate curriculum**' that has been prepared by the Medical Council of India would definitely serve the cause of medical education and in creating a competent Indian Medical Graduate to serve the community.

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COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Preamble

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide health care to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using “broad competencies”; instead, the reports have written end of phase subject (sub) competencies. These “sub-competencies” can be mapped to the global competencies in the Graduate Medical Education Regulations.

A significant attempt has been made in the outcome driven undergraduate curriculum to provide the orientation and the skills necessary for life-long learning to enable proper care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged. In the pre-internship years,- the highest level of skill acquisition is a show how (SH) in a simulated or guided environment; few skills require independent performance and certification - these are marked with P (for performance). Opportunity to ‘perform’ these skills will be available during internship.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above, an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self directed learning and co-curricular activities.

Formative and internal assessments have been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened, increasing the involvement of Curriculum Committee and Medical Education Departments/Units.

The curriculum document in conjunction with the new Graduate Medical Education Regulations (GMR), when notified, must be seen as a “living document” that should evolve as stakeholder requirements and aspirations change. We hope that the current GMR does just that. The Medical Council of India is

grateful to all the teachers, subject experts, process experts, patients, students and trainees who have contributed through invaluable inputs, intellectual feedbacks and valuable time spent to make this possible. This document would not have been possible without the dedicated and unstinting intellectual, mental and time-consuming efforts of the members of the Reconciliation Board of the Council and the Academic Cell of MCI.

How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. They must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

2. Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession fulfill his/her social obligations towards realization of this goal.
- (b) learn every aspect of National policies on health and devote herself/himself to its practical implementation.
- (c) achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

- (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH);
 - (ii) Sanitation and water supply;
 - (iii) Prevention and control of communicable and non-communicable diseases;
 - (iv) Immunization;
 - (v) Health Education;
 - (vi) Indian Public Health Standards (IPHS) at various level of service delivery;
 - (vii) Bio-medical waste disposal; and
 - (viii) Organizational and or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, General and hospital management, principal inventory skills and counseling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2. 3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

- 3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- 3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - i) Disease prevention,
 - ii) Health promotion and cure,
 - iii) Pain and distress alleviation, and
 - iv) Rehabilitation and palliation.

- 3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

- 3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- 3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- 3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- 3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. *Communicator with patients, families, colleagues and community*

- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically reevaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. *Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession*

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise outcomes

Section 2 contains subject-wise outcomes so called “sub-competencies” that must be achieved at the end of instruction in that subject. These are organised in tables and have two parts. The core subject outcomes are in first part. The second part in the same document (titled Integration) contains outcomes/competencies in other subjects which have been identified by experts in those subjects as requiring alignment or integration with the core subject.

Outcomes (competencies) in each subject are grouped according to topics number-wise. It is important to review the individual outcomes (competencies) in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section “definitions used in this document”. The suggested number of times a skill must be performed independently for certification in the learner’s log book is also given. Last two columns indicate subjects within the same phase and other phases with which the topic can be taught - together - aligned (temporal coordination), shared, correlated or nested.

The number of topics and competencies in each subject are given below:

Topics & outcomes in Pre-clinical & Para-clinical subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Human Anatomy	82	409
2.	Physiology	11	137
3.	Biochemistry	11	89
4.	Pharmacology	05	85
5.	Pathology	36	182
6.	Microbiology	08	54
7.	Forensic Medicine & Toxicology	14	162
	Total	167	1118

Topics & outcomes in Medicine and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Community Medicine	20	107
2.	General Medicine	26	506
3.	Respiratory Medicine	02	47
4.	Pediatrics	35	406
5.	Psychiatry	19	117
6.	Dermatology, Venereology & Leprosy	18	73
7.	Physical Medicine & Rehabilitation	09	43
	Total	129	1299

Topics & outcomes in Surgery and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	General Surgery	30	133
2.	Ophthalmology	09	60
3.	Otorhinolaryngology	04	76
4.	Obstetrics & Gynaecology	38	126
5.	Orthopedics	14	39
6.	Anesthesiology	10	46
7.	Radiodiagnosis	01	13
8.	Radiotherapy	05	16
9.	Dentistry	05	23
	Total	116	532

Section 3

Sample topics used for alignment & integration

Section 3 contains a sample selection of topics that run across the phases which can be used for alignment and integration. These are suggestions and institutions can select their own set of topics which can run across phases.

It is important to design the curriculum with a view to ensure with several broad outcomes in mind: a) achievement of the broad competencies by the learner at the end of the MBBS program, b) retain the subject - wise character of learning and assessment and ensure that phase-wise subject outcomes are met and assessed, c) teaching topics that are similar together thereby reducing redundancy and allowing the learner to integrate the concept as the most important step in integration (alignment or temporal coordination) (see document on integration), and d) align learning and assessment experiences to the outcome and the level of achievement specified.

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H	I	J
No.	Competencies	Domain	K/KH/SH/P	Core	Suggested Teaching Learning Method	Suggested Assessment method	No. required to certify (P)	Vertical Integration	Horizontal Integration
Physiology									
Summary Name of Topic: General Physiology Number of Competencies: (08)									
PY1.1	Describe the structure and functions of a	K	KH	Y	Lectures, Small group discussion	Written/Viva			Biochemistry
IM25.4	Elicit <i>document</i> and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	Skill assessment		Community Medicine	

Unique number of the competency. First two alphabets represent the subject (see list); number following alphabet reflects topic number, following period is a running number.

Description of competency

Identifies the domain or domains addressed
 K - Knowledge
 S - Skill
 A - Attitude
 C - Communication

Identifies the level of competency required based on the Miller's pyramid
 K - Knows
 KH - Knows How
 S - Skill
 SH - Show How
 P - Perform independently

Identifies if the competency is core or desirable.
 Y indicates Core;
 N-non-core

Identifies the suggested learning method.
 DOAP - Demonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
 Skill assessment - Clinics, Skills lab, Practicals etc.

no of times a skill needs to be done independently to be certified for independent performance;
 Rarely used in UG

Subject (s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject (s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

PA42.1*	At the end of the session the phase II student must be able to enumerate the most common causes of meningitis correctly
PA42.2*	At the end of the session the phase II student must be able to enumerate the components of CSF analysis correctly
PA42.3*	At the end of the session the phase II student must be able to describe the CSF features for a given etiology of meningitis accurately
PA42.4*	At the end of the session the phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters

- Audience - who will do the behavior
- Behavior - What should the learner be able to do?
- Condition - Under what conditions should the learner be able to do it?
- Degree – How well must it be done

Objective: Statement of what a learner should be able to do at the end of a specific learning experience
***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning methods from competencies

Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Lecture	small group discussion
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Related objectives can be combined into one teaching session	
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given etiologic of meningitis accurately		
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	small group discussion, practical session	

*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies-1

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the ~~Phase II student~~ must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given aetiology of meningitis accurately	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document

Deriving assessment methods from competencies-2

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

MI2.4*	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine	Pathology

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the morphology of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects -teachers from both subjects usually not needed. Ensure redundancy and duplication by reviewing both subjects



Horizontally aligned and integrated with pathology

Vertically integrated with General Medicine



Integrate concept - not necessarily teachers Plan session with teachers from both phases. Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient). Using teachers from both phases is rarely required

The concept of integration

Concept of integration used in the Manual

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application. The GMR 2018 applies these principles to the extent that will retain the strengths of silo - based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind, the Regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be thought separately but during the same time frame (Figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to Share (Figure 1b) topics or Correlate (Figure 1c) topics by using an integration session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. Care must be taken to ensure that achievement phase - based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasized that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may be involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting (Figure 1d) (Harden). Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year.

Assessment will continue to be subject based. However, efforts must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application.

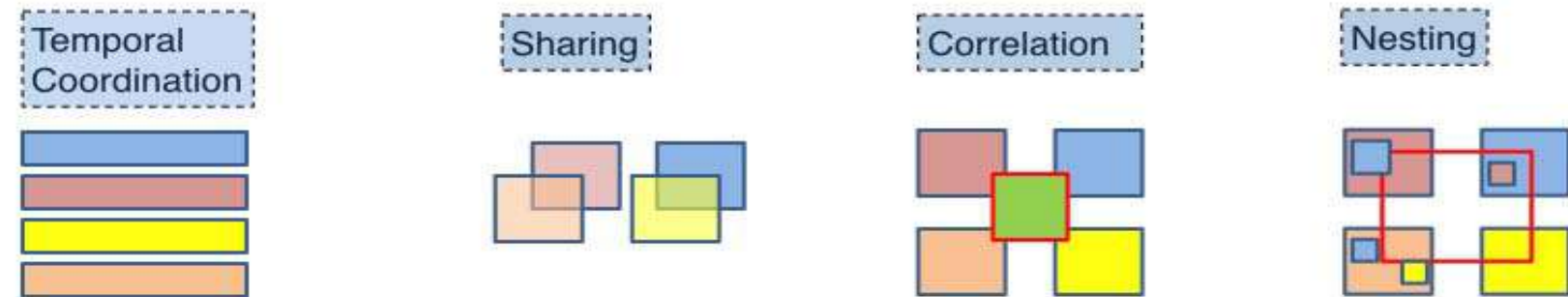


Figure 1 : Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Definitions used in the Manual

1. **Goal:** A projected state of affairs that a person or system plans to achieve.

In other words: Where do you want to go? or What do you want to become?

2. **Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.

In other words: What should you have? or What should have changed?

3. **Objective:** Statement of what a learner should be able to do at the end of a specific learning experience.

In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Interpret	
Elicit		
Report		

Note:

1. Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.
2. The word ‘perform’ or ‘do’ is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
3. Most tasks that require performance during undergraduate years will be performed under supervision.
4. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

Lecture	Any instructional large group method including traditional lecture and interactive lecture
Small group discussion	Any instructional method involving small groups of students in an appropriate learning context
DOAP (Demonstration- Observation - Assistance - Performance)	A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently
Skill assessment	A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands
Core	A competency that is necessary in order to complete the requirements of the subject (traditional must know)
Non-Core	A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified.

Volume II

Competency based Undergraduate Curriculum

in

Medicine and Allied subjects

COMMUNITY MEDICINE (CODE: CM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
COMMUNITY MEDICINE									
Topic: Concept of Health and Disease Number of competencies: (10) Number of procedures that require certification:(NIL)									
CM1.1	Define and describe the concept of Public Health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.2	Define health; describe the concept of holistic health including concept of spiritual health and the relativeness & determinants of health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.3	Describe the characteristics of agent, host and environmental factors in health and disease and the multi factorial etiology of disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.4	Describe and discuss the natural history of disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.5	Describe the application of interventions at various levels of prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.6	Describe and discuss the concepts, the principles of Health promotion and Education, IEC and Behavioral change communication (BCC)	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.7	Enumerate and describe health indicators	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.8	Describe the Demographic profile of India and discuss its impact on health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM1.9	Demonstrate the role of effective Communication skills in health in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		AETCOM	
CM1.10	Demonstrate the important aspects of the doctor patient relationship in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Relationship of social and behavioural to health and disease Number of competencies: (5) Number of procedures that require certification: (NIL)									
CM2.1	Describe the steps and perform clinico socio-cultural and demographic assessment of the individual, family and community	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment			
CM2.2	Describe the socio-cultural factors, family (types), its role in health and disease & demonstrate in a simulated environment the correct assessment of socio-economic status	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment			
CM2.3	Describe and demonstrate in a simulated environment the assessment of barriers to good health and health seeking behavior	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment			
CM2.4	Describe social psychology, community behaviour and community relationship and their impact on health and disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM2.5	Describe poverty and social security measures and its relationship to health and disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
Topic: Environmental Health Problems Number of competencies: (8) Number of procedures that require certification: (NIL)									
CM3.1	Describe the health hazards of air, water, noise, radiation and pollution	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, ENT	
CM3.2	Describe concepts of safe and wholesome water, sanitary sources of water, water purification processes, water quality standards, concepts of water conservation and rainwater harvesting	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce			
CM3.3	Describe the aetiology and basis of water borne diseases /jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce		Microbiology, General Medicine, Pediatrics	
CM3.4	Describe the concept of solid waste, human excreta and sewage disposal	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM3.5	Describe the standards of housing and the effect of housing on health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM3.6	Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Microbiology	
CM3.7	Identify and describe the identifying features and life cycles of vectors of Public Health importance and their control measures	S	SH	Y	Lecture, Small group discussion, DOAP session	Written / Viva voce/ Skill assessment		Microbiology	
CM3.8	Describe the mode of action, application cycle of commonly used insecticides and rodenticides	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pharmacology	
Topic: Principles of health promotion and education Number of competencies: (3) Number of procedures that require certification: (NIL)									
CM4.1	Describe various methods of health education with their advantages and limitations	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM4.2	Describe the methods of organizing health promotion and education and counselling activities at individual family and community settings	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM4.3	Demonstrate and describe the steps in evaluation of health promotion and education program	S	SH	Y	Small group session, DOAP session	Written / Viva voce/ Skill assessment			
Topic: Nutrition Number of competencies: (08) Number of procedures that require certification: (NIL)									
CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	
CM5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	
CM5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors.	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	
CM5.6	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pediatrics	
CM5.7	Describe food hygiene	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Microbiology
CM5.8	Describe and discuss the importance and methods of food fortification and effects of additives and adulteration	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pediatrics	
Topic: Basic statistics and its applications Number of competencies: (04) Number of procedures that require certification: (NIL)									
CM6.1	Formulate a research question for a study	K	KH	Y	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	
CM6.2	Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Y	Small group, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	
CM6.3	Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM6.4	Enumerate, discuss and demonstrate Common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written / Viva voce/ Skill assessment		General Medicine, Pediatrics	
Topic: Epidemiology Number of competencies: (09) Number of procedures that require certification: (NIL)									
CM7.1	Define Epidemiology and describe and enumerate the principles, concepts and uses	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.2	Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.3	Enumerate, describe and discuss the sources of epidemiological data	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.4	Define, calculate and interpret morbidity and mortality indicators based on given set of data	S	SH	Y	Small group, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.5	Enumerate, define, describe and discuss epidemiological study designs	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.6	Enumerate and evaluate the need of screening tests	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.7	Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	Microbiology
CM7.8	Describe the principles of association, causation and biases in epidemiological studies	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.9	Describe and demonstrate the application of computers in epidemiology	S	KH	Y	Small group discussion, DOAP sessions	Written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Epidemiology of communicable and non- communicable diseases Number of competencies:(7) Number of procedures that require certification:(NIL)									
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
CM8.2	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for Non Communicable diseases (diabetes, Hypertension, Stroke, obesity and cancer etc.)	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM8.3	Enumerate and describe disease specific National Health Programs including their prevention and treatment of a case	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM8.4	Describe the principles and enumerate the measures to control a disease epidemic	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM8.5	Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM8.6	Educate and train health workers in disease surveillance, control & treatment and health education	S	SH	Y	DOAP sessions	Skill assessment			
CM8.7	Describe the principles of management of information systems	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Demography and vital statistics Number of competencies: (07) Number of procedures that require certification: (NIL)									
CM9.1	Define and describe the principles of Demography, Demographic cycle, Vital statistics	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.2	Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Y	Lecture, Small group discussion, DOAP sessions	Skill assessment		Obstetrics & Gynaecology, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM9.3	Enumerate and describe the causes of declining sex ratio and its social and health implications	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.4	Enumerate and describe the causes and consequences of population explosion and population dynamics of India.	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.5	Describe the methods of population control	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology	
CM9.6	Describe the National Population Policy	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM9.7	Enumerate the sources of vital statistics including census, SRS, NFHS, NSSO etc	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Reproductive maternal and child health Number of competencies:(09) Number of procedures that require certification: (NIL)									
CM10.1	Describe the current status of Reproductive, maternal, newborn and Child Health	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.2	Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Pediatrics, Obstetrics & Gynaecology	
CM10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Pediatrics, Obstetrics & Gynaecology	
CM10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.5	Describe Universal Immunization Program; Integrated Management of Neonatal and Childhood Illness (IMNCI) and other existing Programs.	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Pediatrics	
CM10.6	Enumerate and describe various family planning methods, their advantages and shortcomings	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM10.7	Enumerate and describe the basis and principles of the Family Welfare Program including the organization, technical and operational aspects	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM10.8	Describe the physiology, clinical management and principles of adolescent health including ARSH	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM10.9	Describe and discuss gender issues and women empowerment	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Occupational Health Number of competencies: (05) Number of procedures that require certification: (NIL)									
CM11.1	Enumerate and describe the presenting features of patients with occupational illness including agriculture	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.2	Describe the role, benefits and functioning of the employees state insurance scheme	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.3	Enumerate and describe specific occupational health hazards, their risk factors and preventive measures	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.4	Describe the principles of ergonomics in health preservation	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
CM11.5	Describe occupational disorders of health professionals and their prevention & management	K	KH	Y	Small group discussion, Lecture	Written / Viva voce			
Topic: Geriatric services Number of competencies: (04) Number of procedures that require certification: (NIL)									
CM12.1	Define and describe the concept of Geriatric services	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	
CM12.2	Describe health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	
CM12.3	Describe the prevention of health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CM12.4	Describe National program for elderly	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	
Topic: Disaster Management Number of competencies: (04) Number of procedures that require certification: (NIL)									
CM13.1	Define and describe the concept of Disaster management	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.2	Describe disaster management cycle	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.3	Describe man made disasters in the world and in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.4	Describe the details of the National Disaster management Authority	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
Topic: Hospital waste management Number of competencies: (03) Number of procedures that require certification: (NIL)									
CM14.1	Define and classify hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written / Viva voce			Microbiology
CM14.2	Describe various methods of treatment of hospital waste	K	KH	Y	Lecture, Small group discussion, visit to hospital	Written / Viva voce			Microbiology
CM14.3	Describe laws related to hospital waste management	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Microbiology
Topic: Mental Health Number of competencies: (03) Number of procedures that require certification: (NIL)									
CM15.1	Define and describe the concept of mental Health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Psychiatry	
CM15.2	Describe warning signals of mental health disorder	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Psychiatry	
CM15.3	Describe National Mental Health program	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Health planning and management		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
CM16.1	Define and describe the concept of Health planning	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM16.2	Describe planning cycle	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM16.3	Describe Health management techniques	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM16.4	Describe health planning in India and National policies related to health and health planning	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
Topic: Health care of the communtiy		Number of competencies:(05)			Number of procedures that require certification: (NIL)				
CM17.1	Define and describe the concept of health care to community	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM17.2	Describe community diagnosis	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM17.3	Describe primary health care, its components and principles	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM17.4	Describe National policies related to health and health planning and millennium development goals	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM17.5	Describe health care delivery in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
Topic: International Health		Number of competencies: (2)			Number of procedures that require certionat(NIL)				
CM18.1	Define and describe the concept of International health	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM18.2	Describe roles of various international health agencies	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Essential Medicine		Number of competencies: (3)			Number of procedures that require certification: (NIL)				
CM19.1	Define and describe the concept of Essential Medicine List (EML)	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
CM19.2	Describe roles of essential medicine in primary health care	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
CM19.3	Describe counterfeit medicine and its prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Pharmacology
Topic: Recent advances in Community Medicine		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
CM20.1	List important public health events of last five years	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM20.2	Describe various issues during outbreaks and their prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM 20.3	Describe any event important to Health of the Community	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
CM 20.4	Demonstrate awareness about laws pertaining to practice of medicine such as Clinical establishment Act and Human Organ Transplantation Act and its implications	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Intergration									
Physiology									
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Biochemistry									
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables.(macro-molecules & its importance)	K	KH	Y	Lectures, Small group discussions	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
Pathology									
PA12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			Community Medicine
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
Microbiology									
MI1.3	Describe the epidemiological basis of common infectious diseases	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	Community Medicine
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.6	Describe the basics of Infection control	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	General Surgery	Community Medicine
MI8.16	Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)	K	K	Y	Lecture	Written / Viva voce			
Pharmacology									
PH1.55	Describe and discuss the following National Health programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, Cancer and Iodine deficiency	K	KH	Y	Lecture	Written / Viva voce			Community Medicine
Forensic Medicine & Toxicology									
FM2.33	Demonstrate ability to use local resources whenever required like in mass disaster situations	A & C	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Community Medicine	
Dermatology, Venereology & Leprosy									
DR9.1	Classify, describe the epidemiology, etiology, microbiology pathogenesis and clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussions	Written / Viva voce		General Medicine	Microbiology, Community Medicine
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on national guidelines	K	KH	Y	Lecture, Small group discussions	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on the WHO guidelines	K	KH	Y	Lecture, Small group discussions	Written / Viva voce		General Medicine	Pharmacology, Community Medicine
Ophthalmology									
OP9.4	Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)	K	KH	Y	Lecture, Small group discussions	Written / Viva voce			Community Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Psychiatry									
PS19.1	Describe the relevance, role and status of community psychiatry	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PS19.2	Describe the objectives strategies and contents of the of the National Mental Health Programme	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PS19.4	Enumerate and describe the salient features of the prevalent mental health laws in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PS19.5	Describe the concept and principles of preventive psychiatry and mental health promotion (positive mental health); and community education	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
General Medicine									
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pathology, Physiology, Community Medicine	
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g. Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM9.15	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Pharmacology, Community Medicine	
IM12.12	Describe and discuss the iodisation programs of the government of India	K	KH	Y	Lecture, Bedside clinic	short note		Community Medicine	
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lectures, Small group discussions	short note/ Viva voce		Pathology, Community Medicine	
IM24.18	Describe the impact of the demographic changes in ageing on the population	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic diseases (e.g. Leptospirosis, Rabies) and non-febrile infectious disease (e.g. Tetanus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.2	Discuss and describe the common causes, pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.4	Elicit document and present a medical history that helps delineate the aetiology of these diseases that includes the evolution and pattern of symptoms, risk factors, exposure through occupation and travel	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Community Medicine	
IM25.13	Counsel the patient and family on prevention of various infections due to environmental issues	C	SH	Y	DOAP session	Skill assessment		Community Medicine, General Medicine	
Obstetrics & Gynaecology									
OG1.1	Define and discuss birth rate, maternal mortality and morbidity	K	KH	Y	Lecture, Small group discussions	Short notes		Community Medicine	
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussions	Short notes		Community Medicine	Pediatrics
OG8.1	Enumerate describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors	K	KH	Y	Small group discussions, Bedside clinics, Lecture	Written / Viva voce/ Skill assessment		Community Medicine	
OG19.2	Counsel in a simulated environment, contraception and puerperal sterilisation	S/A/C	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG21.1	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications; selection of patients, side effects and failure rate including OC, male contraception, emergency contraception and IUCD	K	KH	Y	Lecture, Small group discussions, Bedside clinics	Written / Viva voce/ Skill assessment		Community Medicine	
OG33.3	Describe and demonstrate the screening for cervical cancer in a simulated environment	K/S	SH	Y	DOAP session	Skill assessment		Community Medicine	
Pediatrics									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE3.5	Discuss the role of the child developmental unit in management of developmental delay	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE3.7	Visit a Child Developmental unit and observe its functioning	S	KH	Y	Lecture, Small group discussion	Log book Entry		Community Medicine	
PE8.1	Define the term Complementary Feeding	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE8.2	Discuss the principles the initiation, attributes , frequency, techniques and hygiene related to complementary feeding including	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PE8.3	Enumerate the common complimentary foods	K	K	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PE8.4	Elicit history on the Complementary Feeding habits	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Community Medicine	
PE8.5	Counsel and educate mothers on the best practices in Complimentary Feeding	A/C	SH	Y	DOAP session	Document in Log Book		Community Medicine	
PE9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Biochemistry	
PE9.2	Describe the tools and methods for Assessment and classification of Nutritional status of infants, children and adolescents	K	KH	Y	Lecture, Small group discussion,	Written / Viva voce		Community Medicine	
PE9.4	Elicit, Document and present an appropriate nutritional history and perform a dietary recall	S	SH	Y	Bedside clinic, Skill Lab	Skill Assessment		Community Medicine	
PE9.5	Calculate the age related Calorie requirement in Health and Disease and identify gap	S	SH	Y	Bedside clinics, Small group discussion	Skill assessment		Community Medicine	
PE9.6	Assess and classify the nutrition status of infants, children and adolescents and recognize deviations	S	SH	Y	Bedside clinic, Small group discussion	Skill Assessment		Community Medicine	
PE9.7	Plan an appropriate diet in Health and disease	S	SH	N	Bedside clinic, Small group discussion	Document in logbook		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE10.4	Identify children with under nutrition as per IMNCI criteria and plan referral	S	SH	Y	DOAP session	Document in log book		Community Medicine	
PE17.1	State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCH A+, RBSK, RKSK, JSSK mission Indradhanush and ICDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE17.2	Analyse the outcomes and appraise the monitoring and evaluation of NHM	K	KH	Y	Debate	Written/ Viva voce		Community Medicine	
PE18.1	List and explain the components, plans, outcomes of Reproductive child health (RCH) program and appraise the monitoring and evaluation	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.2	Explain preventive interventions for Child survival and safe motherhood	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bedside clinics	Skill station		Community Medicine	Obstetrics & Gynaecology
PE18.4	Provide intra-natal care and conduct a normal Delivery in a simulated environment	S	SH	Y	DOAP session, Skills lab	Document in Log Book		Community Medicine	Obstetrics & Gynaecology
PE18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bedside clinics, Skill Lab	Skill Assessment		Community Medicine	Obstetrics & Gynaecology
PE18.8	Observe the implementation of the program by Visiting the Rural Health Centre	S	KH	Y	Bedside clinics, Skill Lab	Document in log book		Community Medicine	Obstetrics & Gynaecology
PE19.1	Explain the components of the Universal immunization Program and the sub National Immunization Programs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, preterm , organ transplants, those who received blood and blood products, splenectomised children, Adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Microbiology	
PE19.8	Demonstrate willingness to participate in the National and sub national immunisation days	A	SH	Y	Lecture, Small group discussion	Document in Log Book		Community Medicine	
PE19.12	Observe the Administration the UIP vaccines	S	SH	Y	DOAP session	Document in Log Book		Community Medicine	
PE29.5	Discuss the National anaemia Control program	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
General Surgery									
SU7.1	Describe the Planning and conduct of Surgical audit	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
SU7.2	Describe the principles and steps of clinical research in surgery	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
Respiratory Medicine									
CT1.1	Describe and discuss the epidemiology of tuberculosis and its impact on the work, life and economy of India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine, Microbiology, Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT1.15	Prescribe an appropriate antituberculosis regimen based on the location of disease, smear positivity and negativity and co-morbidities based on current national guidelines including directly observed tuberculosis therapy (DOTS)	K	SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment		Pharmacology, Community Medicine	
CT1.16	Describe the appropriate precautions, screening, testing and indications for chemoprophylaxis for contacts and exposed health care workers	K	KH	Y	Bedside clinic, Small group discussion	Written		Community Medicine	
CT1.18	Educate health care workers on national programs of Tuberculosis and administering and monitoring the DOTS program	C	SH	Y	DOAP session	Skill assessment		Community Medicine	
CT2.24	Recognise the impact of OAD on patient's quality of life, well being, work and family	A	KH	Y	Small group discussion, Bedside clinic	Observation by faculty		Community Medicine	
CT2.25	Discuss and describe the impact of OAD on the society and workplace	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
CT2.26	Discuss and describe preventive measures to reduce OAD in workplaces	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Community Medicine	
CT2.27	Demonstrate an understanding of patient's inability to change working, living and environmental factors that influence progression of airway disease	A	KH	Y	Small group discussion, Bedside clinic	Observation by faculty		Community Medicine	

GENERAL MEDICINE (CODE: IM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
GENERAL MEDICINE									
Topic: Heart Failure		Number of competencies: (30)			Number of procedures that require certification : (01)				
IM1.1	Describe and discuss the epidemiology, pathogenesis clinical evolution and course of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Written		Pathology, Physiology	
IM1.3	Describe and discuss the aetiology microbiology pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Microbiology	
IM1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.5	Describe ,discuss and differentiate the processes involved in R Vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.6	Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrhythmias, anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.8	Describe and discuss the pathogenesis and development of common arrhythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM1.9	Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.10	Elicit document and present an appropriate history that will establish the diagnosis, cause and severity of heart failure including: presenting complaints, precipitating and exacerbating factors, risk factors exercise tolerance, changes in sleep patterns, features suggestive of infective endocarditis	S	SH	Y	Bedside clinic	Skill assessment			
IM1.11	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and estimate its severity including: measurement of pulse, blood pressure and respiratory rate, jugular venous forms and pulses, peripheral pulses, conjunctiva and fundus, lung, cardiac examination including palpation and auscultation with identification of heart sounds and murmurs, abdominal distension and splenic palpation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.12	Demonstrate peripheral pulse, volume, character, quality and variation in various causes of heart failure	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.13	Measure the blood pressure accurately, recognise and discuss alterations in blood pressure in valvular heart disease and other causes of heart failure and cardiac tamponade	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.14	Demonstrate and measure jugular venous distension	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.15	Identify and describe the timing, pitch quality conduction and significance of precordial murmurs and their variations	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.16	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment			
IM1.17	Order and interpret diagnostic testing based on the clinical diagnosis including 12 lead ECG, Chest radiograph, blood cultures	K	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM1.18	Perform and interpret a 12 lead ECG	S	P	Y	Bedside clinic, DOAP session	Skill assessment	3		
IM1.19	Enumerate the indications for and describe the findings of heart failure with the following conditions including: 2D echocardiography, brain natriuretic peptide, exercise testing, nuclear medicine testing and coronary angiogram	S	KH	N	Lecture, Small group discussion, Bedside clinic	Skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.20	Determine the severity of valvular heart disease based on the clinical and laboratory and imaging features and determine the level of intervention required including surgery	C	SH	Y	Small group discussion, Lecture, Bedside clinic	Written/ Skill assessment			
IM1.21	Describe and discuss and identify the clinical features of acute and subacute endocarditis, echocardiographic findings, blood culture and sensitivity and therapy	K	KH/SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment			
IM1.22	Assist and demonstrate the proper technique in collecting specimen for blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM1.23	Describe, prescribe and communicate non pharmacologic management of heart failure including sodium restriction, physical activity and limitations	S/C	SH	Y	Lecture, Small group discussion	Skill assessment			
IM1.24	Describe and discuss the pharmacology of drugs including indications, contraindications in the management of heart failure including diuretics, ACE inhibitors, Beta blockers, aldosterone antagonists and cardiac glycosides	K	KH	Y	Lecture, Small group discussion	Viva voce/written		Pharmacology	
IM1.25	Enumerate the indications for valvuloplasty, valvotomy, coronary revascularization and cardiac transplantation	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Viva voce/written			
IM1.26	Develop document and present a management plan for patients with heart failure based on type of failure, underlying aetiology	S	SH	Y	Bedside clinic, Skill assessment, Small group discussion	Bedside clinic/ Skill assessment/written			
IM1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Written		Microbiology, Pharmacology	
IM1.28	Enumerate the causes of adult presentations of congenital heart disease and describe the distinguishing features between cyanotic and acyanotic heart disease	K	KH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment/written			
IM1.29	Elicit document and present an appropriate history, demonstrate correctly general examination, relevant clinical findings and formulate document and present a management plan for an adult patient presenting with a common form of congenital heart disease	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ written			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM1.30	Administer an intramuscular injection with an appropriate explanation to the patient	S	SH	Y	Bedside clinic, Skill assessment	Log book documentation of completion		Pharmacology	
Topic: Acute Myocardial Infarction/ IHD Number of competencies: (24) Number of procedures that require certification : (02)									
IM2.1	Discuss and describe the epidemiology, antecedents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology, Community Medicine	
IM2.2	Discuss the aetiology of risk factors both modifiable and non modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
IM2.4	Discuss and describe the pathogenesis natural history, evolution and complications of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM2.5	Define the various acute coronary syndromes and describe their evolution, natural history and outcomes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM2.6	Elicit document and present an appropriate history that includes onset evolution, presentation risk factors, family history, comorbid conditions, complications, medication, history of atherosclerosis, IHD and coronary syndromes	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.7	Perform, demonstrate and document a physical examination including a vascular and cardiac examination that is appropriate for the clinical presentation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.8	Generate document and present a differential diagnosis based on the clinical presentation and prioritise based on “cannot miss”, most likely diagnosis and severity	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.9	Distinguish and differentiate between stable and unstable angina and AMI based on the clinical presentation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.10	Order, perform and interpret an ECG	S	P	Y	Bedside clinic, DOAP session	Skill assessment	3		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM2.11	Order and interpret a Chest X-ray and markers of acute myocardial infarction	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM2.12	Choose and interpret a lipid profile and identify the desirable lipid profile in the clinical context	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Biochemistry	
IM2.13	Discuss and enumerate the indications for and findings on echocardiogram, stress testing and coronary angiogram	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.14	Discuss and describe the indications for admission to a coronary care unit and supportive therapy for a patient with acute coronary syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.15	Discuss and describe the medications used in patients with an acute coronary syndrome based on the clinical presentation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM2.16	Discuss and describe the indications for acute thrombolysis, PTCA and CABG	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.17	Discuss and describe the indications and methods of cardiac rehabilitation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Biochemistry	
IM2.19	Discuss and describe the pathogenesis, recognition and management of complications of acute coronary syndromes including arrhythmias, shock, LV dysfunction, papillary muscle rupture and pericarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM2.20	Discuss and describe the assessment and relief of pain in acute coronary syndromes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM2.21	Observe and participate in a controlled environment an ACLS program	S	KH	N	DOAP session	NA			
IM2.22	Perform and demonstrate in a mannequin BLS	S	P	Y	DOAP session	Skill assessment	1		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM2.23	Describe and discuss the indications for nitrates, anti platelet agents, gpIIb IIIa inhibitors, beta blockers, ACE inhibitors etc in the management of coronary syndromes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM2.24	Counsel and communicate to patients with empathy lifestyle changes in atherosclerosis / post coronary syndromes	C/A	SH	Y	DOAP session	Skill assessment		AETCOM	
Topic: Pneumonia Number of competencies: (19) Number of procedures that require certification: (NIL)									
IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Human Anatomy, Pathology, Microbiology	
IM3.2	Discuss and describe the aetiologies of various kinds of pneumonia and their microbiology depending on the setting and immune status of the host	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Microbiology	
IM3.4	Elicit document and present an appropriate history including the evolution, risk factors including immune status and occupational risk	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.5	Perform, document and demonstrate a physical examination including general examination and appropriate examination of the lungs that establishes the diagnosis, complications and severity of disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.6	Generate document and present a differential diagnosis based on the clinical features, and prioritise the diagnosis based on the presentation	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM3.8	Demonstrate in a mannequin and interpret results of an arterial blood gas examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM3.9	Demonstrate in a mannequin and interpret results of a pleural fluid aspiration	S	SH	Y	DOAP session	Skill assessment			
IM3.10	Demonstrate the correct technique in a mannequin and interpret results of a blood culture	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	S	SH	Y	Bed side clinic, DOAP session	Skill Assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.13	Select, describe and prescribe based on culture and sensitivity appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum.	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written/ Viva voce		Pharmacology, Microbiology	
IM3.14	Perform and interpret a sputum gram stain and AFB	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM3.15	Describe and enumerate the indications for hospitalisation in patients with pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM3.16	Describe and enumerate the indications for isolation and barrier nursing in patients with pneumonia	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM3.17	Describe and discuss the supportive therapy in patients with pneumonia including oxygen use and indications for ventilation	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM3.18	Communicate and counsel patient on family on the diagnosis and therapy of pneumonia	C/A	SH	Y	DOAP session	Skill assessment			
IM3.19	Discuss, describe, enumerate the indications and communicate to patients on pneumococcal and influenza vaccines	S/C	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
Topic: Fever and febrile syndromes Number of competencies: (26) Number of procedures that require certification : (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM4.1	Describe and discuss the febrile response and the influence of host immune status, risk factors and comorbidities on the febrile response	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.2	Describe and discuss the influence of special populations on the febrile response including: the elderly, immune suppression, malignancy and neutropenia, HIV and travel	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g.Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM4.4	Describe and discuss the pathophysiology and manifestations of inflammatory causes of fever	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	Written		Pathology, Microbiology	
IM4.6	Discuss and describe the pathophysiology and manifestations of malaria	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.7	Discuss and describe the pathophysiology and manifestations of the sepsis syndrome	K	K	Y	Lecture, Small group discussion	Written			
IM4.8	Discuss and describe the pathophysiology, aetiology and clinical manifestations of fever of unknown origin (FUO) including in a normal host, neutropenic host, nosocomial host and a host with HIV disease	K	K	Y	Lecture, Small group discussion	Written		Microbiology	
IM4.9	Elicit document and present a medical history that helps delineate the aetiology of fever that includes the evolution and pattern of fever, associated symptoms, immune status, comorbidities, risk factors, exposure through occupation, travel and environment and medication use	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM4.10	Perform a systematic examination that establishes the diagnosis and severity of presentation that includes: general skin mucosal and lymph node examination, chest and abdominal examination (including examination of the liver and spleen)	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM4.11	Generate a differential diagnosis and prioritise based on clinical features that help distinguish between infective, inflammatory, malignant and rheumatologic causes	K	SH	Y	Bedside clinic, DOAP session	Written/ Viva voce			
IM4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bedside clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM4.13	Perform and interpret a sputum gram stain	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.14	Perform and interpret a sputum AFB	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.15	Perform and interpret a malarial smear	S	SH	Y	DOAP session	Log book/ documentation/ Skill assessment		Microbiology	
IM4.16	Enumerate the indications and describe the findings in tests of inflammation and specific rheumatologic tests, serologic testing for pathogens including HIV, bone marrow aspiration and biopsy	K	KH	N	Lecture, Small group discussion	Written		Pathology	
IM4.17	Observe and assist in the performance of a bone marrow aspiration and biopsy in a simulated environment	S	SH	N	Skills lab	Log book/ documentation/ DOAP session		Pathology	
IM4.18	Enumerate the indications for use of imaging in the diagnosis of febrile syndromes	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
IM4.19	Assist in the collection of blood and wound cultures	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM4.20	Interpret a PPD (Mantoux)	S	SH	Y	DOAP session	Log book/ documentation		Microbiology	
IM4.21	Develop and present an appropriate diagnostic plan based on the clinical presentation, most likely diagnosis in a prioritised and cost effective manner	K	KH	Y	Bedside clinic, Skill assessment	Skill assessment			
IM4.22	Describe and discuss the pharmacology, indications, adverse reactions, interactions of antimalarial drugs and basis of resistance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM4.23	Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and national programs	S	SH	Y	Small group discussion	Skill assessment		Microbiology, Pharmacology	
IM4.24	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment			
IM4.25	Communicate to the patient and family the diagnosis and treatment	C	SH	Y	DOAP session	Skill assessment		AETCOM	
IM4.26	Counsel the patient on malarial prevention	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
Topic: Liver disease Number of competencies: (18) Number of procedures that require certification : (NIL)									
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Written/Viva voce		Pathology, Physiology	
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM5.3	Describe and discuss the pathologic changes in various forms of liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
IM5.5	Describe and discuss the pathophysiology and clinical evolution of alcoholic liver disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.6	Describe and discuss the pathophysiology, clinical evolution and complications of cirrhosis and portal hypertension including ascites, spontaneous bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Pharmacology	
IM5.8	Describe and discuss the pathophysiology, clinical evolution and complications cholelithiasis and cholecystitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
IM5.9	Elicit document and present a medical history that helps delineate the aetiology of the current presentation and includes clinical presentation, risk factors, drug use, sexual history, vaccination history and family history	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM5.10	Perform a systematic examination that establishes the diagnosis and severity that includes nutritional status, mental status, jaundice, abdominal distension ascites, features of portosystemic hypertension and hepatic encephalopathy	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM5.11	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology for the presenting symptom	K	KH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM5.12	Choose and interpret appropriate diagnostic tests including: CBC, bilirubin, function tests, Hepatitis serology and ascitic fluid examination in patient with liver diseases.	S	KH	Y	Bedside clinic, DOAP session	Skill assessment		Pathology	
IM5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	K	K	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Radiodiagnosis	General Surgery
IM5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	S	SH	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.15	Assist in the performance and interpret the findings of an ascitic fluid analysis	S	KH	Y	DOAP session	documentation in log book			
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group discussion	Skill assessment/ Written/ Viva voce		Pharmacology	General Surgery
IM5.17	Enumerate the indications, precautions and counsel patients on vaccination for hepatitis	K/C	SH	Y	Written, Small group discussion	Written/ Viva voce		Microbiology	
IM5.18	Enumerate the indications for hepatic transplantation	K	K	Y	Written, Small group discussion	Written/ Viva voce			General Surgery
Topic: HIV Number of competencies: (23) Number of procedures that require certification : (NIL)									
IM6.1	Describe and discuss the symptoms and signs of acute HIV seroconversion	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM6.2	Define and classify HIV AIDS based on the CDC criteria	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.3	Describe and discuss the relationship between CDC count and the risk of opportunistic infections	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.4	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related opportunistic infections	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Microbiology	
IM6.5	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related malignancies	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Pathology, Microbiology	
IM6.6	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related skin and oral lesions	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce		Pathology, Microbiology	
IM6.7	Elicit document and present a medical history that helps delineate the aetiology of the current presentation and includes risk factors for HIV, mode of infection, other sexually transmitted diseases, risks for opportunistic infections and nutritional status	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM6.8	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology for the presenting symptom	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment			
IM6.9	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	K	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment		Pathology, Microbiology	
IM6.10	Choose and interpret appropriate diagnostic tests to diagnose opportunistic infections including CBC, sputum examination and cultures, blood cultures, stool analysis, CSF analysis and Chest radiographs	S	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment			
IM6.11	Enumerate the indications and describe the findings for CT of the chest and brain and MRI	K	K	N	Small group discussion, Lecture, Bedside clinic	Written/ Viva voce		Radiodiagnosis	
IM6.12	Enumerate the indications for and interpret the results of: pulse oximetry, ABG, Chest Radiograph	K	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Skill assessment			
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
IM6.14	Perform and interpret AFB sputum	S	P	Y	DOAP session	Skill assessment		Microbiology	
IM6.15	Demonstrate in a model the correct technique to perform a lumbar puncture	S	SH	Y	Simulation	Skill assessment		Microbiology	
IM6.16	Discuss and describe the principles of HAART, the classes of antiretrovirals used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.17	Discuss and describe the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
IM6.18	Enumerate the indications and discuss prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM6.19	Counsel patients on prevention of HIV transmission	C	SH	Y	DOAP session	Skills assessment		AETCOM	
IM6.20	Communicate diagnosis, treatment plan and subsequent follow up plan to patients	C	SH	Y	DOAP session	Skills assessment		AETCOM	
IM6.21	Communicate with patients on the importance of medication adherence	C	SH	Y	DOAP session	Skills assessment		AETCOM	
IM6.22	Demonstrate understanding of ethical and legal issues regarding patient confidentiality and disclosure in patients with HIV	K/A	SH	Y	DOAP session, Small group discussion	Viva voce/ Written/ Skill Assessment		AETCOM	
IM6.23	Demonstrate a non-judgemental attitude to patients with HIV and to their lifestyles	A	SH	Y	Small group discussion	observation by teacher		AETCOM	
Topic: Rheumatologic problems Number of competencies: (27) Number of procedures that require certification: (NIL)									
IM7.1	Describe the pathophysiology of autoimmune disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.2	Describe the genetic basis of autoimmune disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM7.3	Classify cause of joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM7.4	Develop a systematic clinical approach to joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.5	Describe and discriminate acute, subacute and chronic causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.6	Discriminate, describe and discuss arthralgia from arthritis and mechanical from inflammatory causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.7	Discriminate, describe and discuss distinguishing articular from periarticular complaints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.8	Determine the potential causes of joint pain based on the presenting features of joint involvement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM7.9	Describe the common signs and symptoms of articular and periarticular diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.10	Describe the systemic manifestations of rheumatologic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM7.11	Elicit document and present a medical history that will differentiate the aetiologies of disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM7.12	Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			Orthopedics
IM7.13	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K/S	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written			
IM7.14	Describe the appropriate diagnostic work up based on the presumed aetiology	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written			
IM7.15	Enumerate the indications for and interpret the results of : CBC, anti-CCP, RA, ANA, DNA and other tests of autoimmunity	K	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Pathology	
IM7.16	Enumerate the indications for arthrocentesis	K	K	Y	Small group discussion, Lecture	Written/ Viva voce			Orthopedics
IM7.17	Enumerate the indications and interpret plain radiographs of joints	K	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Radiodiagnosis	Orthopedics
IM7.18	Communicate diagnosis, treatment plan and subsequent follow up plan to patients	C	SH	Y	DOAP session	Skill assessment/ Written			
IM7.19	Develop an appropriate treatment plan for patients with rheumatologic diseases	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written			
IM7.20	Select, prescribe and communicate appropriate medications for relief of joint pain	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	Orthopedics
IM7.21	Select, prescribe and communicate preventive therapy for crystalline arthropathies	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM7.22	Select, prescribe and communicate treatment option for systemic rheumatologic conditions	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	
IM7.23	Describe the basis for biologic and disease modifying therapy in rheumatologic diseases	K	KH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Pharmacology	
IM7.24	Communicate and incorporate patient preferences in the choice of therapy	C/A	SH	Y	DOAP session	Skill assessment		AETCOM	
IM7.25	Develop and communicate appropriate follow up and monitoring plans for patients with rheumatologic conditions	C	SH	Y	DOAP session	Skill assessment			
IM7.26	Demonstrate an understanding of the impact of rheumatologic conditions on quality of life, well being, work and family	A	SH	Y	DOAP session	Skill assessment			
IM7.27	Determine the need for specialist consultation	K	K	Y	Small group discussion, Lecture	Viva voce			
Topic: Hypertension Number of competencies: (20) Number of procedures that require certification: (NIL)									
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM8.3	Describe and discuss the genetic basis of hypertension	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.4	Define and classify hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.5	Describe and discuss the differences between primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.6	Define, describe and discuss and recognise hypertensive urgency and emergency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM8.7	Describe and discuss the clinical manifestations of the various aetiologies of secondary causes of hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.8	Describe, discuss and identify target organ damage due to hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM8.9	Elicit document and present a medical history that includes: duration and levels, symptoms, comorbidities, lifestyle, risk factors, family history, psychosocial and environmental factors, dietary assessment, previous and concomitant therapy	K	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM8.10	Perform a systematic examination that includes : an accurate measurement of blood pressure, fundus examination, examination of vasculature and heart	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM8.11	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM8.12	Describe the appropriate diagnostic work up based on the presumed aetiology	K	KH	Y	Small group discussion	Skill assessment/ Written/ Viva voce			
IM8.13	Enumerate the indications for and interpret the results of : CBC, Urine routine, BUN, Cr, Electrolytes, Uric acid, ECG	K	KH	Y	Small group discussion	Skill assessment/ Written/ Viva voce			
IM8.14	Develop an appropriate treatment plan for essential hypertension	K	KH	Y	Small group discussion	Written/ Viva voce		Pharmacology	
IM8.15	Recognise, prioritise and manage hypertensive emergencies	S	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	
IM8.16	Develop and communicate to the patient lifestyle modification including weight reduction, moderation of alcohol intake, physical activity and sodium intake	C	SH	Y	DOAP session	Skill assessment			
IM8.17	Perform and interpret a 12 lead ECG	S	P	Y	DOAP session	documentation in log book/ skills station			
IM8.18	Incorporate patient preferences in the management of HTN	A/C	SH	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM8.19	Demonstrate understanding of the impact of Hypertension on quality of life, well being, work and family	A	SH	Y	Bedside clinic, DOAP session	observation by faculty			
IM8.20	Determine the need for specialist consultation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Anemia Number of competencies: (21) Number of procedures that require certification : (NIL)									
IM9.1	Define, describe and classify anemia based on red blood cell size and reticulocyte count	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.2	Describe and discuss the morphological characteristics, aetiology and prevalence of each of the causes of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM9.3	Elicit document and present a medical history that includes symptoms, risk factors including GI bleeding, prior history, medications, menstrual history, and family history	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
IM9.4	Perform a systematic examination that includes : general examination for pallor, oral examination, DOAP session of hyper dynamic circulation, lymph node and splenic examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM9.5	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	
IM9.6	Describe the appropriate diagnostic work up based on the presumed aetiology	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	
IM9.7	Describe and discuss the meaning and utility of various components of the hemogram	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.8	Describe and discuss the various tests for iron deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.9	Order and interpret tests for anemia including hemogram, red cell indices, reticulocyte count, iron studies, B12 and folate	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	
IM9.10	Describe, perform and interpret a peripheral smear and stool occult blood	S	SH	P	Bedside clinic, DOAP session	Skill assessment/ Written		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM9.11	Describe the indications and interpret the results of a bone marrow aspirations and biopsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.12	Describe, develop a diagnostic plan to determine the aetiology of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.13	Prescribe replacement therapy with iron, B12, folate	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Written		Pharmacology	
IM9.14	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Community Medicine	
IM9.15	Communicate the diagnosis and the treatment appropriately to patients	C	SH	Y	DOAP session	Skill assessment			
IM9.16	Incorporate patient preferences in the management of anemia	C	SH	Y	DOAP session	Skill assessment			
IM9.17	Describe the indications for blood transfusion and the appropriate use of blood components	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Pathology	
IM9.18	Describe the precautions required necessary when performing a blood transfusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
IM9.19	Assist in a blood transfusion	S	SH	Y	Bedside clinic	document in log book			
IM9.20	Communicate and counsel patients with methods to prevent nutritional anemia	C	SH	Y	DOAP session	Skill assessment			
IM9.21	Determine the need for specialist consultation	K	KH	Y	Lecture, Small group discussion	Written			
Topic: Acute Kidney Injury and Chronic renal failure Number of competencies: (31) Number of procedures that require certification: (NIL)									
IM10.1	Define, describe and differentiate between acute and chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.2	Classify, describe and differentiate the pathophysiologic causes of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM10.3	Describe the pathophysiology and causes of pre renal ARF, renal and post renal ARF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.4	Describe the evolution, natural history and treatment of ARF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.5	Describe and discuss the aetiology of CRF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.6	Stage Chronic Kidney Disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.7	Describe and discuss the pathophysiology and clinical findings of uraemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.8	Classify, describe and discuss the significance of proteinuria in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.9	Describe and discuss the pathophysiology of anemia and hyperparathyroidism in CKD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.10	Describe and discuss the association between CKD glycemia and hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.11	Describe and discuss the relationship between CAD risk factors and CKD and in dialysis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM10.12	Elicit document and present a medical history that will differentiate the aetiologies of disease, distinguish acute and chronic disease, identify predisposing conditions, nephrotoxic drugs and systemic causes	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM10.13	Perform a systematic examination that establishes the diagnosis and severity including determination of volume status, presence of edema and heart failure, features of uraemia and associated systemic disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM10.14	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	KH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM10.15	Describe the appropriate diagnostic work up based on the presumed aetiology	K	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
IM10.16	Enumerate the indications for and interpret the results of : renal function tests, calcium, phosphorus, PTH, urine electrolytes, osmolality, Anion gap	K	KH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM10.17	Describe and calculate indices of renal function based on available laboratories including FENa (Fractional Excretion of Sodium) and CrCl (Creatinine Clearance)	S	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce		Pathology	
IM10.18	Identify the ECG findings in hyperkalemia	S	SH	Y	DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
IM10.19	Enumerate the indications and describe the findings in renal ultrasound	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis	
IM10.20	Describe and discuss the indications to perform arterial blood gas analysis: interpret the data	S	P	Y	DOAP session	documentation in log book			
IM10.21	Describe and discuss the indications for and insert a peripheral intravenous catheter	S	P	Y	DOAP session, Bedside clinic	documentation in logbook			
IM10.22	Describe and discuss the indications, demonstrate in a model and assist in the insertion of a central venous or a dialysis catheter	S	SH	N	DOAP session	Skill assessment with model			
IM10.23	Communicate diagnosis treatment plan and subsequent follow up plan to patients	C	SH	Y	DOAP session	Skill assessment			
IM10.24	Counsel patients on a renal diet	K	SH	Y	DOAP session	Skill assessment			
IM10.25	Identify and describe the priorities in the management of ARF including diet, volume management, alteration in doses of drugs, monitoring and indications for dialysis	K/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM10.26	Describe and discuss supportive therapy in CKD including diet, anti hypertensives, glycemic therapy, dyslipidemia, anemia, hyperkalemia, hyperphosphatemia and secondary hyperparathyroidism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM10.27	Describe and discuss the indications for renal dialysis	C/A	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM10.28	Describe and discuss the indications for renal replacement therapy	C	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM10.29	Describe discuss and communicate the ethical and legal issues involved in renal replacement therapy	C/A	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM10.30	Recognise the impact of CKD on patient's quality of life well being work and family	A	K	Y	Lecture, Small group discussion, Bedside clinic	observation by faculty			
IM10.31	Incorporate patient preferences in to the care of CKD	A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	observation by faculty			
Topic: Diabetes Mellitus Number of competencies: (24) Number of procedures that require certification : (02)									
IM11.1	Define and classify diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM11.2	Describe and discuss the epidemiology and pathogenesis and risk factors and clinical evolution of type 1 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.3	Describe and discuss the epidemiology and pathogenesis and risk factors economic impact and clinical evolution of type 2 diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.4	Describe and discuss the genetic background and the influence of the environment on diabetes	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
IM11.5	Describe and discuss the pathogenesis and temporal evolution of microvascular and macrovascular complications of diabetes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM11.6	Describe and discuss the pathogenesis and precipitating factors, recognition and management of diabetic emergencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM11.7	Elicit document and present a medical history that will differentiate the aetiologies of diabetes including risk factors, precipitating factors, lifestyle, nutritional history, family history, medication history, co-morbidities and target organ disease	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM11.8	Perform a systematic examination that establishes the diagnosis and severity that includes skin, peripheral pulses, blood pressure measurement, fundus examination, detailed examination of the foot (pulses, nervous and deformities and injuries)	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM11.9	Describe and recognise the clinical features of patients who present with a diabetic emergency	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce			
IM11.10	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce			
IM11.11	Order and interpret laboratory tests to diagnose diabetes and its complications including: glucoses, glucose tolerance test, glycosylated hemoglobin, urinary micro albumin, ECG, electrolytes, ABG, ketones, renal function tests and lipid profile	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pathology	
IM11.12	Perform and interpret a capillary blood glucose test	S	P	Y	Bedside clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	S	P	Y	Bedside clinic, DOAP session	Skill assessment	2	Pathology, Biochemistry	
IM11.14	Recognise the presentation of hypoglycaemia and outline the principles on its therapy	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce			
IM11.15	Recognise the presentation of diabetic emergencies and outline the principles of therapy	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce			
IM11.16	Discuss and describe the pharmacologic therapies for diabetes their indications, contraindications, adverse reactions and interactions	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce		Pharmacology	
IM11.17	Outline a therapeutic approach to therapy of T2Diabetes based on presentation, severity and complications in a cost effective manner	K	KH	Y	Small Group discussion, Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM11.18	Describe and discuss the pharmacology, indications, adverse reactions and interactions of drugs used in the prevention and treatment of target organ damage and complications of Type II Diabetes including neuropathy, nephropathy, retinopathy, hypertension, dyslipidemia and cardiovascular disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM11.19	Demonstrate and counsel patients on the correct technique to administer insulin	S/C	SH	Y	DOAP session	Skill assessment		Pharmacology	
IM11.20	Demonstrate to and counsel patients on the correct technique of self monitoring of blood glucoses	S/C	SH	Y	DOAP session	Skill assessment			
IM11.21	Recognise the importance of patient preference while selecting therapy for diabetes	A	KH	Y	DOAP session	faculty observation			
IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM11.23	Describe the precipitating causes, pathophysiology, recognition, clinical features, diagnosis, stabilisation and management of diabetic ketoacidosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM11.24	Describe the precipitating causes, pathophysiology, recognition, clinical features, diagnosis, stabilisation and management of Hyperosmolar non ketotic state	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Thyroid dysfunction Number of competencies: (15) Number of procedures that require certification : (NIL)									
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM12.2	Describe and discuss the genetic basis of some forms of thyroid dysfunction	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
IM12.3	Describe and discuss the physiology of the hypothalamopituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	Short notes		Pathology, Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM12.4	Describe and discuss the principles of radio iodine uptake in the diagnosis of thyroid disorders	K	KH	Y	Lecture, Small group discussion	Short notes/ Viva voce			
IM12.5	Elicit document and present an appropriate history that will establish the diagnosis cause of thyroid dysfunction and its severity	S	SH	Y	Bedside clinic	Skill assessment/ Short case			
IM12.6	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and severity including systemic signs of thyrotoxicosis and hypothyroidism, palpation of the pulse for rate and rhythm abnormalities, neck palpation of the thyroid and lymph nodes and cardiovascular findings	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			General Surgery
IM12.7	Demonstrate the correct technique to palpate the thyroid	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Surgery
IM12.8	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	K	KH	Y	Bedside clinic, small group discussion	Short case			General Surgery
IM12.9	Order and interpret diagnostic testing based on the clinical diagnosis including CBC, thyroid function tests and ECG and radio iodine uptake and scan	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Surgery
IM12.10	Identify atrial fibrillation, pericardial effusion and bradycardia on ECG	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.11	Interpret thyroid function tests in hypo and hyperthyroidism	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.12	Describe and discuss the iodisation programs of the government of India	K	KH	Y	Lecture, Bedside clinic	Short note		Community Medicine	
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Viva voce/ Short note		Pharmacology	General Surgery
IM12.14	Write and communicate to the patient appropriately a prescription for thyroxine based on age, sex, and clinical and biochemical status	S/C	SH	Y	Skill assessment	Skill assessment		Pharmacology	
IM12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and surgery in the management of thyrotoxicosis	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Common malignancies		Number of competencies: (19)			Number of procedures that require certification : (NIL)				
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Biochemistry	
IM13.2	Describe the genetic basis of selected cancers	K	K	N	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Microbiology	
IM13.4	Describe the natural history, presentation, course, complications and cause of death for common cancers	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM13.5	Describe the common issues encountered in patients at the end of life and principles of management	K	K	N	Lecture, Small group discussion	Short note/ Viva voce			
IM13.6	Describe and distinguish the difference between curative and palliative care in patients with cancer	K	K	N	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	
IM13.7	Elicit document and present a history that will help establish the aetiology of cancer and includes the appropriate risk factors, duration and evolution	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.8	Perform and demonstrate a physical examination that includes an appropriate general and local examination that excludes the diagnosis, extent spread and complications of cancer	S	SH	Y	Bedside clinic	Skill assessment/ short case			General Surgery
IM13.9	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	S	K	Y	Bedside clinic	Skill assessment/ Short case		Human Anatomy	General Surgery
IM13.10	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.11	Order and interpret diagnostic testing based on the clinical diagnosis including CBC and stool occult blood and prostate specific antigen	S	K	Y	Bedside clinic	Skill assessment/ Short case			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM13.12	Describe the indications and interpret the results of Chest X Ray, mammogram, skin and tissue biopsies and tumor markers used in common cancers	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Radiodiagnosis	
IM13.13	Describe and assess pain and suffering objectively in a patient with cancer	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM13.14	Describe the indications for surgery, radiation and chemotherapy for common malignancies	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM13.15	Describe the need, tests involved, their utility in the prevention of common malignancies	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pathology	
IM13.16	Demonstrate an understanding and needs and preferences of patients when choosing curative and palliative therapy	A/C	KH	Y	Bedside clinic, small group discussion	Short note/ Viva voce		AETCOM	
IM13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	Anesthesiology
IM13.18	Describe and discuss the ethical and the medico legal issues involved in end of life care	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		AETCOM	
IM13.19	Describe the therapies used in alleviating suffering in patients at the end of life	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		AETCOM	
Topic: Obesity Number of competencies: (15) Number of procedures that require certification: (NIL)									
IM14.1	Define and measure obesity as it relates to the Indian population	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM14.2	Describe and discuss the aetiology of obesity including modifiable and non-modifiable risk factors and secondary causes	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM14.3	Describe and discuss the monogenic forms of obesity	K	K	N	Lecture, Small group discussion	Short note/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Community Medicine	
IM14.5	Describe and discuss the natural history of obesity and its complications	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	
IM14.6	Elicit and document and present an appropriate history that includes the natural history, dietary history, modifiable risk factors, family history, clues for secondary causes and motivation to lose weight	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.7	Perform, document and demonstrate a physical examination based on the history that includes general examination, measurement of abdominal obesity, signs of secondary causes and comorbidities	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ Short note/ Viva voce			
IM14.9	Order and interpret diagnostic tests based on the clinical diagnosis including blood glucose, lipids, thyroid function tests etc.	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce			
IM14.10	Describe the indications and interpret the results of tests for secondary causes of obesity	K	KH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce			
IM14.11	Communicate and counsel patient on behavioural, dietary and lifestyle modifications	C	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.12	Demonstrate an understanding of patient's inability to adhere to lifestyle instructions and counsel them in a non - judgemental way	A/C	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM14.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for obesity	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	
IM14.14	Describe and enumerate the indications and side effects of bariatric surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM14.15	Describe and enumerate and educate patients, health care workers and the public on measures to prevent obesity and promote a healthy lifestyle	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
Topic: GI bleeding Number of competencies: (18) Number of procedures that require certification : (NIL)									
IM15.1	Enumerate, describe and discuss the aetiology of upper and lower GI bleeding	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.2	Enumerate, describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Written/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Physiology	General Surgery
IM15.4	Elicit and document and present an appropriate history that identifies the route of bleeding, quantity, grade, volume loss, duration, etiology, comorbid illnesses and risk factors	S	SH	Y	Bedside clinic	Skill assessment			General Surgery
IM15.5	Perform, demonstrate and document a physical examination based on the history that includes general examination, volume assessment and appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			General Surgery
IM15.6	Distinguish between upper and lower gastrointestinal bleeding based on the clinical features	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.7	Demonstrate the correct technique to perform an anal and rectal examination in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			General Surgery
IM15.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ Short note/ Viva voce			General Surgery
IM15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test.	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Short note/ Viva voce		Pathology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.10	Enumerate the indications for endoscopy, colonoscopy and other imaging procedures in the investigation of Upper GI bleeding	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
IM15.11	Develop, document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion, and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.13	Observe cross matching and blood / blood component transfusion	S	SH	Y	Bedside clinic	Short note/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Short note/Viva voce		Pharmacology	General Surgery
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	General Surgery
IM15.16	Enumerate the indications for endoscopic interventions and Surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.17	Determine appropriate level of specialist consultation	S	K	Y	Small group discussion				General Surgery
IM15.18	Counsel the family and patient in an empathetic non-judgmental manner on the diagnosis and therapeutic options	S	SH	Y	DOAP session	Skill assessment			General Surgery
Topic: Diarrheal disorder Number of competencies: (17) Number of procedures that require certification : (NIL)									
IM16.1	Describe and discuss the aetiology of acute and chronic diarrhea including infectious and non infectious causes	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
IM16.2	Describe and discuss the acute systemic consequences of diarrhea including its impact on fluid balance	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM16.3	Describe and discuss the chronic effects of diarrhea including malabsorption	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM16.4	Elicit and document and present an appropriate history that includes the natural history, dietary history, travel , sexual history and other concomitant illnesses	S	SH	Y	Bedside clinic, Skills lab	Skill assessment		Microbiology, Pathology	
IM16.5	Perform, document and demonstrate a physical examination based on the history that includes general examination, including an appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			
IM16.6	Distinguish between diarrhea and dysentery based on clinical features	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce			
IM16.7	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ short note/ Viva voce			
IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	S	SH	Y	Bedside clinic, Skills lab, Small group discussion	Skill assessment/ Short note/ Viva voce		Microbiology, Pathology	
IM16.9	Identify common parasitic causes of diarrhea under the microscope in a stool specimen	S	SH	Y	DOAP session	Skill assessment		Microbiology	
IM16.10	Identify vibrio cholera in a hanging drop specimen	S	SH	Y	DOAP session	Skill Assessment		Microbiology	
IM16.11	Enumerate the indications for stool cultures and blood cultures in patients with acute diarrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	
IM16.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial and viral diarrhea	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM16.15	Distinguish based on the clinical presentation Crohn's disease from Ulcerative Colitis	S	SH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM16.16	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy including immunotherapy	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	
IM16.17	Describe and enumerate the indications for surgery in inflammatory bowel disease	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
Topic: Headache Number of competencies: (14) Number of procedures that require certification : (NIL)									
IM17.1	Define and classify headache and describe the presenting features, precipitating factors, aggravating and relieving factors of various kinds of headache	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Human Anatomy	
IM17.2	Elicit and document and present an appropriate history including aura, precipitating aggravating and relieving factors, associated symptoms that help identify the cause of headaches	S	SH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment			
IM17.3	Classify migraine and describe the distinguishing features between classical and non classical forms of migraine	K	KH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment			
IM17.4	Perform and demonstrate a general neurologic examination and a focused examination for signs of intracranial tension including neck signs of meningitis	S	SH	Y	Bedside clinic, Small group discussion	Bedside clinic/ Skill assessment			
IM17.5	Generate document and present a differential diagnosis based on the clinical features, and prioritise the diagnosis based on the presentation	S	SH	Y	Bedside clinic, Small group discussion	Bedside clinic/ skill assessment			
IM17.6	Choose and interpret diagnostic testing based on the clinical diagnosis including imaging	S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill Assessment			
IM17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	K	K	Y	Small group discussion, Bedside clinic	Skill Assessment		Microbiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	S	SH	Y	DOAP session	Skill assessment		Microbiology, Pathology	
IM17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	S	SH	Y	Small group discussion, Bedside clinic	Skill assessment		Microbiology, Pathology	
IM17.10	Enumerate the indications for emergency care admission and immediate supportive care in patients with headache	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
IM17.11	Describe the indications, pharmacology, dose, side effects of abortive therapy in migraine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM17.12	Describe the indications, pharmacology, dose, side effects of prophylactic therapy in migraine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM17.13	Describe the pharmacology, dose, adverse reactions and regimens of drugs used in the treatment of bacterial, tubercular and viral meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM17.14	Counsel patients with migraine and tension headache on lifestyle changes and need for prophylactic therapy	A/C	SH	N	DOAP session	Skill Assessment		Pharmacology	Psychiatry
Topic: Cerebrovascular accident Number of competencies: (17) Number of procedures that require certification : (NIL)									
IM18.1	Describe the functional and the vascular anatomy of the brain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
IM18.2	Classify cerebrovascular accidents and describe the aetiology, predisposing genetic and risk factors pathogenesis of hemorrhagic and non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
IM18.3	Elicit and document and present an appropriate history including onset, progression, precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the cerebrovascular accident	S	SH	Y	Bedside clinic	Skill assessment		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM18.4	Identify the nature of the cerebrovascular accident based on the temporal evolution and resolution of the illness	K	KH	Y	Bedside clinic, Small group discussion	Skill Assessment			
IM18.5	Perform, demonstrate & document physical examination that includes general and a detailed neurologic examination as appropriate, based on the history	S	SH	Y	Bedside clinic, DOAP session	Skill Assessment			
IM18.6	Distinguish the lesion based on upper vs lower motor neuron, side, site and most probable nature of the lesion	K/S	SH	Y	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.7	Describe the clinical features and distinguish, based on clinical examination, the various disorders of speech	K/S	SH	N	Bedside clinic, DOAP session	Skill Assessment		Physiology	
IM18.8	Describe and distinguish, based on the clinical presentation, the types of bladder dysfunction seen in CNS disease	K	KH	Y	Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
IM18.9	Choose and interpret the appropriate diagnostic and imaging test that will delineate the anatomy and underlying cause of the lesion	S	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
IM18.10	Choose and interpret the appropriate diagnostic testing in young patients with a cerebrovascular accident (CVA)	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.11	Describe the initial supportive management of a patient presenting with a cerebrovascular accident (CVA)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.12	Enumerate the indications for and describe acute therapy of non hemorrhagic stroke including the use of thrombolytic agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.13	Enumerate the indications for and describe the role of anti platelet agents in non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.14	Describe the initial management of a hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM18.15	Enumerate the indications for surgery in a hemorrhagic stroke	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM18.16	Enumerate the indications describe and observe the multidisciplinary rehabilitation of patients with a CVA	S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physical Medicine & Rehabilitation
IM18.17	Counsel patient and family about the diagnosis and therapy in an empathetic manner	A/C	SH	Y	DOAP session	Skill assessment			
Topic: Movement disorders Number of competencies: (09) Number of procedures that require certification : (NIL)									
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology	
IM19.2	Classify movement disorders of the brain based on distribution, rhythm, repetition, exacerbating and relieving factors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM19.3	Elicit and document and present an appropriate history including onset, progression precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the movement disorders	S	SH	Y	Bedside clinic	Skill assessment			
IM19.4	Perform, demonstrate and document a physical examination that includes a general examination and a detailed neurologic examination using standard movement rating scales	S	SH	Y	Bedside clinic	Skill assessment			
IM19.5	Generate document and present a differential diagnosis and prioritise based on the history and physical examination	S	SH	Y	Bedside clinic	Skill assessment			
IM19.6	Make a clinical diagnosis regarding on the anatomical location, nature and cause of the lesion based on the clinical presentation and findings	S	SH	Y	Bedside clinic	Skill assessment			
IM19.7	Choose and interpret diagnostic and imaging tests in the diagnosis of movement disorders	S	SH	Y	Bedside clinic, Small group session	Skill assessment/ Written/ Viva voce		Radiodiagnosis	
IM19.8	Discuss and describe the pharmacology, dose, side effects and interactions used in the drug therapy of Parkinson's syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM19.9	Enumerate the indications for use of surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Envenomation		Number of competencies: (09)			Number of procedures that require certification : (NIL)				
IM20.1	Enumerate the local poisonous snakes and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM20.2	Describe, demonstrate in a volunteer or a mannequin and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	S	SH	Y	DOAP session	Skill assessment/ Written/ Viva voce		Forensic Medicine	
IM20.3	Describe the initial approach to the stabilisation of the patient who presents with snake bite	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
IM20.4	Elicit and document and present an appropriate history, the circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Forensic Medicine	
IM20.5	Perform a systematic examination, document and present a physical examination that includes general examination, local examination, appropriate cardiac and neurologic examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM20.6	Choose and interpret the appropriate diagnostic testing in patients with snake bites	S	SH	Y	Small group discussion	Written/ Viva voce			
IM20.7	Enumerate the indications and describe the pharmacology, dose, adverse reactions, hypersensitivity reactions of anti snake venom	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM20.8	Describe the diagnosis, initial approach stabilisation and therapy of scorpion envenomation	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM20.9	Describe the diagnosis initial approach stabilisation and therapy of bee sting allergy	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
Topic: Poisoning		Number of competencies: (08)			Number of procedures that require certification : (NIL)				
IM21.1	Describe the initial approach to the stabilisation of the patient who presents with poisoning	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine, Pharmacology	
IM21.5	Observe and describe the functions and role of a poison center in suspected poisoning	S	KH	Y	DOAP session	document in log book		Forensic Medicine, Pharmacology	
IM21.6	Describe the medico legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Forensic Medicine, Pharmacology	
IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine, Pharmacology	
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
Topic: Mineral, Fluid Electrolyte and Acid base Disorder Number of competencies: (13) Number of procedures that require certification : (NIL)									
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM22.3	Describe the approach to the management of hypercalcemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
IM22.4	Enumerate the components and describe the genetic basis of the multiple endocrine neoplasia syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM22.5	Enumerate the causes and describe the clinical features and the correct approach to the diagnosis and management of the patient with hyponatremia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.6	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hyponatremia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.7	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hypokalemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.8	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hyperkalemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM22.9	Enumerate the causes and describe the clinical and laboratory features of metabolic acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.10	Enumerate the causes of describe the clinical and laboratory features of metabolic alkalosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.11	Enumerate the causes and describe the clinical and laboratory features of respiratory acidosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.12	Enumerate the causes and describe the clinical and laboratory features of respiratory alkalosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
IM22.13	Identify the underlying acid based disorder based on an ABG report and clinical situation	S	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology	
Topic: Nutritional and Vitamin Deficiencies Number of competencies: (05) Number of procedures that require certification: (NIL)									
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.5	Counsel and communicate to patients in a simulated environment with illness on an appropriate balanced diet	S	SH	Y	DOAP session	Skill assessment			
Topic: Geriatrics Number of competencies: (22) Number of procedures that require certification : (NIL)									
IM24.1	Describe and discuss the epidemiology, pathogenesis, clinical evolution, presentation and course of common diseases in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.2	Perform multidimensional geriatric assessment that includes medical, psycho-social and functional components	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Psychiatry	
IM24.3	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of acute confusional states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.4	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vascular events in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.5	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of depression in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.6	Describe and discuss the aetiopathogenesis causes, clinical presentation, difference in discussion presentation identification, functional changes, acute care, stabilization, management and rehabilitation of dementia in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			AETCOM

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.7	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of personality changes in the elderly	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.8	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of osteoporosis in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.9	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of CVA in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.10	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of COPD in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Respiratory Medicine
IM24.11	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology, General Surgery
IM24.12	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of degenerative joint disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM24.13	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
IM24.14	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of common fractures in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM24.15	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Ophthalmology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
IM24.17	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of hearing loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			ENT
IM24.18	Describe the impact of the demographic changes in ageing on the population	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
IM24.19	Enumerate and describe the social problems in the elderly including isolation, abuse, change in family structure and their impact on health.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.20	Enumerate and describe social interventions in the care of elderly including domiciliary discussion services, rehabilitation facilities, old age homes and state interventions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
IM24.21	Enumerate and describe ethical issues in the care of the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			AETCOM
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
Topic: Miscellaneous Infections		Number of competencies: (13)			Number of procedures that require certification : (NIL)				
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic diseases (e.g. Leptospirosis, Rabies) and non-febrile infectious disease (e.g. Tetanus)	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.2	Discuss and describe the common causes, pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Written		Microbiology, Community Medicine	
IM25.3	Describe and discuss the pathophysiology and manifestations of these diseases	K	KH	Y	Lecture, Small group discussion	Written		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM25.4	Elicit document and present a medical history that helps delineate the aetiology of these diseases that includes the evolution and pattern of symptoms, risk factors, exposure through occupation and travel	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Community Medicine	
IM25.5	Perform a systematic examination that establishes the diagnosis and severity of presentation that includes: general skin, mucosal and lymph node examination, chest and abdominal examination (including examination of the liver and spleen)	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM25.6	Generate a differential diagnosis and prioritise based on clinical features that help distinguish between infective, inflammatory, malignant and rheumatologic causes	K	SH	Y	Bedside clinic, DOAP session	Written/ Viva voce			
IM25.7	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, blood biochemistry, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	K	SH	Y	Bedside clinic, Skill assessment	Skill assessment		Pathology, Microbiology	
IM25.8	Enumerate the indications for use of newer techniques in the diagnosis of these infections	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
IM25.9	Assist in the collection of blood and other specimen cultures	S	SH	Y	DOAP session	Log book documentation		Microbiology	
IM25.10	Develop and present an appropriate diagnostic plan based on the clinical presentation, most likely diagnosis in a prioritised and cost effective manner	K	KH	Y	Bedside clinic, Skill assessment	Skill assessment			
IM25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	C	SH	Y	DOAP session	Skill assessment		Microbiology, Pharmacology	
IM25.12	Communicate to the patient and family the diagnosis and treatment of identified infection	C	SH	Y	DOAP session	Skill assessment		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM25.13	Counsel the patient and family on prevention of various infections due to environmental issues	C	SH	Y	DOAP session	Skill assessment		Community Medicine, General Medicine	
Topic: The role of the physician in the community Number of competencies: (49) Number of procedures that require certification : (NIL)									
IM26.1	Enumerate and describe professional qualities and roles of a physician	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.2	Describe and discuss the commitment to lifelong learning as an important part of physician growth	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.3	Describe and discuss the role of non maleficence as a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.4	Describe and discuss the role of autonomy and shared responsibility as a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.5	Describe and discuss the role of beneficence of a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.6	Describe and discuss the role of a physician in health care system	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.7	Describe and discuss the role of justice as a guiding principle in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.8	Identify discuss medicolegal, socioeconomic and ethical issues as it pertains to organ donation	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.9	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as it pertains to rights, equity and justice in access to health care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.10	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to confidentiality in patient care	K	KH	Y	Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.11	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to patient autonomy, patient rights and shared responsibility in health care	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.12	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to decision making in health care including advanced directives and surrogate decision making	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.13	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to decision making in emergency care including situations where patients do not have the capability or capacity to give consent	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.14	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to research in human subjects	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.15	Identify, discuss and defend, medicolegal,socio-cultural and ethical issues as they pertain to consent for surgical procedures	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.16	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues as it pertains to the physician patient relationship (including fiduciary duty)	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.17	Identify, discuss physician's role and responsibility to society and the community that she/ he serves	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.18	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues in physician- industry relationships	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.19	Demonstrate ability to work in a team of peers and superiors	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM26.20	Demonstrate ability to communicate to patients in a patient, respectful, non threatening, non judgemental and empathetic manner	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM26.21	Demonstrate respect to patient privacy	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.22	Demonstrate ability to maintain confidentiality in patient care	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
IM26.23	Demonstrate a commitment to continued learning	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.24	Demonstrate respect in relationship with patients, fellow team members, superiors and other health care workers	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.25	Demonstrate responsibility and work ethics while working in the health care team	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.26	Demonstrate ability to maintain required documentation in health care (including correct use of medical records)	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.27	Demonstrate personal grooming that is adequate and appropriate for health care responsibilities	S	SH	Y	Small group discussion	Skill assessment			
IM26.28	Demonstrate adequate knowledge and use of information technology that permits appropriate patient care and continued learning	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.29	Communicate diagnostic and therapeutic options to patient and family in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.30	Communicate care options to patient and family with a terminal illness in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.31	Demonstrate awareness of limitations and seeks help and consultations appropriately	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.32	Demonstrate appropriate respect to colleagues in the profession	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.33	Demonstrate an understanding of the implications and the appropriate procedures and response to be followed in the event of medical errors	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.34	Identify conflicts of interest in patient care and professional relationships and describe the correct response to these conflicts	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.35	Demonstrate empathy in patient encounters	S	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Viva voce			
IM26.36	Demonstrate ability to balance personal and professional priorities	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.37	Demonstrate ability to manage time appropriately	S	SH	Y	Small group discussion	Skill assessment/ Viva voce			
IM26.38	Demonstrate ability to form and function in appropriate professional networks	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.39	Demonstrate ability to pursue and seek career advancement	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.40	Demonstrate ability to follow risk management and medical error reduction practices where appropriate	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.41	Demonstrate ability to work in a mentoring relationship with junior colleagues	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.42	Demonstrate commitment to learning and scholarship	S	SH	N	Small group discussion	Skill assessment/ Viva voce			
IM26.43	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as they pertain to in vitro fertilisation donor insemination and surrogate motherhood	K	KH	N	Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
IM26.44	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues pertaining to medical negligence	K	KH	N	Small group discussion	Written/ Viva voce			
IM26.45	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues pertaining to malpractice	K	KH	N	Small group discussion	Written/ Viva voce			
IM26.46	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues in dealing with impaired physicians	K	KH	N	Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
IM26.47	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as they pertain to refusal of care including do not resuscitate and withdrawal of life support	K	KH	Y	Small group discussion	Written/ Viva voce			
IM26.48	Demonstrate altruism	S	SH	Y	Small group discussion	Written/ Viva voce			
IM26.49	Administer informed consent and appropriately address patient queries to a patient being enrolled in a research protocol in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Written/ Viva voce			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

Integration

Human Anatomy									
AN5.6	Describe the concept of anastomoses and collateral circulation with significance of end-artries	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	Lecture	Written		General Medicine	Physiology
AN7.6	Describe concept of loss of innervation of a muscle with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
AN20.8	Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Medicine	
AN20.9	Identify & demonstrate Palpation of vessels (femoral, popliteal,dorsalis pedis,post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, great and small saphenous veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Medicine, General Surgery	
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	Lecture	Written		General Medicine	Physiology
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Medicine	Physiology
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	Physiology
AN24.3	Describe a bronchopulmonary segment	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2)ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K/S	SH	Y	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.8	Identify and describe in brief a barium swallow	K/S	SH	N	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.9	Demonstrate surface marking of lines of pleural reflection, Lung borders and fissures, Trachea, Heart borders, Apex beat & Surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ Skill assessment		General Medicine, Pediatrics	Physiology
AN28.7	Explain the anatomical basis of facial nerve palsy	K	KH	Y	Lecture	Written		General Medicine	
AN50.3	Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN56.1	Describe & identify various layers of meninges with its extent & modifications	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	
AN56.2	Describe circulation of CSF with its applied anatomy	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN57.5	Describe anatomical basis of syringomyelia	K	KH	N	Lecture	Written		General Medicine	Physiology
AN58.4	Describe anatomical basis & effects of medial & lateral medullary syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	Lecture	Written		General Medicine	Physiology
AN61.3	Describe anatomical basis & effects of Benedict's and Weber's syndrome	K	KH	N	Lecture	Written		General Medicine	Physiology
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	Physiology
AN62.3	Describe the white matter of cerebrum	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Physiology
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Medicine	Physiology
AN74.1	Describe the various modes of inheritance with examples	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.3	Describe multifactorial inheritance with examples	K	KH	Y	Lecture	Written		General Medicine	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Hemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	K	KH	N	Lecture	Written		General Medicine, Pediatrics	
Physiology									
PY3.12	Explain the gradation of muscular activity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Human Anatomy
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastro-oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	S	SH	Y	Lecture, Small group discussion	Practical/ Viva voce		General Medicine	Biochemistry
PY5.5	Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Human Anatomy
PY5.10	Describe & discuss regional circulation including microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PY5.13	Record and interpret normal ECG in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PY5.16	Record Arterial pulse tracing using finger plethysmography in a volunteer or simulated environment	S	SH	N	DOAP sessions, Computer assisted learning methods	Practical/OSPE/Viva voce		General Medicine	
PY7.7	Describe artificial kidney, dialysis and renal transplantation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine Anaesthesiology	
Biochemistry									
BI2.4	Describe and discuss enzyme inhibitors as poisons and drugs, therapeutic enzymes and the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.5	Describe and discuss the clinical utility of various serum enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.6	Discuss use of enzymes in laboratory investigations (Enzyme-based assays)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI2.7	Interpret laboratory results of enzyme activities & describe the clinical utility of various enzymes as markers of pathological conditions	K	KH	Y	Lecture, Small group discussion, DOAP sessions	Written/ Viva voce		Pathology, General Medicine	
BI3.4	Define and differentiate the pathways of carbohydrate metabolism (glycolysis, gluconeogenesis, glycogen metabolism, HMP shunt)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI3.5	Describe and discuss the regulation, functions and integration of carbohydrate along with associated diseases/disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI3.8	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	
BI3.9	Discuss the mechanism and significance of blood glucose regulation in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI3.10	Interpret the results of blood glucose levels and other laboratory investigations related to disorders of carbohydrate metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.1	Describe and discuss main classes of lipids (Essential/non-essential fatty acids, cholesterol and hormonal steroids, triglycerides, major phospholipids and sphingolipids) relevant to human system and their major functions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.2	Describe the processes involved in digestion and absorption of dietary lipids and also the key features of their metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.3	Explain the regulation of lipoprotein metabolism & associated disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.4	Describe the structure and functions of lipoproteins, their functions, interrelations & relations with atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.5	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.6	Describe the therapeutic uses of prostaglandins and inhibitors of eicosanoid synthesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI4.7	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI5.2	Describe and discuss functions of proteins and structure-function relationships in relevant areas e.g., hemoglobin and selected hemoglobinopathies	K	KH	Y	Lecture, Small group discussion	Viva voce/ Skill assessment		Pathology, General Medicine	Physiology
BI5.5	Interpret laboratory results of analytes associated with metabolism of proteins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.1	Discuss the metabolic processes that take place in specific organs in the body in the fed and fasting states	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.4	Discuss the laboratory results of analytes associated with gout & Lesch Nyhan syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI6.5	Describe the biochemical role of vitamins in the body and explain the manifestations of their deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.7	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.8	Discuss and interpret results of Arterial Blood Gas (ABG) analysis in various disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Physiology
BI6.10	Enumerate and describe the disorders associated with mineral metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI6.11	Describe the functions of haem in the body and describe the processes involved in its metabolism and describe porphyrin metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.12	Describe the major types of haemoglobin and its derivatives found in the body and their physiological/ pathological relevance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology
BI6.13	Describe the functions of the kidney, liver, thyroid and adrenal glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.14	Describe the tests that are commonly done in clinical practice to assess the functions of these organs (kidney, liver, thyroid and adrenal glands)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI6.15	Describe the abnormalities of kidney, liver, thyroid and adrenal glands.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, General Medicine	Physiology, Human Anatomy
BI7.4	Describe applications of recombinant DNA technology, PCR in the diagnosis and treatment of diseases with genetic basis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI7.7	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.3	Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI8.4	Describe the causes (including dietary habits), effects and health risks associated with being overweight/ obesity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables (macro-molecules & its importance)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
BI9.2	Discuss the involvement of ECM components in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI10.4	Describe & discuss innate and adaptive immune responses, self/non-self recognition and the central role of T-helper cells in immune responses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pathology	Physiology
BI11.4	Perform urine analysis to estimate and determine normal and abnormal constituents	S	P	Y	Lecture, Small group discussion	Skill assessment	1	General Medicine	Physiology
BI11.5	Describe screening of urine for inborn errors & describe the use of paper chromatography	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI11.17	Explain the basis and rationale of biochemical tests done in the following conditions: - diabetes mellitus, - dyslipidemia, - myocardial infarction, - renal failure, gout, - proteinuria, - nephrotic syndrome, - edema, - jaundice, - liver diseases, pancreatitis, disorders of acid- base balance, thyroid disorders.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine Pathology	
BI11.22	Calculate albumin: globulin (AG) ratio and creatinine clearance	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.23	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
BI11.24	Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
BI1.26	Calculate albumin: globulin (AG) ratio and creatinine clearance	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	
BI1.27	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	S	SH	N	Lecture, Small group discussion	Skill assessment		General Medicine	
BI1.28	Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Pathology									
PA6.1	Define and describe edema its types pathogenesis and clinical correlations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.4	Define autoimmunity. Enumerate autoimmune disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA9.5	Define and describe the pathogenesis of systemic lupus erythematosus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA9.7	Define and describe the pathogenesis of other common autoimmune diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA12.3	Describe the pathogenesis of obesity and its consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.1	Describe hematopoiesis and extramedullary hematopoiesis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.2	Describe the role of anticoagulants in hematology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.3	Define and classify anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.4	Enumerate and describe the investigation of anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.5	Perform, Identify and describe the peripheral blood picture in anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
PA14.2	Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA14.3	Identify and describe the peripheral smear in microcytic anemia	S	SH	Y	DOAP session	Skill assessment		General Medicine	
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA15.2	Describe the laboratory investigations of macrocytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA15.4	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA16.1	Define and classify hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.4	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.5	Describe indices and peripheral blood smear	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA 17.1	Enumerate the etiology, pathogenesis and findings in aplastic anemia	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA17.2	Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA19.6	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA21.3	Differentiate platelet from clotting disorders based on the clinical and hematologic features	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.5	Define and describe disseminated intravascular coagulation its laboratory findings and diagnosis of Vitamin K deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.6	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA24.3	Describe and identify the microscopic features of peptic ulcer	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.3	Describe the etiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA25.6	Interpret a liver function and viral hepatitis serology panel. Distinguish obstructive from non obstructive jaundice based on clinical features and liver function tests	S	P	Y	DOAP session	Skill assessment	1	General Medicine	
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
PA26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance,metastases and complications of tumors of the lung and pleura	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
PA27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of arteriosclerosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA27.3	Describe the etiology, types, stages pathophysiology pathology and complications of heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic, features, criteria and complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic, features, diagnostic tests and complications of ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic, features diagnosis and complications of infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic, features diagnosis and complications of pericarditis and pericardial effusion	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA28.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.4	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA28.6	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.7	Enumerate and describe the findings in glomerular manifestations of systemic disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.8	Enumerate and classify diseases affecting the tubular interstitium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features, progression and complications of vascular disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.12	Define classify and describe the genetics, inheritance etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	Lecture, Small group	Written/ Viva voce		Physiology, General Medicine	
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PA35.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
Microbiology									
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.2	Describe the classification, etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic heart disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kala-azar, malaria, filariasis and other common parasites prevalent in India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.6	Identify the causative agent of malaria and filariasis	K/S	SH	Y	DOAP session	Skill assessment		General Medicine	
MI2.7	Describe the epidemiology, the etio-pathogenesis evolution complications, opportunistic infections, diagnosis prevention and the principles of management of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
MI3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course, the laboratory diagnosis of the diseases caused by them	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI3.7	Describe the epidemiology, the etio- pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis, and prevention of viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis	K	KH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain).	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
MI7.3	Describe the etio-pathogenesis, clinical features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course, laboratory diagnosis and prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	K	KH	Y	Lecture	Written		General Medicine	Pathology
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate it types. Discuss the factors that contribute to the development of HAI and the methods for prevention	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	
Pharmacology									
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.16	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: Anti-histaminics, 5-HT modulating drugs, NSAIDs, Drugs for gout, Anti-rheumatic drugs, drugs for migraine	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.21	Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin angiotensin and aldosterone system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of Antihypertensive drugs and drugs used in shock	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used as Antiarrhythmics	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid-peptic disease and GERD 2. Antiemetics and prokinetics 3. Antidiarrhoeals 4. Laxatives 5. Inflammatory Bowel Disease 6. Irritable Bowel Disorders, biliary and pancreatic diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like: 1. Drugs used in anemias 2. Colony Stimulating factors	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	Pharmacology
PH1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology, Pharmacology
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics	Microbiology, Pharmacology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology
PH1.52	Describe management of common poisoning, insecticides, common sting and bites	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP sessions	Skills assessment		Pediatrics, Pharmacology	
PH3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	S/C	P	Y	Skill station	Skill station	5	General Medicine	
PH3.3	Perform a critical evaluation of the drug promotional literature	S	P	Y	Skill Lab	Maintenance of log book/ Skill station	3	General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH3.5	To prepare and explain a list of P-drugs for a given case/condition	S	P	Y	Skill station	Maintenance of log book	3	General Medicine	
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	A/C	SH	Y	Small group discussion	Skill station		General Medicine	
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	A/C	SH	Y	Small group discussion	Short note/ Viva voce		General Medicine	
Community Medicine									
CM3.1	Describe the health hazards of air, water, noise, radiation and pollution	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, ENT	
CM3.3	Describe the aetiology and basis of water borne diseases/jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Microbiology, General Medicine, Pediatrics	
CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP sessions	Skill Assessment		General Medicine, Pediatrics	
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM6.1	Formulate a research question for a study	K	KH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.2	Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.3	Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.4	Enumerate, discuss and demonstrate common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Y	Small group discussion, Lecture, DOAP sessions	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM7.1	Define Epidemiology and describe and enumerate the principles, concepts and uses	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM7.2	Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM7.3	Enumerate, describe and discuss the sources of epidemiological data	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM7.4	Define, calculate and interpret morbidity and mortality indicators based on given set of data	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.5	Enumerate, define, describe and discuss epidemiological study designs.	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine	
CM7.6	Enumerate and evaluate the need of screening tests	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	
CM7.7	Describe and demonstrate the steps in the Investigation of an epidemic of communicable disease and describe the principles of control measures.	S	SH	Y	Small group discussion, DOAP sessions	Written/ Skill assessment		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM7.8	Describe the principles of association, causation and biases in epidemiological studies	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology Pathology
CM8.2	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for Non Communicable diseases (diabetes, Hypertension, Stroke, obesity and cancer etc.)	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine	
CM8.3	Enumerate and describe disease-specific National Health Programs including their prevention and treatment of a case	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	
CM8.4	Describe the principles and enumerate the measures to control a disease epidemic	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	
CM8.5	Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM12.1	Define and describe the concept of Geriatric services	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM12.2	Describe health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM12.3	Describe the prevention of health problems of aged population	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM12.4	Describe National program for elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
CM13.1	Define and describe the concept of Disaster management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM13.2	Describe disaster management cycle	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
CM13.3	Describe man made disasters in the world and in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.4	Describe the details of the National Disaster management Authority	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
Forensic Medicine & Toxicology									
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially – maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. - documents of issuance of wound certificate - documents of issuance of drunkenness certificate. - documents of issuance of sickness and fitness certificate. - documents for issuance of death certificate. - documents of Medical Certification of Cause of Death - Form Number4 and 4A - documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	
FM2.34	Demonstrate ability to use local resources whenever required like in mass disaster situations	A & C	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, AETCOM	
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Medicine	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry, General Medicine	
FM8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India.	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/OSCE		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
FM8.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/Viva voce/OSCE		Pharmacology, General Medicine	
FM8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: Caustics Inorganic – sulphuric, nitric, and hydrochloric acids Organic- Carbolic Acid (phenol), Oxalic and acetylsalicylic acids .	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
FM9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepines, phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv. Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis vi. Gastro-Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pharmacology, General Medicine	
FM11.1	Describe features and management of Snake bite, scorpion sting, bee and wasp sting and spider bite	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/Viva voce		General Medicine	
FM12.1	Describe features and management of abuse/poisoning with following camicals: Tobacco, cannabis, amphetamines, cocaine, hallucinogens, designer drugs& solvent	K	K/KH	Y	Lecture, Small group discussion, Autopsy	Written/Viva voce		General Medicine	
FM13.1	Describe toxic pollution of environment, its medico-legal aspects & toxic hazards of occupation and industry	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
FM14.2	Demonstrate the correct technique of clinical examination in a suspected case of poisoning & prepare medico-legal report in a simulated/ supervised environment	S	SH	Y	Bedside clinic (ward/casualty), Small group discussion	Logbook Skill station/Viva voce/ OSCE		General Medicine	
FM14.3	Assist and demonstrate the proper technique in collecting, preserving and dispatch of the exhibits in a suspected case of poisoning, along with clinical examination .	S	SH	Y	Bedside clinic, Small group discussion/DOAP session	Skill lab/Viva voce		General Medicine	

Dermatology, Venereology & Leprosy

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR9.1	Classify, describe the epidemiology, etiology, microbiology pathogenesis and clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Microbiology, Community Medicine
DR9.2	Demonstrate (and classify based on) the clinical features of leprosy including an appropriate neurologic examination	S	SH	Y	Lecture, Small group discussion	Bedside clinic session/ Skill assessment		General Medicine	
DR9.4	Enumerate, describe and identify lepra reactions and supportive measures and therapy of lepra reactions	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on national guidelines	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on the WHO guidelines	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma.	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Psychiatry
DR10.1	Identify and classify syphilis based on the presentation and clinical manifestations	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Microbiology
DR10.4	Describe the prevention of congenital syphilis	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	
DR10.5	Counsel in a non-judgemental and empathetic manner patients on prevention of sexually transmitted diseases	C	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	
DR10.6	Describe the etiology, diagnostic and clinical features of non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR10.7	Identify and differentiate based on the clinical features non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Pharmacology, Microbiology
DR10.9	Describe the syndromic approach to ulcerative sexually transmitted disease	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	
DR10.10	Describe the etiology, diagnostic and clinical features and management of gonococcal and non gonococcal urethritis	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	
DR11.1	Describe the etiology, pathogenesis and clinical features of the dermatologic manifestations of HIV and its complications including opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		General Medicine	Microbiology
DR11.2	Identify and distinguish the dermatologic manifestations of HIV its complications, opportunistic infections and adverse reactions	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Microbiology
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Pathology, Microbiology
DR16.1	Identify and distinguish skin lesions of SLE	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Pathology
DR16.2	Identify and distinguish Raynaud's phenomenon	S	SH	Y	Lecture, Small group discussion	Skill assessment		General Medicine	Pathology
DR17.1	Enumerate and identify the cutaneous findings in vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion	Skill assessment/ Viva voce		General Medicine, Pediatrics, Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine, Pediatrics, Biochemistry	
DR18.1	Enumerate the cutaneous features of Type 2 diabetes	K	K	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
DR18.2	Enumerate the cutaneous features of hypo- & hyperthyroidism	K	K	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Anesthesiology									
AS2.1	Enumerate the indications, describe the steps and demonstrate in a simulated environment basic life support in adults children and neonates	S	SH	N	DOAP session	Skill assessment		General Medicine, Pediatrics	
AS2.2	Enumerate the indications, describe the steps and demonstrate in a simulated environment advanced life support in adults and children	S	SH	N	DOAP session	Skill assessment		General Medicine	
AS3.1	Describe the principles of preoperative evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery, General Medicine
AS3.2	Elicit, present and document an appropriate history including medication history in a patient undergoing Surgery as it pertains to a preoperative anaesthetic evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.3	Demonstrate and document an appropriate clinical examination in a patient undergoing General Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AS3.4	Choose and interpret appropriate testing for patients undergoing Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.5	Determine the readiness for General Surgery in a patient based on the preoperative evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS7.2	Enumerate and describe the criteria for admission and discharge of a patient to an ICU	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Medicine
AS7.3	Observe and describe the management of an unconscious patient	S	KH	Y	Lecture, Small group discussion DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.4	Observe and describe the basic setup process of a ventilator	S	KH	Y	Lecture, Small group discussion DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.5	Observe and describe the principles of monitoring in an ICU	S	KH	Y	Lecture, Small group discussion DOAP session	Written/ Viva voce			General Medicine
AS8.4	Describe the principles of pain management in palliative care	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
AS8.5	Describe the principles of pain management in the terminally ill	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
AS10.4	Define and describe common medical and medication errors in anaesthesia	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
Otorhinolaryngology (ENT)									
EN4.53	Describe the Clinical features, Investigations and principles of management of HIV manifestations of the ENT	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Ophthalmology									
OP5.2	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features, complications, indications for referral and management of scleritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
OP6.3	Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
OP9.3	Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Dentistry									
DE1.4	Discuss the role of dental caries as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, General Medicine	
Psychiatry									
PS3.7	Enumerate and describe common organic psychiatric disorders, magnitude, etiology and clinical features	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS3.8	Enumerate and describe the essential investigations in patients with organic psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS4.1	Describe the magnitude and etiology of alcohol and substance use disorders	K	KH	Y	Lecture, Small group discussion	Lecture/ Small group discussion			General Medicine
PS4.2	Elicit, describe and document clinical features of alcohol and substance use disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS4.3	Enumerate and describe the indications and interpret laboratory and other tests used in alcohol and substance abuse disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS4.4	Describe the treatment of alcohol and substance abuse disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PS4.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in alcohol and substance abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.1	Enumerate and describe the magnitude and etiology of somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS10.2	Enumerate, elicit, describe and document clinical features in patients with somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.3	Enumerate and describe the indications and interpret laboratory and other tests used in somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.4	Describe the treatment of somatoform disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS12.1	Enumerate and describe the magnitude and etiology of psychosomatic disorders	K	KH	Y	Lecture Small group discussion	Written/ Viva voce			General Medicine
PS12.2	Enumerate, elicit, describe and document clinical features in patients with magnitude and etiology of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.3	Enumerate and describe the indications and interpret laboratory and other tests of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.4	Describe the treatment of psychosomatic disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS16.1	Enumerate and describe common psychiatric disorders in the elderly including dementia, depression and psychosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS16.2	Describe the aetiology and magnitude of psychiatric illness in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS16.3	Describe the therapy of psychiatric illness in elderly including psychosocial and behavioural therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PS16.4	Demonstrate family education in a patient with psychiatric disorders occurring in the elderly in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
Obstetrics & Gynaecology									
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations; principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.2	Define, Classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.3	Define, Classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.5	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management in pregnancy of urinary tract infections	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.6	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management in pregnancy of liver disease	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.7	Describe and discuss Screening, risk factors, management of mother and newborn with HIV	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
Pediatrics									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE14.3	Discuss the risk factors, clinical features, diagnosis and management of Organophosphorous poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PE32.3	Interpret normal Karyotype and recognize Trisomy 21	S	SH	Y	Bedside clinics, Skills lab	Log book			General Medicine
PE32.9	Discuss the referral criteria and multidisciplinary approach to management of Turner Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynecology
General Surgery									
SU22.6	Describe and discuss the clinical features of hypo- & hyperparathyroidism and the principles of their management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
SU23.2	Describe the etiology, clinical features and principles of management of disorders of adrenal gland	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Orthopaedics									
OR5.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of various inflammatory disorder of joints	K	K/KH	Y	Lecture, Small group Discussion, Bedside clinic	Written/ Viva voce OSCE			General Medicine
OR11.1	Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture Small Group discussion, case discussion	Written/ Viva voce OSCE		Human Anatomy	General Medicine, General surgery
Physical Medicine & Rehabilitation									
PM1.2	Define and describe disability, its cause, and magnitude, identification and prevention of disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM1.3	Define and describe the methods to identify and prevent disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PM1.4	Enumerate the rights and entitlements of differently abled persons	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM2.1	Describe the causes of disability in the patient with a cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	General Medicine
PM2.2	Describe and discuss the treatment of rigidity and spasticity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.3	Describe and discuss the principles of early mobilizations, mobility aids and splints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.4	Describe and discuss the impact of comorbidities on the rehabilitation of the patient with cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM4.1	Describe the common patterns, clinical features, investigations, diagnosis and treatment of common causes of arthritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			General Medicine Orthopedics
PM6.1	Perform and demonstrate a clinical examination of sensory and motor deficits of peripheral nerve	S	SH	Y	Bedside clinic	Skill assessment			General Medicine
PM6.2	Enumerate the indications and describe the principles of nerve conduction velocity and EMG	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM7.4	Assess bowel and bladder function and identify common patterns of bladder dysfunction	S	KH	Y	Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM7.6	Enumerate the indications and describe the pharmacology and side effects of commonly used drugs in neuropathic bladder	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein Thrombosis, Aspiration Pneumonia, Autonomic dysreflexia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/ N	Suggested Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics General Surgery
PM8.2	Describe and discuss cognitive dysfunction like deficits in attention, memory and communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.3	Describe and discuss common behavior and mood changes following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.4	Describe metabolic co-morbidities like SIADH, diabetes mellitus, insipidus and endocrine dysfunction following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.5	Describe the Vocational opportunities and community based rehabilitation following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM 9.1	Describe rehabilitative aspects as they pertain to the elderly including patients with dementia, depression, incontinence immobility and nutritional needs	K	KH	Y	Lecture, Small group	Written Viva voce			General Medicine Psychiatry
Radiotherapy									
RT1.3	Enumerate, describe and discuss classification and staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery General Medicine

RESPIRATORY MEDICINE (CODE: CT)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
RESPIRATORY MEDICINE									
Topic:Tuberculosis		Number of competencies: (19)			Number of procedures that require certification : (01)				
CT1.1	Describe and discuss the epidemiology of tuberculosis and its impact on the work, life and economy of India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
CT1.2	Describe and discuss the microbiology of tubercle bacillus, mode of transmission, pathogenesis, clinical evolution and natural history of pulmonary and extra pulmonary forms (including lymph node, bone and CNS)	K	KH	Y	Lecture, Small group discussion	written		Microbiology	
CT1.3	Discuss and describe the impact of co-infection with HIV and other co-morbid conditions. Like diabetes on the natural history of tuberculosis	K	K	Y	Lecture, Small group discussion	written		Microbiology	
CT1.4	Describe the epidemiology, the predisposing factors and microbial and therapeutic factors that determine resistance to drugs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Pharmacology	
CT1.5	Elicit, document and present an appropriate medical history that includes risk factor, contacts, symptoms including cough and fever CNS and other manifestations	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
CT1.6	Demonstrate and perform a systematic examination that establishes the diagnosis based on the clinical presentation that includes a a) general examination, b) examination of the chest and lung including loss of volume, mediastinal shift, percussion and auscultation (including DOAP session of lung sounds and added sounds) c) examination of the lymphatic system and d) relevant CNS examination	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
CT1.7	Perform and interpret a PPD (mantoux) and describe and discuss the indications and pitfalls of the test	S	P	Y	DOAP session	Maintenance of log book		Microbiology	
CT1.8	Generate a differential diagnosis based on the clinical history and evolution of the disease that prioritises the most likely diagnosis	K	K	Y	Bedside clinic, Small group discussion	Bedside clinic/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT1.9	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing	K	K	Y	Bedside clinic, DOAP session	Skill assessment			
CT1.10	Perform and interpret an AFB stain	S	P	Y	DOAP session	Skill assessment	1	Microbiology	
CT1.11	Assist in the performance, outline the correct tests that require to be performed and interpret the results of a pleural fluid aspiration	S	SH	Y	Skill assessment	Skill assessment			
CT1.12	Enumerate the indications for tests including: serology, special cultures and polymerase chain reaction and sensitivity testing	K	KH	Y	Small group discussion, Lecture	Short note/ Viva voce		Microbiology	
CT1.13	Describe and discuss the origin, indications, technique of administration, efficacy and complications of the BCG vaccine	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Microbiology	
CT1.14	Describe and discuss the pharmacology of various anti-tuberculous agents, their indications, contraindications, interactions and adverse reactions	K	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	
CT1.15	Prescribe an appropriate antituberculosis regimen based on the location of disease, smear positivity and negativity and co-morbidities based on current national guidelines including directly observed tuberculosis therapy (DOTS)	K	SH	Y	Bedside clinic, Small group discussion, Lecture	Skill assessment		Pharmacology, Community Medicine	
CT1.16	Describe the appropriate precautions, screening, testing and indications for chemoprophylaxis for contacts and exposed health care workers	K	KH	Y	Bedside clinic, Small group discussion	Written		Community Medicine	
CT1.17	Define criteria for the cure of Tuberculosis; describe and recognise the features of drug resistant tuberculosis, prevention and therapeutic regimens	S	P	Y	Lecture, Small group discussion	Written			
CT1.18	Educate health care workers on National Program of Tuberculosis and administering and monitoring the DOTS program	C	SH	Y	DOAP session	Skill assessment		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT1.19	Communicate with patients and family in an empathetic manner about the diagnosis, therapy	S	P	Y	DOAP session	Skill assessment		AETCOM	
Topic: Obstructive airway disease Number of competencies: (28) Number of procedures that require certification : (01)									
CT2.1	Define and classify obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.2	Describe and discuss the epidemiology, risk factors and evolution of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology , Pathology	
CT2.3	Enumerate and describe the causes of acute episodes in patients with obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
CT2.4	Describe and discuss the physiology and pathophysiology of hypoxia and hypercapnea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.5	Describe and discuss the genetics of alpha 1 antitrypsin deficiency in emphysema	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
CT2.6	Describe the role of the environment in the cause and exacerbation of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
CT2.7	Describe and discuss allergic and non-allergic precipitants of obstructive airway disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
CT2.8	Elicit document and present a medical history that will differentiate the aetiologies of obstructive airway disease, severity and precipitants	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
CT2.9	Perform a systematic examination that establishes the diagnosis and severity that includes measurement of respiratory rate, level of respiratory distress, effort tolerance, breath sounds, added sounds, identification of signs of consolidation pleural effusion and pneumothorax	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT2.10	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	S	SH	Y	Bed side clinic, DOAP session	Skill assessment/ Written			
CT2.11	Describe, discuss and interpret pulmonary function tests	S	SH	Y	Bed side clinic, DOAP session	Skill assessment		Physiology, Pathology	
CT2.12	Perform and interpret peak expiratory flow rate	S	P	Y	Bedside clinic, DOAP session	documentation in log book/ Skill assessment	3		
CT2.13	Describe the appropriate diagnostic work up based on the presumed aetiology	S	SH	Y	Bedside clinic, Small group discussion	Written/ Skill assessment			
CT2.14	Enumerate the indications for and interpret the results of : pulse oximetry, ABG, Chest Radiograph	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			
CT2.15	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			
CT2.16	Discuss and describe therapies for OAD including bronchodilators, leukotriene inhibitors, mast cell stabilisers, theophylline, inhaled and systemic steroids, oxygen and immunotherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
CT2.17	Describe and discuss the indications for vaccinations in OAD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
CT2.18	Develop a therapeutic plan including use of bronchodilators and inhaled corticosteroids	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
CT2.19	Develop a management plan for acute exacerbations including bronchodilators, systemic steroids, antimicrobial therapy	K	SH	Y	Bedside clinics, Small group discussion, DOAP session	Written/ Skill assessment			
CT2.20	Describe and discuss the principles and use of oxygen therapy in the hospital and at home	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
CT2.21	Describe discuss and counsel patients appropriately on smoking cessation	K/C	SH	Y	DOAP session	Skill assessment		AETCOM	
CT2.22	Demonstrate and counsel patient on the correct use of inhalers	S/C	SH	Y	DOAP session	Skill assessment			
CT2.23	Communicate diagnosis treatment plan and subsequent follow up plan to patients	K/C	SH	Y	DOAP session	Skill assessment			
CT2.24	Recognise the impact of OAD on patient's quality of life, well being, work and family	A	KH	Y	Small group discussion, Bedside clinics	Observation by faculty		Community Medicine	
CT2.25	Discuss and describe the impact of OAD on the society and workplace	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
CT2.26	Discuss and describe preventive measures to reduce OAD in workplaces	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
CT2.27	Demonstrate an understanding of patient's inability to change working, living and environmental factors that influence progression of airway disease	A	KH	Y	Small group discussion, Bedside clinics	Observation by faculty		Community Medicine	
CT2.28	Demonstrate an understanding for the difficulties faced by patients during smoking cessation	A	KH	Y	Small group discussion, Bedside clinics	Observation by faculty			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Integration									
Physiology									
PY6.8	Demonstrate the correct technique to perform & interpret Spirometry	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce		Respiratory Medicine	
Pharmacology									
PH1.32	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.44	Describe the first line antitubercular drugs, their mechanisms of action, side effects and doses.	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
General Medicine									
IM24.10	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of COPD in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Respiratory Medicine
Pediatrics									
PE28.19	Describe the etio-pathogenesis, clinical features, diagnosis, management and prevention of asthma in children	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skill Assessment/ Written/ Viva voce		Respiratory Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.20	Counsel the child with asthma on the correct use of inhalers in a simulated environment	S	P	Y	Bedside clinics, Small group discussion, Lecture	Skills Assessment/ Written/ Viva voce	3	Respiratory Medicine	
PE34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.5	Able to elicit, document and present history of contact with tuberculosis in every patient encounter	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			Respiratory Medicine
PE34.6	Identify a BCG scar	S	P	Y	Bed side clinics, Skills lab	Skill Assessment	3	Microbiology	Respiratory Medicine
PE34.7	Interpret a Mantoux test	S	P	Y	Bed side clinics Skills lab	Skill assessment	3	Microbiology	Respiratory Medicine
PE34.8	Interpret a Chest Radiograph	S	SH	Y	Bedside clinics Skills lab	Skill assessment		Radiodiagnosis	Respiratory Medicine
PE34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	SH	N	Bed side clinics, Small group discussion	Log book		Microbiolgy	Respiratory Medicine
PE34.10	Discuss the various samples for demonstraing the organism eg Gastric Aspirate, Sputum , CSF, FNAC	K	KH	Y	Bed side clinics, Small group discussion	Written/ Viva voce		Microbiolgy	Respiratory Medicine
PE34.11	Perform AFB staining	S	P	Y	DOAP session	Log book/Journal	3	Microbiology	Respiratory Medicine
PE34.12	Enumerate the indications and discuss the limitations of methods of culturing M.Tuberculi	K	KH	Y	Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine

PEDIATRICS (CODE: PE)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PEDIATRICS									
Topic: Normal Growth and Development Number of competencies : (07) Number of procedures that require certification: (02)									
PE1.1	Define the terminologies Growth and development and discuss the factors affecting normal growth and development	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE1.2	Discuss and describe the patterns of growth in infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.3	Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical growth in infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.4	Perform Anthropometric measurements, document in growth charts and interpret	S	P	Y	Small group discussion	Document in Log book	3		
PE1.5	Define development and discuss the normal developmental mile stones with respect to motor, behaviour, social, adaptive and language	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.6	Discuss the methods of assessment of development	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE1.7	Perform Developmental assessment and interpret	S	P	N	Bedside clinics, Skills Lab	Document in Log book	3		
Topic: Common problems related to Growth Number of competencies:(06) Number of procedures that require certification: (NIL)									
PE2.1	Discuss the etio-pathogenesis, clinical features and management of a child who fails to thrive	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE2.2	Assessment of a child with failing to thrive including eliciting an appropriate history and examination	S	SH	Y	Bedside clinics	Skills Station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE2.3	Counselling a parent with failing to thrive child	A/C	SH	Y	OSPE	Document in Log book		AETCOM	
PE2.4	Discuss the etio-pathogenesis, clinical features and management of a child with short stature	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE2.5	Assessment of a child with short stature: Elicit history, perform examination, document and present	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			
PE2.6	Enumerate the referral criteria for growth related problems	K	K	Y	Small group discussion	Written/ Viva voce			
Topic: Common problems related to Development -1 (Developmental delay , Cerebral palsy) Number of competencies:(08) Number of procedures that require certification: (NIL)									
PE3.1	Define, enumerate and discuss the causes of developmental delay and disability including intellectual disability in children	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE3.2	Discuss the approach to a child with developmental delay	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE3.3	Assessment of a child with developmental delay - Elicit document and present history	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE3.4	Counsel a parent of a child with developmental delay	S	SH	Y	DOAP session	Document in Log Book			
PE3.5	Discuss the role of the child developmental unit in management of developmental delay	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE3.6	Discuss the referral criteria for children with developmental delay	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE3.7	Visit a Child Developmental Unit and observe its functioning	S	KH	Y	Lecture, Small group discussion	Log book Entry		Community Medicine	
PE3.8	Discuss the etio-pathogenesis, clinical presentation and multi-disciplinary approach in the management of Cerebral palsy	K	KH	Y	Lecture, Small group, Bedside clinics	Written/ Viva voce			Physical Medicine & Rehabilitation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Common problems related to Development-2 (Scholastic backwardness, Learning Disabilities , Autism , ADHD) Number of competencies: (06) Number of procedures that require certification: (NIL)									
PE4.1	Discuss the causes and approach to a child with scholastic backwardness	K	K	N	Lecture, Small group discussion	Written			
PE4.2	Discuss the etiology, clinical features, diagnosis and management of a child with Learning Disabilities	K	K	N	Lecture, Small group discussion	Written			
PE4.3	Discuss the etiology, clinical features, diagnosis and management of a child with Attention Deficit Hyperactivity Disorder (ADHD)	K	K	N	Lecture, Small group discussion	Written			
PE4.4	Discuss the etiology, clinical features, diagnosis and management of a child with Autism	K	K	N	Lecture, Small group discussion	Written			
PE4.5	Discuss the role of Child Guidance clinic in children with Developmental problems	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
PE4.6	Visit to the Child Guidance Clinic	S	KH	N	Lecture, Small group discussion	Document in Log Book			
Topic: Common problems related to behavior Number of competencies: (11) Number of procedures that require certification: (NIL)									
PE5.1	Describe the clinical features, diagnosis and management of thumb sucking	K	K	N	Lecture, Small group discussion	Written			
PE5.2	Describe the clinical features, diagnosis and management of Feeding problems	K	K	N	Lecture, Small group discussion	Written			
PE5.3	Describe the clinical features, diagnosis and management of nail biting	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.4	Describe the clinical features, diagnosis and management of Breath Holding spells	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE5.5	Describe the clinical features, diagnosis and management of temper tantrums	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.6	Describe the clinical features, diagnosis and management of Pica	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.7	Describe the clinical features, diagnosis and management of Fussy infant	K	K	N	Lecture, Small group discussion	Written			Psychiatry
PE5.8	Discuss the etiology, clinical features and management of Enuresis	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.9	Discuss the etiology, clinical features and management of Encopresis	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE5.10	Discuss the role of child guidance clinic in children with behavioural problems and the referral criteria	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.11	Visit to Child Guidance Clinic and observe functioning	K	KH	N	Lecture, Small group discussion	Document in Log Book			
Topic: Adolescent Health & common problems related to Adolescent Health Number of competencies: (13) Number of procedures that require certification: (NIL)									
PE6.1	Define Adolescence and stages of adolescence	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE6.2	Describe the physical, physiological and psychological changes during adolescence (Puberty)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.3	Discuss the general health problems during adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE6.4	Describe adolescent sexuality and common problems related to it	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.5	Explain the Adolescent Nutrition and common nutritional problems	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE6.6	Discuss the common Adolescent eating disorders (Anorexia Nervosa, Bulimia)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.7	Describe the common mental health problems during adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.8	Respecting patient privacy and maintaining confidentiality while dealing with adolescence	A	SH	Y	Bedside clinics	Document in log book			AETCOM
PE6.9	Perform routine Adolescent Health check up including eliciting history, performing examination including SMR (Sexual Maturity Rating), growth assessments (using Growth charts) and systemic exam including thyroid and Breast exam and the HEADSS screening	S	SH	Y	Bedside clinics	Skills station			
PE6.10	Discuss the objectives and functions of AFHS (Adolescent Friendly Health Services) and the referral criteria	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE6.11	Visit to the Adolescent Clinic	S	KH	Y	DOAP session	Document in Log Book			
PE6.12	Enumerate the importance of obesity and other NCD in adolescents	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE6.13	Enumerate the prevalence and the importance of recognition of sexual drug abuse in adolescents and children	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
Topic: To promote and support optimal Breast feeding for Infants Number of competencies: (11) Number of procedures that require certification: (01)									
PE7.1	Awareness on the cultural beliefs and practices of breast feeding	K	K	N	Lecture, Small group discussion	Viva			Obstetrics & Gynaecology
PE7.2	Explain the physiology of lactation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE7.3	Describe the composition and types of breast milk and discuss the differences between cow's milk and Human milk	K	KH	Y	Lecture, debate	Written/ Viva voce		Physiology	
PE7.4	Discuss the advantages of breast milk	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE7.5	Observe the correct technique of breast feeding and distinguish right from wrong techniques	S	P	Y	Bedside clinics, Skills lab	Skill Assessment	3		
PE7.6	Enumerate the baby friendly hospital initiatives	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE7.7	Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess	S	SH	Y	Bedside clinics, Skill Lab	Skill Assessment			Obstetrics & Gynaecology, AETCOM
PE7.8	Educate mothers on ante natal breast care and prepare mothers for lactation	A/C	SH	Y	DOAP session	Document in Log Book			AETCOM
PE7.9	Educate and counsel mothers for best practices in Breast feeding	A/C	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology, AETCOM
PE7.10	Respects patient privacy	A	SH	Y	DOAP session	Document in Log Book			AETCOM
PE7.11	Participate in Breast Feeding Week Celebration	A	SH	Y	DOAP session	Document in Log Book			
Topic: Complementary Feeding Number of competencies : (05) Number of procedures that require certification: (NIL)									
PE8.1	Define the term Complementary Feeding	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE8.2	Discuss the principles, the initiation, attributes, frequency, techniques and hygiene related to Complementary Feeding including IYCF	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE8.3	Enumerate the common complimentary foods	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE8.4	Elicit history on the Complementary Feeding habits	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Community Medicine	
PE8.5	Counsel and educate mothers on the best practices in Complimentary Feeding	A/C	SH	Y	DOAP session	Document in Log Book		Community Medicine	

Topic: Normal nutrition, assessment and monitoring

Numbcompetencies : (07)

Number of procedures that require certification: (NIL)

PE9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Biochemistry	
PE9.2	Describe the tools and methods for assessment and classification of nutritional status of infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE9.3	Explains the Calorific value of common Indian foods	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE9.4	Elicit document and present an appropriate nutritional history and perform a dietary recall	S	SH	Y	Bedside clinic, Skills lab	Skill Assessment		Community Medicine	
PE9.5	Calculate the age related calorie requirement in Health and Disease and identify gap	S	SH	Y	Bedside clinics, Small group discussion	Skill assessment		Community Medicine	
PE9.6	Assess and classify the nutrition status of infants, children and adolescents and recognize deviations	S	SH	Y	Bedside clinic, Small group discussion	Skill Assessment		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE9.7	Plan an appropriate diet in health and disease	S	SH	N	Bedside clinic, Small group discussion	Document in logbook		Community Medicine	
Topic: Provide nutritional support , assessment and monitoring for common nutritional problems Number of competencies: (06) Number of procedures that require certification: (NIL)									
PE10.1	Define and describe the etio-pathogenesis, classify including WHO classification, clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
PE10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bedside clinics, Skills lab	Skill station		Physiology, Biochemistry	
PE10.4	Identify children with under nutrition as per IMNCI criteria and plan referral	S	SH	Y	DOAP session	Document in log book		Community Medicine	
PE10.5	Counsel parents of children with SAM and MAM	S	SH	Y	Bedside clinic, Skills Station	Document in Log book		AETCOM	
PE10.6	Enumerate the role of locally prepared therapeutic diets and ready to use therapeutic diets	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Obesity in children Number of competencies: (06) Number of procedures that require certification: (01)									
PE11.1	Describe the common etiology, clinical features and management of obesity in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE11.2	Discuss the risk approach for obesity and discuss the prevention strategies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE11.3	Assessment of a child with obesity with regard to eliciting history including physical activity, charting and dietary recall	S	SH	Y	Bedside clinics, Standardized patients	Document in log book			
PE11.4	Examination including calculation of BMI, measurement of waist hip ratio, identifying external markers like acanthosis, striae, pseudogynaecomastia etc	S	SH	Y	Bedside clinics, Standardized patients, Videos	Skills Station			
PE11.5	Calculate BMI, document in BMI chart and interpret	S	P	Y	Bedside clinics, Small group discussion	Document in log book	3		
PE11.6	Discuss criteria for referral	K	K	Y	Small group discussion	Viva voce			
Topic: Micronutrients in Health and disease-1 (Vitamins ADEK, B Complex and C) Number of competencies: (21) Number of procedures that require certification: (NIL)									
PE12.1	Discuss the RDA, dietary sources of Vitamin A and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.2	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin A	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.3	Identify the clinical features of dietary deficiency / excess of Vitamin A	S	SH	Y	Bedside clinics, Small group discussion	Document in log book		Biochemistry	
PE12.4	Diagnose patients with Vitamin A deficiency, classify and plan management	S	SH	N	Bedside clinics, Skill Station	Document in log book		Biochemistry	
PE12.5	Discuss the Vitamin A prophylaxis program and their recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE12.6	Discuss the RDA, dietary sources of Vitamin D and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.7	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin D (Rickets and Hypervitaminosis D)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.8	Identify the clinical features of dietary deficiency of Vitamin D	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry, Physiology, Pathology	
PE12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management	S	SH	Y	Bedside clinics	Document in log book		Biochemistry, Physiology, Pathology	
PE12.10	Discuss the role of screening for Vitamin D deficiency	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE12.11	Discuss the RDA, dietary sources of Vitamin E and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.12	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin E	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.13	Discuss the RDA, dietary sources of Vitamin K and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.14	Describe the causes, clinical features, diagnosis management and prevention of deficiency of Vitamin K	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Physiology, Pathology	
PE12.15	Discuss the RDA, dietary sources of Vitamin B and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.16	Describe the causes, clinical features, diagnosis and management of deficiency of B complex Vitamins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE12.17	Identify the clinical features of Vitamin B complex deficiency	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry	
PE12.18	Diagnose patients with Vitamin B complex deficiency and plan management	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Biochemistry	
PE12.19	Discuss the RDA , dietary sources of Vitamin C and their role in Health and disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.20	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin C (scurvy)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE12.21	Identify the clinical features of Vitamin C deficiency	S	SH	N	Bedside clinics, Skill lab	Document in log book		Biochemistry	
Topic: Micronutrients in Health and disease -2: Iron, Iodine, Calcium, Magnesium Number of competencies: (14) Number of procedures that require certification: (NIL)									
PE13.1	Discuss the RDA, dietary sources of Iron and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.2	Describe the causes, diagnosis and management of Fe deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Biochemistry	
PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	S	SH	Y	Bedside clinics, Skills lab	Document in log book		Pathology, Biochemistry	
PE13.4	Interpret hemogram and Iron Panel	S	SH	Y	Bedside clinic, Small group discussion	Skill Assessment		Pathology, Biochemistry	
PE13.5	Propose a management plan for Fe deficiency anaemia	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Pathology, Pharmacology	
PE13.6	Discuss the National anaemia control program and its recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE13.7	Discuss the RDA , dietary sources of Iodine and their role in Health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.8	Describe the causes, diagnosis and management of deficiency of Iodine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.9	Identify the clinical features of Iodine deficiency disorders	S	SH	N	Lecture, Bedside clinic	Written/ Viva voce		Biochemistry	
PE13.10	Discuss the National Goiter Control program and their recommendations	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Community Medicine	
PE13.11	Discuss the RDA, dietary sources of Calcium and their role in health and disease	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.12	Describe the causes, clinical features, diagnosis and management of Ca Deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.13	Discuss the RDA, dietary sources of Magnesium and their role in health and disease	K	K	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PE13.14	Describe the causes, clinical features, diagnosis and management of Magnesium Deficiency	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
Topic: Toxic elements and free radicals and oxygen toxicity Number of competencies: (05) Number of procedures that require certification (NIL)									
PE14.1	Discuss the risk factors, clinical features, diagnosis and management of Lead Poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PE14.2	Discuss the risk factors, clinical features, diagnosis and management of Kerosene ingestion	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE14.3	Discuss the risk factors, clinical features, diagnosis and management of Organophosphorous poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE14.4	Discuss the risk factors, clinical features, diagnosis and management of paracetamol poisoning	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PE14.5	Discuss the risk factors, clinical features, diagnosis and management of Oxygen toxicity	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Fluid and electrolyte balance Number of competencies:(07) Number of procedures that require certification:(NIL)									
PE15.1	Discuss the fluid and electrolyte requirement in health and disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE15.2	Discuss the clinical features and complications of fluid and electrolyte imbalance and outline the management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE15.3	Calculate the fluid and electrolyte requirement in health	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE15.4	Interpret electrolyte report	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE15.5	Calculate fluid and electrolyte imbalance	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE15.6	Demonstrate the steps of inserting an IV cannula in a model	S	SH	Y	Skills Lab	mannequin			
PE15.7	Demonstrate the steps of inserting an interosseous line in a mannequin	S	SH	Y	Skills Lab	mannequin			
Topic: Integrated Management of Neonatal and Childhood Illnesses (IMNCI) Guideline Number of competencies:(03) Number of procedures that require certification: (NIL)									
PE16.1	Explain the components of Integrated Management of Neonatal and Childhood Illnesses (IMNCI) guidelines and method of Risk stratification	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE16.2	Assess children <2 months using IMNCI Guidelines	S	SH	Y	DOAP session	Document in log Book			
PE16.3	Assess children >2 to 5 years using IMNCI guidelines and Stratify Risk	S	SH	Y	DOAP session	Document in log Book			
Topic: The National Health programs, NHM Number of competencies:(02) Number of procedures that require certification: (NIL)									
PE17.1	State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCH A+, RBSK, RKSK, JSSK mission Indradhanush and ICDS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE17.2	Analyse the outcomes and appraise the monitoring and evaluation of NHM	K	KH	Y	Debate	Written/ Viva voce		Community Medicine	
Topic: The National Health Programs: RCH Number of competencies: (08) Number of procedures that require certification: (NIL)									
PE18.1	List and explain the components, plan, outcome of Reproductive Child Health (RCH) program and appraise its monitoring and evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.2	Explain preventive interventions for child survival and safe motherhood	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bedside clinics	Skill station		Community Medicine	Obstetrics & Gynaecology
PE18.4	Provide intra-natal care and conduct a normal delivery in a simulated environment	S	SH	Y	DOAP session, Skills lab	Document in Log Book		Community Medicine	Obstetrics & Gynaecology
PE18.5	Provide intra-natal care and observe the conduct of a normal delivery	S	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bed side clinics, Skill Lab	Skill Assessment		Community Medicine	Obstetrics & Gynaecology
PE18.7	Educate and counsel caregivers of children	A	SH	Y	Postnatal ward, standardized patient	Skill Assessment		AETCOM	
PE18.8	Observe the implementation of the program by visiting the Rural Health Centre	S	KH	Y	Bed side clinics, Skill Lab	Document in log book		Community Medicine	Obstetrics & Gynaecology
Topic: National Programs, RCH - Universal Immunizations program Number of competencies: (16) Number of procedures that require certification: (01)									
PE19.1	Explain the components of the Universal Immunization Program and the National Immunization Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.2	Explain the epidemiology of Vaccine preventable diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.3	Vaccine description with regard to classification of vaccines, strain used, dose, route, schedule, risks, benefits and side effects, indications and contraindications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, pre-term, organ transplants, those who received blood and blood products, splenectomised children, adolescents, travellers	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine, Microbiology, Biochemistry	
PE19.6	Assess patient for fitness for immunization and prescribe an age appropriate immunization schedule	S	P	Y	Out Patient clinics Skills lab	Skill Assessment	5		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE19.7	Educate and counsel a patient for immunization	A/C	SH	Y	DOAP session	Document in Log Book			
PE19.8	Demonstrate willingness to participate in the National and sub national immunisation days	A	SH	Y	Lecture, Small group discussion	Document in Log Book		Community Medicine	
PE19.9	Describe the components of safe vaccine practice – Patient education/ counselling; adverse events following immunization, safe injection practices, documentation and Medico-legal implications	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			AETCOM
PE19.10	Observe the handling and storing of vaccines	S	SH	Y	DOAP session	Written/ Viva voce			
PE19.11	Document Immunization in an immunization record	S	SH	Y	Out Patient clinics, Skills lab	Skill assessment			
PE19.12	Observe the administration of UIP vaccines	S	SH	Y	DOAP session	Document in Log Book		Community Medicine	
PE19.13	Demonstrate the correct administration of different vaccines in a mannequin	S	SH	Y	DOAP session	Document in Log Book			
PE19.14	Practice Infection control measures and appropriate handling of the sharps	S	SH	Y	DOAP session	Document in Log Book			
PE19.15	Explain the term implied consent in Immunization services	K	K	Y	Small group discussion	Written/ Viva voce			
PE19.16	Enumerate available newer vaccines and their indications including pentavalent pneumococcal, rotavirus, JE, typhoid IPV & HPV	K	K	N	Lecture, Small group discussion	Written/ Viva voce			

Topic: Care of the Normal New born, and High risk New born

Number of competencies: (20)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE20.1	Define the common neonatal nomenclatures including the classification and describe the characteristics of a Normal Term Neonate and High Risk Neonates	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.2	Explain the care of a normal neonate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.3	Perform Neonatal resuscitation in a manikin	S	SH	Y	DOAP session	Log book entry of Performance			
PE20.4	Assessment of a normal neonate	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE20.5	Counsel / educate mothers on the care of neonates	A/C	SH	Y	DOAP session	Log book documentation			
PE20.6	Explain the follow up care for neonates including Breast Feeding, Temperature maintenance, immunization, importance of growth monitoring and red flags	S	SH	Y	DOAP session	Log book entry			Obstetrics & Gynaecology
PE20.7	Discuss the etiology, clinical features and management of Birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.8	Discuss the etiology, clinical features and management of respiratory distress in New born including meconium aspiration and transient tachypnoea of newborn	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.9	Discuss the etiology, clinical features and management of Birth injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.10	Discuss the etiology, clinical features and management of Hemorrhagic disease of New born	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE20.11	Discuss the clinical characteristics, complications and management of Low birth weight (preterm and Small for gestation)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.12	Discuss the temperature regulation in neonates, clinical features and management of Neonatal Hypothermia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.13	Discuss the temperature regulation in neonates, clinical features and management of Neonatal Hypoglycemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.14	Discuss the etiology, clinical features and management of Neonatal hypocalcemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.15	Discuss the etiology, clinical features and management of Neonatal seizures	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.16	Discuss the etiology, clinical features and management of Neonatal Sepsis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.17	Discuss the etiology, clinical features and management of Perinatal infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.18	Identify and stratify risk in a sick neonate using IMNCI guidelines	S	SH	Y	DOAP session	Document in Log Book			
PE20.19	Discuss the etiology, clinical features and management of Neonatal hyperbilirubinemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE20.20	Identify clinical presentations of common surgical conditions in the new born including TEF, esophageal atresia, anal atresia, cleft lip and palate, congenital diaphragmatic hernia and causes of acute abdomen	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Genito-Urinary system Number of competencies: (17) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE21.1	Enumerate the etio-pathogenesis, clinical features, complications and management of Urinary Tract infection in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE21.2	Enumerate the etio-pathogenesis, clinical features, complications and management of acute post-streptococcal Glomerular Nephritis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.3	Discuss the approach and referral criteria to a child with Proteinuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.4	Discuss the approach and referral criteria to a child with Hematuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
PE21.5	Enumerate the etio-pathogenesis, clinical features, complications and management of Acute Renal Failure in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.6	Enumerate the etio-pathogenesis, clinical features, complications and management of Chronic Renal Failure in Children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.7	Enumerate the etio-pathogenesis, clinical features, complications and management of Wilms Tumor	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE21.8	Elicit, document and present a history pertaining to diseases of the Genitourinary tract	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			General Surgery
PE21.9	Identify external markers for Kidney disease, like Failing to thrive, hypertension, pallor, Ichthyosis, anasarca	S	SH	Y	Bedside clinics, Skills lab	Document in log book			
PE21.10	Analyse symptom and interpret the physical findings and arrive at an appropriate provisional / differential diagnosis	S	SH	Y	Bedside clinics, Skills lab	Log book			
PE21.11	Perform and interpret the common analytes in a Urine examination	S	SH	Y	Bedside clinics, Skills lab	Skill assessment		Biochemistry, Pathology	
PE21.12	Interpret report of Plain X Ray of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE21.13	Enumerate the indications for and Interpret the written report of Ultra sonogram of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	
PE21.14	Recognize common surgical conditions of the abdomen and genitourinary system and enumerate the indications for referral including acute and subacute intestinal obstruction, appendicitis, pancreatitis, perforation intussusception, Phimosis, undescended testis, Chordee, hypospadiasis, Torsion testis, hernia Hydrocele, Vulval Synechiae	S	SH	Y	Bedside clinics, Skills lab	Log book assessment			General Surgery
PE21.15	Discuss and enumerate the referral criteria for children with genitourinary disorder	S	SH	Y	Bedside clinics, Skills lab	Log book assessment			
PE21.16	Counsel / educate a patient for referral appropriately	A/C	SH	Y	DOAP session	Document in Log book		AETCOM	
PE21.17	Describe the etiopathogenesis, grading, clinical features and management of hypertension in children	K	KH	Y	Lecture, Small group discussion	Short notes			
Topic: Approach to and recognition of a child with possible Rheumatologic problem Number of competencies: (03) Number of procedures that require certification:(NIL)									
PE22.1	Enumerate the common Rheumatological problems in children. Discuss the clinical approach to recognition and referral of a child with Rheumatological problem	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE22.2	Counsel a patient with Chronic illness	S	SH	N	Bedside clinics Skills lab	Log book			
PE22.3	Describe the diagnosis and management of common vasculitic disorders including Henoch Schonlein Purpura, Kawasaki Disease, SLE, JIA	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
Topic: Cardiovascular system- Heart Diseases Number of competencies: (18) Number of procedures that require certification:(NIL)									
PE23.1	Discuss the Hemodynamic changes, clinical presentation, complications and management of Acyanotic Heart Diseases –VSD, ASD and PDA	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases – Fallot's Physiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.3	Discuss the etio-pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.4	Discuss the etio-pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology	
PE23.6	Discuss the etio-pathogenesis, clinical features and management of Infective endocarditis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Pathology, Microbiology	
PE23.7	Elicit appropriate history for a cardiac disease, analyse the symptoms e.g. breathlessness, chest pain, tachycardia, feeding difficulty, failing to thrive, reduced urinary output, swelling, syncope, cyanotic spells, Suck rest cycle, frontal swelling in infants. Document and present	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE23.8	Identify external markers of a cardiac disease e.g. Cyanosis, Clubbing, dependent edema, dental caries, arthritis, erythema rash, chorea, subcutaneous nodules, Osler's node, Janeway lesions and document	S	SH	Y	Bedside clinics, Skills Lab	Skill Assessment			
PE23.9	Record pulse, blood pressure, temperature and respiratory rate and interpret as per the age	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE23.10	Perform independently examination of the cardiovascular system – look for precordial bulge, pulsations in the precordium, JVP and its significance in children and infants, relevance of percussion in Pediatric examination, Auscultation and other system examination and document	S	SH	Y	Bedside clinics, Skills lab	Skill station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE23.11	Develop a treatment plan and prescribe appropriate drugs including fluids in cardiac diseases, anti -failure drugs, and inotropic agents	S	SH	Y	Bedside clinics, Skills lab	log book			
PE23.12	Interpret a chest X ray and recognize Cardiomegaly	S	SH	Y	Bedside clinics, Skills lab	Log book entry		Radiodiagnosis	
PE23.13	Choose and Interpret blood reports in Cardiac illness	S	P	Y	Bedside clinics, Small group discussion	Log book entry			
PE23.14	Interpret Pediatric ECG	S	SH	Y	Bedside clinics, Skills lab	Log book entry			
PE23.15	Use the ECHO reports in management of cases	S	SH	Y	Bedside clinics	Log book entry		Radiodiagnosis	
PE23.16	Discuss the indications and limitations of Cardiac catheterization	K	K	N	Small group discussion	Viva voce			
PE23.17	Enumerate some common cardiac surgeries like BT shunt, Potts and Waterston's and corrective surgeries	K	K	N	Small group discussion	Viva voce			
PE23.18	Demonstrate empathy while dealing with children with cardiac diseases in every patient encounter	A	SH	Y	Small group discussion	Document in Log Book		AETCOM	
Topic:Diarrhoeal diseases and Dehydration Number of competencies: (17) Number of procedures that require certification:(03)									
PE24.1	Discuss the etio-pathogenesis, classification, clinical presentation and management of diarrheal diseases in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	
PE24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE24.3	Discuss the physiological basis of ORT, types of ORS and the composition of various types of ORS	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE24.4	Discuss the types of fluid used in Paediatric diarrheal diseases and their composition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics, anti-emetics in acute diarrheal diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.6	Discuss the causes, clinical presentation and management of persistent diarrhoea in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE24.7	Discuss the causes, clinical presentation and management of chronic diarrhoea in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology, Microbiology	
PE24.9	Elicit, document and present history pertaining to diarrheal diseases	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE24.10	Assess for signs of dehydration, document and present	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE24.11	Apply the IMNCI guidelines in risk stratification of children with diarrheal dehydration and refer	S	SH	Y	Bedside clinics, Skills lab	Document in Log book			
PE24.12	Perform and interpret stool examination including Hanging Drop	S	SH	N	Bedside clinics, Skills lab	Log book		Microbiology	
PE24.13	Interpret RFT and electrolyte report	S	SH	Y	Bedside clinics, Small group discussion	Document in Log Book			
PE24.14	Plan fluid management as per the WHO criteria	S	SH	Y	Bedside clinics, Small group activity	Skills Station			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE24.15	Perform NG tube insertion in a manikin	S	P	Y	DOAP session	Document in Log book	2		
PE24.16	Perform IV cannulation in a model	S	P	Y	DOAP session	Document in Log book	2		
PE24.17	Perform Interosseous insertion model	S	P	Y	DOAP session	Document in Log book	2		
Topic: Malabsorption Number of competencies: (01) Number of procedures that require certification:(NIL)									
PE25.1	Discuss the etio-pathogenesis, clinical presentation and management of Malabsorption in Children and its causes including celiac disease	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
Topic: Acute and chronic liver disorders Number of competencies: (13) Number of procedures that require certification: (NIL)									
PE26.1	Discuss the etio-pathogenesis, clinical features and management of acute hepatitis in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.2	Discuss the etio-pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.3	Discuss the etio-pathogenesis, clinical features and management of chronic liver diseases in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology, Microbiology	
PE26.4	Discuss the etio-pathogenesis, clinical features and management of Portal Hypertension in children	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Pathology	
PE26.5	Elicit document and present the history related to diseases of Gastrointestinal system	S	SH	Y	Bedside clinics, Skills lab	Skills Station			
PE26.6	Identify external markers for GI and Liver disorders e.g.. Jaundice, Pallor, Gynaecomastia, Spider angioma, Palmar erythema, Icthyosis, Caput medusa, Clubbing, Failing to thrive, Vitamin A and D deficiency	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE26.7	Perform examination of the abdomen, demonstrate organomegaly, ascites etc.	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE26.8	Analyse symptoms and interpret physical signs to make a provisional/ differential diagnosis	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			
PE26.9	Interpret Liver Function Tests, viral markers, ultra sonogram report	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment		Pathology	
PE26.10	Demonstrate the technique of liver biopsy in a Perform Liver Biopsy in a simulated environment	S	SH	Y	DOAP session	Document in log book			
PE26.11	Enumerate the indications for Upper GI endoscopy	K	K	N	Small group discussion	Viva voce			
PE26.12	Discuss the prevention of Hep B infection – Universal precautions and Immunisation	K	KH	Y	Lecture, Small group activity	Written/ Viva voce		Microbiology	
PE26.13	Counsel and educate patients and their family appropriately on liver diseases	A/C	P	y	Bedside clinics, Skills lab	Document in log book			
Topic: Pediatric Emergencies – Common Pediatric Emergencies Number of competencies: (35) Number of procedures that require certification:(10)									
PE27.1	List the common causes of morbidity and mortality in the under five children	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.2	Describe the etio-pathogenesis, clinical approach and management of cardiorespiratory arrest in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.3	Describe the etio-pathogenesis of respiratory distress in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE27.4	Describe the clinical approach and management of respiratory distress in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.5	Describe the etio-pathogenesis, clinical approach and management of Shock in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.6	Describe the etio-pathogenesis, clinical approach and management of Status epilepticus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.7	Describe the etio-pathogenesis, clinical approach and management of an unconscious child	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.8	Discuss the common types, clinical presentations and management of poisoning in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.9	Discuss oxygen therapy, in Pediatric emergencies and modes of administration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.10	Observe the various methods of administering Oxygen	S	KH	Y	Demonstration	Document in log book			
PE27.11	Explain the need and process of triage of sick children brought to health facility	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.12	Enumerate emergency signs and priority signs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.13	List the sequential approach of assessment of emergency and priority signs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.14	Assess emergency signs and prioritize	S	SH	Y	DOAP session, Skills lab	Skills Assessment			
PE27.15	Assess airway and breathing: recognise signs of severe respiratory distress. Check for cyanosis, severe chest indrawing, grunting	S	P	Y	DOAP session, Skills lab	Skills Assessment	3		

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE27.16	Assess airway and breathing. Demonstrate the method of positioning of an infant & child to open airway in a simulated environment	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.17	Assess airway and breathing: administer oxygen using correct technique and appropriate flow rate	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.18	Assess airway and breathing: perform assisted ventilation by Bag and mask in a simulated environment	S	P	Y	DOAP session, Skills lab	Skills Assessment	3		
PE27.19	Check for signs of shock i.e. pulse, Blood pressure, CRT	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.20	Secure an IV access in a simulated environment	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PF27.21	Choose the type of fluid and calculate the fluid requirement in shock	S	P	Y	DOAP session, Small group activity	Skills Assessment	3		
PE27.22	Assess level of consciousness & provide emergency treatment to a child with convulsions/ coma - Position an unconscious child - Position a child with suspected trauma - Administer IV/per rectal Diazepam for a convulsing child in a simulated environment	S	P	Y	DOAP session, Skills Lab	Skills Assessment	3		
PE27.23	Assess for signs of severe dehydration	S	P	Y	Bedside clinics, Skills lab	Skill station	3		
PE27.24	Monitoring and maintaining temperature: define hypothermia. Describe the clinical features, complications and management of Hypothermia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.25	Describe the advantages and correct method of keeping an infant warm by skin to skin contact	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE27.26	Describe the environmental measures to maintain temperature	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.27	Assess for hypothermia and maintain temperature	S	SH	Y	Skills lab	Skills Assessment			
PE27.28	Provide BLS for children in manikin	S	P	Y	Skills Lab		3		
PE.27.29	Discuss the common causes, clinical presentation, medico-legal implications of abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE27.30	Demonstrate confidentiality with regard to abuse	A	SH	Y	Skills lab, standardized patients	Skills Station			
PE27.31	Assess child for signs of abuse	S	SH	Y	DOAP session, Skills lab	Log book			
PE27.32	Counsel parents of dangerously ill / terminally ill child to break a bad news	S	SH	Y	DOAP session	Document in Log book			
PE27.33	Obtain Informed Consent	S	SH	Y	DOAP session	Document in Log book			
PE27.34	Willing to be a part of the ER team	A	SH	Y	DOAP session	Document in Log book			
PE27.35	Attends to emergency calls promptly	A	SH	Y	DOAP session	Document in Log Book			
Topic: Respiratory system Number of competencies: (20) Number of procedures that require certification: (NIL)									
PE28.1	Discuss the etio-pathogenesis, clinical features and management of Naso pharyngitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.2	Discuss the etio-pathogenesis of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.3	Discuss the clinical features and management of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.4	Discuss the etio-pathogenesis, clinical features and management of Acute Otitis Media (AOM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.5	Discuss the etio-pathogenesis, clinical features and management of Epiglottitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.6	Discuss the etio-pathogenesis, clinical features and management of Acute laryngo- trachea-bronchitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.7	Discuss the etiology, clinical features and management of Stridor in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.8	Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.9	Elicit, document and present age appropriate history of a child with upper respiratory problem including Stridor	S	SH	Y	Bedside clinics, skill lab	Skill Assessment		ENT	
PE28.10	Perform otoscopic examination of the ear	S	SH	Y	DOAP session	Skills Assessment		ENT	
PE28.11	Perform throat examination using tongue depressor	S	SH	Y	DOAP session	Skills Assessment		ENT	
PE28.12	Perform examination of the nose	S	SH	Y	DOAP session	Skills Assessment		ENT	
PE28.13	Analyse the clinical symptoms and interpret physical findings and make a provisional / differential diagnosis in a child with ENT symptoms	S	SH	Y	Bedside clinics	Skills Assessment			
PE28.14	Develop a treatment plan and document appropriately in a child with upper respiratory symptoms	S	SH	Y	Bedside clinics	Skills Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.15	Stratify risk in children with stridor using IMNCI guidelines	S	SH	Y	Bedside clinics	Log book documentation			
PE28.16	Interpret blood tests relevant to upper respiratory problems	S	SH	N	Bedside clinics, Small group discussion	Log book			
PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use written report in case of management Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in pediatric chest X-rays	S	SH	Y	Bedside clinics, Small group discussion	Skills Assessment		ENT, Radiodiagnosis	
PE28.18	Describe the etio-pathogenesis, diagnosis, clinical features, management and prevention of lower respiratory infections including bronchiolitis, wheeze associated LRTI Pneumonia and empyema	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skill Assessment/ Written/ Viva voce			
PE28.19	Describe the etio-pathogenesis, diagnosis, clinical features, management and prevention of asthma in children	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skill Assessment/ Written/ Viva voce		Respiratory Medicine	
PE28.20	Counsel the child with asthma on the correct use of inhalers in a simulated environment	S	SH	Y	Bedside clinics, Small group discussion, Lecture	Skills Assessment/ Written/ Viva voce		Respiratory Medicine	
Topic: Anemia and other Hemato-oncologic disorders in children Number of competencies: (20) Number of procedures that require certification: (NIL)									
PE29.1	Discuss the etio-pathogenesis, clinical features, classification and approach to a child with anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.2	Discuss the etio-pathogenesis, clinical features and management of Iron Deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE29.3	Discuss the etiopathogenesis, clinical features and management of VIT B12, Folate deficiency anaemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.4	Discuss the etio-pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sickle cell anaemia, Hereditary spherocytosis, Auto-immune hemolytic anaemia and hemolytic uremic syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
PE29.5	Discuss the National Anaemia Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PE29.6	Discuss the cause of thrombocytopenia in children: describe the clinical features and management of Idiopathic Thrombocytopenic Purpura (ITP)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.7	Discuss the etiology, classification, pathogenesis and clinical features of Hemophilia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.8	Discuss the etiology, clinical presentation and management of Acute Lymphoblastic Leukemia in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.9	Discuss the etiology, clinical presentation and management of lymphoma in children	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	
PE29.10	Elicit, document and present the history related to Hematology	S	SH	Y	Bedside clinics, Skills lab	Skills Station			
PE29.11	Identify external markers for hematological disorders e.g.. Jaundice, Pallor, Petechiae purpura, Ecchymosis, Lymphadenopathy, bone tenderness, loss of weight, Mucosal and large joint bleed	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE29.12	Perform examination of the abdomen, demonstrate organomegaly	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE29.13	Analyse symptoms and interpret physical signs to make a provisional/ differential diagnosis	S	SH	Y	Bedside clinics, Skill lab	Skill assessment			
PE29.14	Interpret CBC, LFT	S	SH	Y	Bedside clinics, Skills lab	Skill assessment			
PE29.15	Perform and interpret peripheral smear	S	SH	Y	DOAP session	Document in log book			
PE29.16	Discuss the indications for Hemoglobin electrophoresis and interpret report	K	K	N	Small group discussion	Viva voce		Biochemistry	
PE29.17	Demonstrate performance of bone marrow aspiration in manikin	S	SH	Y	Skills lab	Document in log Book			
PE29.18	Enumerate the referral criteria for Hematological conditions	S	SH	Y	Bedside clinics, Small group activity	Viva voce			
PE29.19	Counsel and educate patients about prevention and treatment of anemia	A/C	SH	Y	Bedside clinics, Skills lab	Document in log book			
PE29.20	Enumerate the indications for splenectomy and precautions	K	K	N	Small group Activity	Viva voce			
Topic: Systemic Pediatrics-Central Nervous system Number of competencis: (23) Number of procedures that require certification:(NIL)									
PE30.1	Discuss the etio-pathogenesis, clinical features , complications, management and prevention of meningitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.2	Distinguish bacterial, viral and tuberculous meningitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.3	Discuss the etio-pathogenesis, classification, clinical features, complication and management of Hydrocephalus in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE30.4	Discuss the etio-pathogenesis, classification, clinical features, and management of Microcephaly in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.5	Enumerate the Neural tube defects. Discuss the causes, clinical features, types, and management of Neural Tube defect	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.6	Discuss the etio-pathogenesis, clinical features, and management of Infantile hemiplegia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.7	Discuss the etio-pathogenesis, clinical features, complications and management of Febrile seizures in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.8	Define epilepsy. Discuss the pathogenesis, clinical types, presentation and management of Epilepsy in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.9	Define status Epilepticus. Discuss the clinical presentation and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.10	Discuss the etio-pathogenesis, clinical features and management of Mental retardation in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.11	Discuss the etio-pathogenesis, clinical features and management of children with cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.12	Enumerate the causes of floppiness in an infant and discuss the clinical features, differential diagnosis and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.13	Discuss the etio-pathogenesis, clinical features, management and prevention of Poliomyelitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE30.14	Discuss the etio-pathogenesis, clinical features and management of Duchene muscular dystrophy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.15	Discuss the etio-pathogenesis, clinical features and management of Ataxia in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE30.16	Discuss the approach to and management of a child with headache	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE30.17	Elicit document and present an age appropriate history pertaining to the CNS	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE30.18	Demonstrate the correct method for physical examination of CNS including identification of external markers. Document and present clinical findings	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE30.19	Analyse symptoms and interpret physical findings and propose a provisional / differential diagnosis	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
PE30.20	Interpret and explain the findings in a CSF analysis	S	SH	Y	Small group discussion	Log book		Microbiology	
PE30.21	Enumerate the indication and discuss the limitations of EEG, CT, MRI	K	K	N	Bedside clinics	Log book			
PE30.22	Interpret the reports of EEG, CT, MRI	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	
PE30.23	Perform in a mannequin lumbar puncture. Discuss the indications, contraindication of the procedure	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			
Topic: Allergic Rhinitis , Atopic Dermatitis, Bronchial Asthma , Urticaria Angioedema Number of competencies: (12) Number of procedures that require certification: (NIL)									
PE31.1	Describe the etio-pathogenesis, management and prevention of Allergic Rhinitis in Children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE31.2	Recognize the clinical signs of Allergic Rhinitis	S	SH	Y	Bedside clinics' Skill Lab	Skill Assessment		ENT	
PE31.3	Describe the etio-pathogenesis, clinical features and management of Atopic dermatitis in Children	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		ENT	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE31.4	Identify Atopic dermatitis and manage	S	SH		Bedside clinics Skills lab	Skill Assessment		Dermatology, Venereology & Leprosy	
PE31.5	Discuss the etio-pathogenesis, clinical types, presentations, management and prevention of childhood Asthma	K	KH	Y	Lecture Small group discussion	Written/ Viva voce			
PE31.6	Recognise symptoms and signs of Asthma	S	SH	Y	Bedside clinic, Small group activity	Skill Assessment			
PE31.7	Develop a treatment plan for Asthma appropriate to clinical presentation & severity	S	SH	Y	Bedside clinic, Small group activity	Skill Assessment			
PE31.8	Enumerate criteria for referral	K	KH	Y	Bedside clinic, Small group activity	Written/ Viva voce			
PE31.9	Interpret CBC and CX Ray in Asthma	S	SH	Y	Bedside clinic, Small group activity	Skill Assessment			
PE31.10	Enumerate the indications for PFT	K	K	N	Bedside clinic, Small group activity	Viva voce			
PE31.11	Observe administration of Nebulisation	S	SH	Y	DOAP session	Document in log book			
PE31.12	Discuss the etio-pathogenesis, clinical features and complications and management of Urticaria Angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Chromosomal Abnormalities Number of competencies: (13) Number of procedures that require certification: (NIL)									
PE32.1	Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Down's Syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE32.2	Identify the clinical features of Down's Syndrome	S	SH	Y	Bedside clinics, Skills lab	log book		General Medicine	
PE32.3	Interpret normal Karyotype and recognize Trisomy 21	S	SH	Y	Bedside clinics, Skills lab	Log book			General Medicine
PE32.4	Discuss the referral criteria and Multidisciplinary approach to management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE32.5	Counsel parents regarding 1. Present child 2. Risk in the next pregnancy	A/C	SH	N	Bedside clinics, Skills lab	Log book			
PE32.6	Discuss the genetic basis, risk factors, clinical features, complications, prenatal diagnosis, management and genetic counselling in Turner's Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Obstetrics & Gynaecology	
PE32.7	Identify the clinical features of Turner Syndrome	S	SH	N	Bedside clinics, Skills lab	Log book		General Medicine	
PE32.8	Interpret normal Karyotype and recognize the Turner Karyotype	S	SH	N	Bedside clinics, Skills lab	log book		General Medicine, Obstetrics & Gynaecology	
PE32.9	Discuss the referral criteria and multidisciplinary approach to management of Turner Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynaecology
PE32.10	Counsel parents regarding 1. Present child 2. Risk in the next pregnancy	A/C	SH	N	Bedside clinics, Skills lab	Log book			
PE32.11	Discuss the genetic basis, risk factors, complications, prenatal diagnosis, management and genetic counselling in Klinefelter Syndrome	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE32.12	Identify the clinical features of Klinefelter Syndrome	S	SH	N	Bedside clinics, Skills lab	Log book		General Medicine	
PE32.13	Interpret normal Karyotype and recognize the Klinefelter Karyotype	S	SH	N	Bedside clinics, Skills lab	Log book		General Medicine	
Topic: Endocrinology Number of competencies: (11) Number of procedures that require certification: (02)									
PE33.1	Describe the etio-pathogenesis clinical features, management of Hypothyroidism in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PE33.2	Recognize the clinical signs of Hypothyroidism and refer	S	SH	Y	Bedside clinics, Skill Lab	Skill Assessment			
PE33.3	Interpret and explain neonatal thyroid screening report	S	SH	Y	Bedside clinics, Small group discussion	Skill Assessment			
PE33.4	Discuss the etio-pathogenesis, clinical types, presentations, complication and management of Diabetes mellitus in children	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce			
PE33.5	Interpret Blood sugar reports and explain the diagnostic criteria for Type 1 Diabetes	S	SH	Y	Bedside clinic, small group activity	Skill Assessment			
PE33.6	Perform and interpret Urine Dip Stick for Sugar	S	P	Y	DOAP session	Skill Assessment	3	Biochemistry	
PE33.7	Perform genital examination and recognize Ambiguous Genitalia and refer appropriately	S	SH	Y	Bedside clinic Skills lab	Skill Assessment			
PE33.8	Define precocious and delayed Puberty	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE33.9	Perform Sexual Maturity Rating (SMR) and interpret	S	SH	Y	Bedside clinics Skills Lab	Skill Assessment			
PE33.10	Recognize precocious and delayed Puberty and refer	S	SH	Y	Bedside clinics Skills Lab	log book			
PE33.11	Identify deviations in growth and plan appropriate referral	S	P	Y	Bedside clinics Skills Lab	log book	2		
Topic:Vaccine preventable Diseases - Tuberculosis Number of competencies: (20) Number of procedures that require certification: (03)									
PE34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Control Program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Community Medicine, Pharmacology	Respiratory Medicine
PE34.5	Able to elicit, document and present history of contact with tuberculosis in every patient encounter	S	SH	Y	Bedside clinics, Skill lab	Skill Assessment			Respiratory Medicine
PE34.6	Identify a BCG scar	S	P	Y	Bedside clinics, Skills lab	Skill Assessment	3	Microbiology	Respiratory Medicine
PE34.7	Interpret a Mantoux test	S	P	Y	Bedside clinics Skills lab	Skill assessment	3	Microbiology	Respiratory Medicine
PE34.8	Interpret a Chest Radiograph	S	SH	Y	Bedside clinics Skills lab	Skill assessment		Radiodiagnosis	Respiratory Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	SH	N	Bedside clinics, Small group discussion	log book		Microbiology	Respiratory Medicine
PE34.10	Discuss the various samples for demonstrating the organism e.g. Gastric Aspirate, Sputum , CSF, FNAC	K	KH	Y	Bedside clinics, Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.11	Perform AFB staining	S	P	Y	DOAP session	Log book/Journal	3	Microbiology	Respiratory Medicine
PE34.12	Enumerate the indications and discuss the limitations of methods of culturing M.Tuberculi	K	KH	Y	Small group discussion	Written/ Viva voce		Microbiology	Respiratory Medicine
PE34.13	Enumerate the newer diagnostic tools for Tuberculosis including BACTEC CBNAAT and their indications	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
PE34.14	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of fever in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.15	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with exanthematous illnesses like Measles, Mumps, Rubella & Chicken pox	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.16	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Diphtheria, Pertussis, Tetanus.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.17	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Typhoid	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PE34.18	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Dengue, Chikungunya and other vector born diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.19	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of children with Common Parasitic infections, malaria, leishmaniasis, filariasis, helminthic infestations, amebiasis, giardiasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
PE34.20	Enumerate the common causes of fever and discuss the etiopathogenesis, clinical features, complications and management of child with Rickettsial diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
Topic: The role of the physician in the community									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Physiology
AN25.9	Demonstrate surface marking of lines of pleural reflection, Lung borders and fissures, Trachea, Heart borders, Apex beat & surface projection of valves of heart	K/S	SH	Y	Practical	Viva voce/ skill assessment		General Medicine, Pediatrics	Physiology
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	Lecture	Written		Pediatrics	Physiology
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
AN74.1	Describe the various modes of inheritance with examples	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	Lecture	Written		General Medicine, Pediatrics	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Hemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	K	KH	N	Lecture	Written		General Medicine, Pediatrics	
AN75.1	Describe the structural and numerical chromosomal aberrations	K	KH	Y	Lecture	Written		Pediatrics	
AN75.2	Explain the terms mosaics and chimeras with example	K	KH	N	Lecture	Written		Pediatrics	
AN75.3	Describe the genetic basis & clinical features of Prader Willi syndrome, Edward syndrome & Patau syndrome	K	KH	N	Lecture	Written		Pediatrics	
AN75.4	Describe genetic basis of variation; polymorphism and mutation	K	KH	Y	Lecture	Written		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AN75.5	Describe the principles of genetic counselling	K	KH	Y	Lecture	Written		Pediatrics, Obstetrics & Gynaecology	
Physiology									
PY11.6	Describe physiology of Infancy	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PY11.9	Interpret growth charts	K	KH	Y	Small group teaching	Practical/OSPE/ Viva voce		Pediatrics	
PY11.10	Interpret anthropometric assessment of infants	K	KH	Y	Small group teaching	Practical/OSPE/Viva voce		Pediatrics	
Biochemistry									
BI5.3	Describe the digestion and absorption of dietary proteins	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI5.4	Describe common disorders associated with protein metabolism	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI7.3	Describe gene mutations and basic mechanism of regulation of gene expression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
BI7.4	Describe applications of recombinant DNA technology, PCR in the diagnosis and treatment of diseases with genetic basis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
BI8.1	Discuss the importance of various dietary components and explain importance of dietary fibre	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	
BI8.2	Describe the types and causes of protein energy malnutrition and its effects	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
BI8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables. (macro-molecules & its importance)	K	KH	Y	Lecture , Small group discussion	Written/ Viva voce		Community Medicine, General Medicine, Pediatrics	
BI10.5	Describe antigens and concepts involved in vaccine development	K	KH	Y	Lecture , Small group discussion	Written/ Viva voce		Pathology, Pediatrics, Microbiology	
Pathology									
PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Pediatrics	
PA21.2	Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP and hemophilias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA28.12	Define, classify and describe the genetics, inheritance etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
PA28.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
PA35.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Microbiology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	Pathology
MI1.9	Discuss the immunological basis of vaccines and describe the Universal Immunisation schedule	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection	K	KH	Y	Lecture	Written/ Viva voce		Paediatrics	
MI3.1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features, and diagnostic modalities of these agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI3.2	Identify the common etiologic agents of diarrhea and dysentery	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Paediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	S	SH	Y	DOAP session	Skill assessment		General Medicine, Paediatrics	
Pharmacology									
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine Pediatrics	Microbiology
PH1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP sessions	Skills assessment		Pharmacology, General Medicine	
Community Medicine									
CM3.3	Describe the aetiology and basis of water borne diseases /jaundice/hepatitis/ diarrheal diseases	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Microbiology, General Medicine, Pediatrics	
CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP session	Skill Assessment		General Medicine, Pediatrics	
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP session	Skill Assessment		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	
CM5.6	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
CM5.8	Describe and discuss the importance and methods of food fortification and effects of additives and adulteration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
CM6.1	Formulate a research question for a study	K	KH	Y	Small group, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.2	Describe and discuss the principles and demonstrate the methods of collection, classification, analysis, interpretation and presentation of statistical data	S	SH	Y	Small group discussion, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.3	Describe, discuss and demonstrate the application of elementary statistical methods including test of significance in various study designs	S	SH	Y	Small group discussion, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM6.4	Enumerate, discuss and demonstrate common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion	S	SH	Y	Small group discussion, Lecture, DOAP session	Written/ Viva voce/ Skill Assessment		General Medicine, Pediatrics	
CM8.1	Describe and discuss the epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology, Pathology
CM8.3	Enumerate and describe disease specific National Health Programs including their prevention and treatment of a case	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	
CM8.4	Describe the principles and enumerate the measures to control a disease epidemic	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
CM8.5	Describe and discuss the principles of planning, implementing and evaluating control measures for disease at community level bearing in mind the public health importance of the disease	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		General Medicine, Pediatrics	
CM9.2	Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Y	Lecture, Small group discussion, DOAP sessions	Skill assessment		Obstetrics & Gynaecology, Pediatrics	
CM10.1	Describe the current status of Reproductive, maternal, newborn and Child Health	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.2	Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.5	Describe Universal Immunization Program; Integrated Management of Neonatal and Childhood Illness (IMNCI) and other existing Programs	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Pediatrics	
Forensic Medicine & Toxicology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially – maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. -- documents of issuance of wound certificate -- documents of issuance of drunkenness certificate. -- documents of issuance of sickness and fitness certificate. -- documents for issuance of death certificate. -- documents of Medical Certification of Cause of Death - Form Number 4 and 4A -- documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Paediatrics	
FM2.27	Define and discuss infanticide, foeticide and stillbirth	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Pediatrics	
FM2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden infants death syndrome and Munchausen's syndrome by proxy	K	KH	Y	Lecture, Small group discussions, Autopsy, DOAP session	Written/ Viva voce/ OSCE		Pediatrics, Human Anatomy	
FM3.29	Describe and discuss child abuse and battered baby syndrome	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Dermatology, Venereology & Leprosy									
DR5.1	Describe the etiology, microbiology, pathogenesis, natural history, clinical features, presentations and complications of scabies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
DR5.2	Identify and differentiate scabies from other lesions	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
DR5.3	Enumerate and describe the pharmacology, administration and adverse reaction of pharmacotherapies for scabies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Pharmacology
DR6.1	Describe the etiology, pathogenesis and diagnostic features of pediculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR6.2	Identify and differentiate pediculosis from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	
DR7.1	Describe the etiology, microbiology, pathogenesis, clinical presentations and diagnostic features of dermatophytes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR8.1	Describe the etiology, microbiology, pathogenesis, clinical presentations and diagnostic features of common viral infections of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR17.1	Enumerate and identify the cutaneous findings in vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill assessment/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
Anesthesiology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
AS2.1	Enumerate the indications, describe the steps and demonstrate in a simulated environment basic life support in adults children and neonates	S	SH	N	DOAP session	Skill assessment		General Medicine, Pediatrics	
Psychiatry									
PS14.1	Enumerate and describe the magnitude and etiology of psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.2	Enumerate, elicit, describe and document clinical features in patients with psychiatric disorders occurring in childhood and adolescence	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS14.3	Describe the treatment of stress related disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.4	Demonstrate family education in a patient with psychiatric disorders occurring in childhood and adolescence in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS14.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.1	Describe the aetiology and magnitude of mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.2	Describe and discuss intelligence quotient and its measurement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.3	Elicit and document a history and clinical examination and choose appropriate investigations in a patient with mental retardation	K/S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS15.4	Describe the psychosocial interventions and treatment used in mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
General Medicine									
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	Pediatrics
Obstetrics & Gynecology									
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	Pediatrics
OG18.1	Describe and discuss the assessment of maturity of the newborn, diagnosis of birth asphyxia, principles of resuscitation, common problems	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.2	Demonstrate the steps of neonatal resuscitation in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Pediatrics
OG18.3	Describe and discuss the diagnosis of birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.4	Describe the principles of resuscitation of the newborn and enumerate the common problems encountered	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Integration
Physical Medicine & Rehabilitation									
PM3.1	Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	Pediatrics
PM3.2	Recognize, describe and discuss the spectrum of multiple disability : cognitive, motor, visual and hearing in cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.3	Recognize, describe and discuss the role of special education in children with learning disabilities	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.4	Demonstrate spasticity, rigidity and dystonia in children with cerebral palsy	S	SH	Y	DOAP session, Small group discussion, Bedside clinic	Skill assessment			Pediatrics
PM3.5	Enumerate the indications and describe the therapies for spasticity including medications, serial casts, nerve blocks, botulinum toxin injections	K	KH	Y	Lecture, Small group discussion			Pharmacology	Pediatrics, Orthopedics
PM3.6	Enumerate the indications and describe prevention of joint subluxations and contractures by proper positioning, and use of special chairs, and appliances	K	KH	Y	DOAP session, Small group discussion, Bedside clinic				Pediatrics
PM3.7	Enumerate the first aid measures to be used in patients with seizures	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM4.2	Describe and discuss the principles of management of chronic pain and role of common modalities (moist heat, ultrasound, Short wave diathermy)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

PSYCHIATRY (CODE: PS)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PSYCHIATRY									
Topic: Doctor patient relationship		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
PS1.1	Establish rapport and empathy with patients	A/C	SH	Y	DOAP session	Skill station			
PS1.2	Describe the components of communication	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS1.3	Demonstrate breaking of bad news in a simulated environment	A/C	SH	Y	DOAP session	Skill station			
PS1.4	Describe and demonstrate the importance of confidentiality in patient encounters	A/C	SH	Y	DOAP session	Faculty observation			
Topic: Mental health		Number of competencies: (05)			Number of procedures that require certification:(NIL)				
PS2.1	Define stress and describe its components and causes	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS2.2	Describe the role of time management, study skills, balanced diet and sleep wake habits in stress avoidance	K	KH	Y	Lecture, Small group discussion	Viva voce			
PS2.3	Define and describe the principles and components of learning memory and emotions	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS2.4	Describe the principles of personality development and motivation	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS2.5	Define and distinguish normality and abnormality	K	K	Y	Lecture, Small group discussion	Viva voce			
Topic: Introduction to psychiatry		Number of competencies: (12)			Number of procedures that require certification: (NIL)				
PS3.1	Describe the growth of psychiatry as a medical specialty, its history and contribution to society	K	KH	Y	Lecture	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS3.2	Enumerate, describe and discuss important signs & symptoms of common mental disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.3	Elicit, present and document a history in patients presenting with a mental disorder	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS3.4	Describe the importance of establishing rapport with patients	S/A	SH	Y	Bedside clinic, DOAP session	Skill assessment/ Faculty observation			
PS3.5	Perform, demonstrate and document a minimal examination	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS3.6	Describe and discuss biological, psychological & social factors & their interactions in the causation of mental disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.7	Enumerate and describe common organic psychiatric disorders, magnitude, etiology and clinical features	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS3.8	Enumerate and describe the essential investigations in patients with organic psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS3.9	Describe the steps and demonstrate in a simulated environment family education in patients with organic psychiatric disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS3.10	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.11	Enumerate the appropriate conditions for specialist referral in patients with psychiatric disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS3.12	Describe, discuss and distinguish psychotic & non-psychotic (Mood, Anxiety, Stress related) disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychotic disorders		Number of competencies: (07)			Number of procedures that require certification: (NIL)				
PS4.1	Describe the magnitude and etiology of alcohol and substance use disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS4.2	Elicit, describe and document clinical features of alcohol and substance use disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS4.3	Enumerate and describe the indications and interpret laboratory and other tests used in alcohol and substance abuse disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS4.4	Describe the treatment of alcohol and substance abuse disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS4.5	Demonstrate family education in a patient with alcohol and substance abuse in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		AETCOM	
PS4.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in alcohol and substance abuse	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS4.7	Enumerate the appropriate conditions for specialist referral in patients with alcohol and substance abuse disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychotic disorders		Number of competencies: (06)			Number of procedures that require certification: (NIL)				
PS5.1	Classify and describe the magnitude and etiology of schizophrenia & other psychotic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS5.2	Enumerate, elicit, describe and document clinical features, positive s	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS5.3	Describe the treatment of schizophrenia including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS5.4	Demonstrate family education in a patient with schizophrenia in a simulated environment	K/S/A/C	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS5.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in schizophrenia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS5.6	Enumerate the appropriate conditions for specialist referral in patients with psychotic disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Depression		Number of competencies: (07)			Number of procedures that require certification: (NIL)				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS6.1	Classify and describe the magnitude and etiology of depression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS6.2	Enumerate, elicit, describe and document clinical features in patients with depression	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS6.3	Enumerate and describe the indications and interpret laboratory and other tests used in depression	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS6.4	Describe the treatment of depression including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS6.5	Demonstrate family education in a patient with depression in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS6.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in depression	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS6.7	Enumerate the appropriate conditions for specialist referral in patients with depression	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Bipolar disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS7.1	Classify and describe the magnitude and etiology of bipolar disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS7.2	Enumerate, elicit, describe and document clinical features in patients with bipolar disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS7.3	Enumerate and describe the indications and interpret laboratory and other tests used in bipolar disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS7.4	Describe the treatment of bipolar disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS7.5	Demonstrate family education in a patient with bipolar disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS7.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in bipolar disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS7.7	Enumerate the appropriate conditions for specialist referral in patients with bipolar disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Anxiety disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS8.1	Enumerate and describe the magnitude and etiology of anxiety disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS8.2	Enumerate, elicit, describe and document clinical features in patients with anxiety disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS8.3	Enumerate and describe the indications and interpret laboratory and other tests used in anxiety disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS8.4	Describe the treatment of anxiety disorders including behavioural and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.5	Demonstrate family education in a patient with anxiety disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS8.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in anxiety disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS8.7	Enumerate the appropriate conditions for specialist referral in anxiety disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Stress related disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS9.1	Enumerate and describe the magnitude and etiology of stress related disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS9.2	Enumerate, elicit, describe and document clinical features in patients with stress related disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS9.3	Enumerate and describe the indications and interpret laboratory and other tests used in stress related disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS9.4	Describe the treatment of stress related disorders including behavioural and psychosocial therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS9.5	Demonstrate family education in a patient with stress related disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS9.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in stress related disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS9.7	Enumerate the appropriate conditions for specialist referral in stress disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Somatoform disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS10.1	Enumerate and describe the magnitude and etiology of somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS10.2	Enumerate, elicit, describe and document clinical features in patients with somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.3	Enumerate and describe the indications and interpret laboratory and other tests used in somatoform, dissociative and conversion disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS10.4	Describe the treatment of somatoform disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.5	Demonstrate family education in a patient with somatoform, dissociative and conversion disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS10.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in somatoform, dissociative and conversion disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS10.7	Enumerate the appropriate conditions for specialist referral in patients with somato form dissociative and conversion disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Personality disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS11.1	Enumerate and describe the magnitude and etiology of personality disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS11.2	Enumerate, elicit, describe and document clinical features in patients with personality disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS11.3	Enumerate and describe the indications and interpret laboratory and other tests used in personality disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS11.4	Describe the treatment of personality disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS11.5	Demonstrate family education in a patient with personality disorders in a simulated environment	S/A/C	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS11.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in personality disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS11.7	Enumerate the appropriate conditions for specialist referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychosomatic disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS12.1	Enumerate and describe the magnitude and etiology of psychosomatic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS12.2	Enumerate, elicit, describe and document clinical features in patients with magnitude and etiology of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.3	Enumerate and describe the indications and interpret laboratory and other tests of psychosomatic disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Medicine
PS12.4	Describe the treatment of psychosomatic disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PS12.5	Demonstrate family education in a patient with psychosomatic disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS12.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychosomatic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS12.7	Enumerate the appropriate conditions for specialist referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
Topic: Psychosexual and gender identity disorders Number of competencies: (07) Number of procedures that require certification: (NIL)									
PS13.1	Enumerate and describe the magnitude and etiology of psychosexual and gender identity disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS13.2	Enumerate, elicit, describe and document clinical features in patients with magnitude and etiology of psychosexual and gender identity disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS13.3	Enumerate and describe the indications and interpret laboratory and other tests used in psychosexual and gender identity disorders	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS13.4	Describe the treatment of psychosexual and gender identity disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
PS13.5	Demonstrate family education in a patient with psychosexual and gender identity disorders in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			
PS13.6	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychosexual and gender identity disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS13.7	Enumerate the appropriate conditions for specialist referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychiatric disorders in childhood and adolescence Number of competencies: (06) Number of procedures that require certification: (NIL)									
PS14.1	Enumerate and describe the magnitude and etiology of psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.2	Enumerate, elicit, describe and document clinical features in patients with psychiatric disorders occurring in childhood and adolescence	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS14.3	Describe the treatment of stress related disorders including behavioural, psychosocial and pharmacologic therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.4	Demonstrate family education in a patient with psychiatric disorders occurring in childhood and adolescence in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS14.5	Enumerate and describe the pharmacologic basis and side effects of drugs used in psychiatric disorders occurring in childhood and adolescence	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS14.6	Enumerate the appropriate conditions for specialist referral in children and adolescents with psychiatric disorders	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Mental retardation Number of competencies: (04) Number of procedures that require certification: (NIL)									
PS15.1	Describe the aetiology and magnitude of mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.2	Describe and discuss intelligence quotient and its measurement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PS15.3	Elicit and document a history and clinical examination and choose appropriate investigations in a patient with mental retardation	K/S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Pediatrics	
PS15.4	Describe the psychosocial interventions and treatment used in mental retardation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
Topic: Psychiatric disorders in the elderly Number of competencies: (05) Number of procedures that require certification: (NIL)									
PS16.1	Enumerate and describe common psychiatric disorders in the elderly including dementia, depression and psychosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PS16.2	Describe the aetiology and magnitude of psychiatric illness in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PS16.3	Describe the therapy of psychiatric illness in elderly including psychosocial and behavioural therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS16.4	Demonstrate family education in a patient with psychiatric disorders occurring in the elderly in a simulated environment	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		General Medicine	
PS16.5	Enumerate the appropriate conditions for specialist referral in psychiatric disorders in the elderly	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Psychiatric emergencies Number of competencies: (03) Number of procedures that require certification: (NIL)									
PS17.1	Enumerate and describe the recognition and clinical presentation of psychiatric emergencies (Suicide, Deliberate Self Harm, Violent behaviour)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS17.2	Describe the initial stabilisation and management of psychiatric emergencies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PS17.3	Enumerate the appropriate conditions for specialist referral in patients with psychiatric emergencies	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Therapeutics Number of competencies: (03) Number of procedures that require certification: (NIL)									
PS18.1	Enumerate the indications and describe the pharmacology, dose and side effects of commonly use drugs in psychiatric disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharamcology	
PS18.2	Enumerate the indications for modified electroconvulsive therapy	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PS18.3	Enumerate and describe the principles and role of psychosocial interventions in psychiatric illness including psychotherapy, behavioural therapy and rehabilitation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Miscellaneous Number of competencies: (06) Number of procedures that require certification: (NIL)									
PS19.1	Describe the relevance, role and status of community psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PS19.2	Describe the objectives strategies and contents of the National Mental Health Act	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PS19.3	Describe and discuss the basic legal and ethical issues in psychiatry	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine & Toxicology, AETCOM	
PS19.4	Enumerate and describe the salient features of the prevalent mental health laws in India	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PS19.5	Describe the concept and principles of preventive psychiatry and mental health promotion (positive mental health); and community education	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
PS19.6	Enumerate and describe the identifying features and the principles of participatory management of mental illness occurring during and after disasters	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Physiology									
PY10.7	Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
PY10.8	Describe and discuss behavioural and EEG characteristics during sleep and mechanism responsible for its production	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.9	Describe and discuss the physiological basis of memory, learning and speech	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
PY10.12	Identify normal EEG forms	S	S	Y	Small group teaching	OSPE/Viva voce		Psychiatry	
Pharmacology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, antipsychotic, antidepressant drugs, antimaniacs, opioid agonists and antagonists, drugs used for neurodegenerative disorders, antiepileptics drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.20	Describe the effects of acute and chronic ethanol intake. Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussions	Written/ Viva voce		Psychiatry	
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussions	Written/Viva voce		Psychiatry	Forensic Medicine
PH1.23	Describe the process and mechanism of drug deaddiction	K/ S	KH	Y	Lecture, Small group discussions	Written/Viva voce		Psychiatry	
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	K	KH	Y	Small group discussion	Short note/Viva voce		Psychiatry	
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs.	A/C	SH	Y	Small group discussion	Skill station		Psychiatry	
Community Medicine									
CM15.1	Define and describe the concept of mental Health	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
CM15.2	Describe warning signals of mental health disorder	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
CM15.3	Describe National Mental Health program	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
Forensic Medicine & Toxicology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
FM3.17	Describe and discuss the sexual perversions fetichism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM5.1	Classify common mental illnesses including post-traumatic stress disorder (PTSD)	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.2	Define, classify and describe delusions, hallucinations, illusion, lucid interval and obsessions with exemplification	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.3	Describe civil and criminal responsibilities of a mentally ill person	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.4	Differentiate between true insanity from feigned insanity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
FM5.5	Describe & discuss Delirium tremens	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry, General Medicine	
FM5.6	Describe the Indian Mental Health Act, 1987 with special reference to admission, care and discharge of a mentally ill person	K	K/KH	N	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
General Medicine									
IM17.14	Counsel patients with migraine and tension headache on lifestyle changes and need for prophylactic therapy	A/C	SH	N	DOAP session	Skill Assessment		Pharmacology	Psychiatry
IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	K	KH	Y	DOAP session	Skill assessment		Forensic Medicine, Psychiatry	
IM24.2	Perform multidimensional geriatric assessment that includes medical, psycho-social and functional components	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Psychiatry	
IM24.5	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of depression in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
IM24.7	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of personality changes in the elderly	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
IM24.19	Enumerate and describe the social problems in the elderly including isolation, abuse, change in family structure and their impact on health	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
Pediatrics									
PE1.2	Discuss and describe the patterns of growth in infants, children and Adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.3	Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical growth in infants, children and adolescents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE1.5	Define development and discuss the normal developmental milestones with respect to motor, behaviour, social, adaptive and language	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.4	Describe the clinical features, diagnosis and management of Breath Holding spells	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.5	Describe the clinical features, diagnosis and management of Temper tantrums	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE5.7	Describe the clinical features, diagnosis and management of Fussy infant	K	K	N	Lecture, Small group discussion	Written			Psychiatry
PE5.10	Discuss the role of child guidance clinic in children with Behavioral problems and the referral criteria	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.2	Describe the physical , physiological and psychological changes during Adolescence (Puberty)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
PE6.4	Describe Adolescent sexuality and common problems related to it	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.5	Explain Adolescent Nutrition and common nutritional problems	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.6	Discuss the common Adolescent Eating disorders (Anorexia Nervosa, Bulimia)	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
PE6.7	Describe the common mental health problems during Adolescence	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce			Psychiatry
PE6.13	Enumerate the prevalence and the importance of recognition of sexual drug abuse in adolescents and children	K	K	N	Lecture, Small group discussion	Written/ Viva voce			Psychiatry
Physical Medicine & Rehabilitation									
PM 9.1	Describe rehabilitative aspects as they pertain to the elderly including patients with dementia, depression, incontinence immobility and nutritional needs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Psychiatry
Dermatology, Venereology & Leprosy									
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine	Pharmacology, Psychiatry
Forensic Medicine & Toxicology									
FM2.5	Discuss moment of death, modes of death- coma, asphyxia and syncope	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	Pathology
FM3.14	SEXUAL OFFENCES Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce / OSCE		Obstetrics & Gynaecology, Psychiatry	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
FM3.15	SEXUAL OFFENCES Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic, DOAP session	Written/ Viva voce / OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.16	SEXUAL OFFENCES Describe and discuss adultery and unnatural sexual offences- sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	

DERMATOLOGY, VENEROLOGY AND LEPROSY (CODE: DR)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DERMATOLOGY, VENEREOLOGY & LEPROSY									
Topic: Acne Number of competencies:(03) Number of procedures that require certificaion:(NIL)									
DR1.1	Enumerate the causative and risk factors of acne	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
DR1.2	Identify and grade the various common types of acne	S	SH	Y	Bedside clinic	Skill assessment			
DR1.3	Describe the treatment and preventive measures for various kinds of acne	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Vitiligo Number of competencies: (02) Number of procedures that require certificaion:(NIL)									
DR2.1	Identify and differentiate vitiligo from other causes of hypopigmented lesions	S	S	Y	Bedside clinic	Skill assessment			
DR2.2	Describe the treatment of vitiligo	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Papulosquamous disorders Number of competencies:(03) Number of procedures that require certificaion:(NIL)									
DR3.1	Identify and distinguish psoriatic lesions from other causes	K	SH	Y	Bedside clinic	Skill assessment/ Written/ Viva voce			
DR3.2	Demonstrate the grattage test	S	SH	Y	Bedside clinic	Skill assessment			
DR3.3	Enumerate the indications for and describe the various modalities of treatment of psoriasis including topical, systemic and phototherapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lichen Planus Number of competencies:(02) Number of procedures that require certificaion:(NIL)									
DR4.1	Identify and distinguish lichen planus lesions from other causes	S	SH	Y	Bedside clinic	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR4.2	Enumerate and describe the treatment modalities for lichen planus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Scabies Number of competencies:(03) Number of procedures that require certificaion:(NIL)									
DR5.1	Describe the etiology, microbiology, pathogenesis, natural history, clinical features, presentations and complications of scabies in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
DR5.2	Identify and differentiate scabies from other lesions in adults and children	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	
DR5.3	Enumerate and describe the pharmacology, administration and adverse reaction of pharmacotherapies for scabies	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Pharmacology
Topic: Pediculosis Number of competencies : (02) Number of procedures that require certificaion:(NIL)									
DR6.1	Describe the etiology pathogenesis and diagnostic features of pediculosis in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR6.2	Identify and differentiate pediculosis from other skin lesions in adults and children	S	SH	Y	Bedside clinic	Skill assessment		Pediatrics	
Topic: Fungal Infections Number of competencies: (03) Number of procedures that require certificaion:(NIL)									
DR7.1	Describe the etiology, microbiology, pathogenesis and clinical presentations and diagnostic features of dermatophytes in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR7.2	Identify Candida species in fungal scrapings and KOH mount	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR7.3	Describe the pharmacology and action of antifungal (systemic and topical) agents. Enumerate side effects of antifungal therapy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pharmacology
Topic: Viral infections Number of competencies (07) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR8.1	Describe the etiology, microbiology, pathogenesis and clinical presentations and diagnostic features of common viral infections of the skin in adults and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
DR8.2	Identify and distinguish herpes simplex and herpes labialis from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.3	Identify and distinguish herpes zoster and varicella from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.4	Identify and distinguish viral warts from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.5	Identify and distinguish molluscum contagiosum from other skin lesions	S	SH	Y	DOAP session	Skill assessment			
DR8.6	Enumerate the indications, describe the procedure and perform a Tzanck smear	S	SH	Y	DOAP session	Skill assessment			
DR8.7	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for common viral illnesses of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
Topic: Leprosy Number of competencies: (07) Number of procedures that require certification: (NIL)									
DR9.1	Classify, describe the epidemiology, etiology, microbiology, pathogenesis, clinical presentations and diagnostic features of Leprosy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology, Community Medicine
DR9.2	Demonstrate (and classify based on) the clinical features of leprosy including an appropriate neurologic examination	S	SH	Y	Bedside clinic	Bedside clinic/ Skill assessment		General Medicine	
DR9.3	Enumerate the indications and observe the performance of a slit skin smear in patients with leprosy	S	KH	Y	Bedside clinic, DOAP session	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR9.4	Enumerate, describe and identify lepra reactions and supportive measures and therapy of lepra reactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
DR9.5	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for various classes of leprosy based on national guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.6	Describe the treatment of Leprosy based on the WHO guidelines	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Community Medicine
DR9.7	Enumerate and describe the complications of leprosy and its management, including understanding disability and stigma.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Psychiatry
Topic: Sexually Transmitted Diseases Number of competencies: (11) Number of procedures that require certification:(NIL)									
DR10.1	Identify and classify syphilis based on the presentation and clinical manifestations	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.2	Identify spirochete in a dark ground microscopy	S	SH	Y	DOAP session	Skill assessment			Microbiology
DR10.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for syphilis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
DR10.4	Describe the prevention of congenital syphilis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR10.5	Counsel in a non-judgemental and empathetic manner patients on prevention of sexually transmitted disease	C	SH	Y	DOAP session	Skill assessment		General Medicine	
DR10.6	Describe the etiology, diagnostic and clinical features of non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR10.7	Identify and differentiate based on the clinical features non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR10.8	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the non-syphilitic sexually transmitted diseases (chancroid, donovanosis and LGV)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
DR10.9	Describe the syndromic approach to ulcerative sexually transmitted disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR10.10	Describe the etiology, diagnostic and clinical features and management of gonococcal and non-gonococcal urethritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR10.11	Describe the etiology, diagnostic and clinical features and management of vaginal discharge	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Topic: HIV Number of competencies: (03) Number of procedures that require certification: (NIL)									
DR11.1	Describe the etiology, pathogenesis and clinical features of the dermatologic manifestations of HIV and its complications including opportunistic infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
DR11.2	Identify and distinguish the dermatologic manifestations of HIV, its complications, opportunistic infections and adverse reactions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Microbiology
DR11.3	Enumerate the indications and describe the pharmacology, administration and adverse reaction of pharmacotherapies for dermatologic lesions in HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Microbiology
Topic: Dermatitis and Eczema Number of competencies: (07) Number of procedures that require certification: (NIL)									
DR12.1	Describe the aetiopathogenesis of eczema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR12.2	Identify eczema and differentiate it from lichenification and changes of aging	S	SH	Y	Bedside clinic	Skill assessment			
DR12.3	Classify and grade eczema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
DR12.4	Enumerate the indications and describe the pharmacology, indications and adverse reactions of drugs used in the treatment of eczema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
DR12.5	Define erythroderma. Enumerate and identify the causes of erythroderma. Discuss the treatment	S	KH	Y	Bedside clinic	Written/ Skill assessment			
DR12.6	Identify and distinguish exfoliative dermatitis from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR12.7	Identify and distinguish fixed drug eruptions and Steven Johnson syndrome from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology, Microbiology
Topic: Vesicubullous Lesions Number of competencies:(03) Number of procedures that require certificaion:(NIL)									
DR13.1	Distinguish bulla from vesicles	S	SH	Y	Bedside clinic	Skill assessment			
DR13.2	Demonstrate the Tzanck test, nikolsky sign and bulla spread sign	S	SH	Y	Bedside clinic	Skill assessment			
DR13.3	Calculate the body surface area of involvement of vesiculobullous lesions	S	SH	Y	Bedside clinic	Skill assessment			
Topic: Urticaria Angioedema Number of competencies: (05) Number of procedures that require certificaion:(NIL)									
DR14.1	Describe the etiology, pathogenesis and clinical precipitating features and classification of Urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology, Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR14.2	Identify and distinguish urticarial from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR14.3	Demonstrate dermographism	S	SH	Y	Bedside clinic	Skill assessment			
DR14.4	Identify and distinguish angioedema from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR14.5	Enumerate the indications and describe the pharmacology indications and adverse reactions of drugs used in the urticaria and angioedema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pharmacology
Topic: Pyoderma Number of competencies: (04) Number of procedures that require certification:(NIL)									
DR15.1	Identify and distinguish folliculitis impetigo and carbuncle from other skin lesions	S	SH	Y	Bedside clinic	Skill assessment			
DR15.2	Identify staphylococcus on a gram stain	S	SH	Y	Bedside clinic	Skill assessment			Microbiology
DR15.3	Enumerate the indications and describe the pharmacology, indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	Microbiology, Pharmacology
DR15.4	Enumerate the indications for surgical referral	S	KH	Y	DOAP session	Written/ Viva voce		General Surgery	
Topic: Collagen Vascular disease Number of competencies: (02) Number of procedures that require certification:(NIL)									
See also major competencies listed in General Medicine									
DR16.1	Identify and distinguish skin lesions of SLE	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DR16.2	Identify and distinguish Raynaud's phenomenon	S	SH	Y	Bedside clinic	Skill assessment		General Medicine	Pathology
Topic: Nutritional Deficiencies and Skin Number of competencies: (04) Number of procedures that require certification:(NIL)									
DR17.1	Enumerate and identify the cutaneous findings in vitamin A deficiency	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Skill assessment/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.2	Enumerate and describe the various skin changes in Vitamin B complex deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.3	Enumerate and describe the various changes in Vitamin C deficiency	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
DR17.4	Enumerate and describe the various changes in Zinc deficiency	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics, Biochemistry	
Topic: Systemic diseases and the skin Number of competencies:(02) Number of procedures that require certification:(NIL)									
DR18.1	Enumerate the cutaneous features of Type 2 diabetes	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
DR18.2	Enumerate the cutaneous features of hypo/hyper-thyroidism	K	K	Y	Lecture, Small group	Written/ Viva voce		General Medicine	

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Human Anatomy									
AN4.2	Describe structure & function of skin with its appendages	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.4	Describe modifications of deep fascia with its functions	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		Dermatology, Venereology & Leprosy	
AN4.5	Explain principles of skin incisions	K	KH	N	Lecture	Written		Dermatology, Venereology & Leprosy	
Pathology									
PA34.1	Describe the risk factors, pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.2	Describe the risk factors, pathogenesis, pathology and natural history of basal cell carcinoma of the skin	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors, morphology, clinical features and metastases of melanoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.4	Identify, distinguish and describe common tumors of the skin	S	SH	N	DOAP session	Skill Assessment		Dermatology, Venereology & Leprosy	

Microbiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
MI4.3	Describe the etio-pathogenesis of Skin and soft tissue infections and discuss the clinical course, and the laboratory diagnosis.	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy, General Surgery	
MI7.2	Describe the etio-pathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures, wherever relevant.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy, Obstetrics & Gynaecology	

Pharmacology

PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.57	Describe drugs used in skin disorders	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	

Pediatrics

PE31.4	Identify Atopic dermatitis and manage	S	SH		Bedside clinics, Skill Lab	Skill Assessment		Dermatology, Venereology & Leprosy	

PHYSICAL MEDICINE & REHABILITATION (CODE: PM)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PHYSICAL MEDICINE & REHABILITATION									
Topic: Introduction to Physical Medicine		Number of competencies: (04)			Number of procedures that require certification:(NIL)				
PM1.1	Define and describe the scope of physical Medicine and Rehabilitation and functional restoration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PM1.2	Define and describe disability, its cause, and magnitude, identification and prevention of disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM1.3	Define and describe the methods to identify and prevent disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM1.4	Enumerate the rights and entitlements of differently abled persons	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
Topic: Cerebrovascular accident		Number of competencies: (04)			Number of procedures that require certification:(NIL)				
PM2.1	Describe the causes of disability in the patient with a cerebrovascular accident	K	KH	Y	Lecture, small group discussion	Written/ Viva voce		Human Anatomy	General Medicine
PM2.2	Describe and discuss the treatment of rigidity and spasticity	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.3	Describe and discuss the principles of early mobilizations, mobility aids and splints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM2.4	Describe and discuss the impact of co-morbidities on the rehabilitation of the patient with cerebrovascular accident	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Topic: Cerebral Palsy		Number ocompetencies: (07)			Number of procedures that require certification: (NIL)				
PM3.1	Describe and discuss the clinical features, types, evaluation, diagnosis and management of cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	Pediatrics

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM3.2	Recognize, Describe and discuss the spectrum of multiple disability: cognitive, motor, visual and hearing in cerebral palsy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.3	Recognize describe and discuss the role of special education in children with learning disabilities	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM3.4	Demonstrate spasticity rigidity and dystonia in children with cerebral palsy	S	SH	Y	DOAP session, Small group discussion, Bedside clinic	Skill assessment			Pediatrics
PM3.5	Enumerate the indications and describe the therapies for spasticity including medications, serial casts, nerve blocks, botulinum toxin injections	K	KH	Y	Lecture, Small group discussion			Pharmacology	Pediatrics, Orthopedics
PM3.6	Enumerate the indications and describe prevention of joint subluxations and contractures by proper positioning, and use of special chairs, and appliances	K	KH	Y	DOAP session, Small group discussion, Bedside clinic				Pediatrics
PM3.7	Enumerate the first aid measures to be used in patients with seizures	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
Topic: Musculoskeletal system Number of competencies : (05) Number of procedures that require certification: (NIL)									
PM4.1	Describe the common patterns, clinical features, investigations, diagnosis and treatment of common causes of arthritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM4.2	Describe and discuss the principles of management of chronic pain and role of common modalities (moist heat, ultrasound, Short wave diathermy)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
PM4.3	Observe in a mannequin or equivalent the administration of an intra-articular injection	S	KH	N	DOAP session	Skill assessment			Orthopedics
PM4.4	Describe the role of exercise as a therapeutic modality	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			General Medicine, Orthopedics
Topic: Amputation Number of competencies : (04) Number of procedures that require certification: (NIL)									
PM5.1	Enumerate the indications and describe the principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, General Surgery
PM5.2	Describe the principles of early mobilization, evaluation of the residual limb, contralateral limb and the influence of co-morbidities	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM5.3	Demonstrate the correct use of crutches in ambulation and postures to correct contractures and deformities	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			Orthopedics
PM5.4	Identify the correct prosthesis for common amputations	S	SH	Y	DOAP session	Skill assessment written			Orthopedics
Topic: Lower motor neruon lesion Number of competencies :(04) Number of procedures that require certification: (NIL)									
PM6.1	Perform and demonstrate a clinical examination of sensory and motor deficits of peripheral nerve	S	SH	Y	Bedside clinic	Skill assessment			General Medicine
PM6.2	Enumerate the indications and describe the principles of nerve conduction velocity and EMG	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM6.3	Describe the principles principles of skin traction, serial casts and surgical treatment including contracture release, tendon transfer, osteotomies and arthrodesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM6.4	Describe the principles of orthosis for ambulation in PPRP	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
Topic: Spinal injury Number of competencies:(09) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM7.1	Describe and discuss the clinical features, diagnostic work up and management of spinal cord injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM7.2	Describe and demonstrate process of transfer, application of collar restraints while maintaining airway and prevention of secondary injury in a mannequin/model	S	SH	Y	DOAP session, Small group discussion, Bedside clinic	Skill assessment			Orthopedics
PM7.3	Perform and demonstrate a correct neurological examination in a patient with spinal injury and determine the neurologic level of injury	S	SH	Y	Bed side clinic	Skill assessment			Orthopedics
PM7.4	Assess bowel and bladder function and identify common patterns of bladder dysfunction	S	KH	Y	Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM7.5	Enumerate the indications and identify the common mobility aids and appliances, wheel chairs	S	S	Y	DOAP session	Skill assessment /Viva voce			Orthopedics
PM7.6	Enumerate the indications and describe the pharmacology and side effects of commonly used drugs in neuropathic bladder	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Medicine
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein Thrombosis, Aspiration Pneumonia, Autonomic dysreflexia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM7.8	Enumerate the causes of, describe and classify Pressure Sores,their prevention, and treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
PM7.9	Enumerate the indications of debridement, and Split thickness skin grafting.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
Topic: Traumatic brain injury (TBI) Number of competencies:(05) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics, General Surgery
PM8.2	Describe and discuss cognitive dysfunction like deficits in attention, memory and communication.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.3	Describe and discuss common behavior and mood changes following TBI.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.4	Describe metabolic co-morbidities like SIADH, diabetes mellitus, insipidus and endocrine dysfunction following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
PM8.5	Describe the vocational opportunities and community based rehabilitation following TBI	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Topic: Geriatrics Number of competencies:(01) Number of procedures that require certification: (NIL)									
PM 9.1	Describe rehabilitative aspects as they pertain to the elderly including patients with dementia, depression, incontinence immobility and nutritional needs	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Psychiatry
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

Integration

General Medicine									
IM18.16	Enumerate the indications, describe and observe the multidisciplinary rehabilitation of patients with a CVA	S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Physical Medicine & Rehabilitation
IM24.13	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation

Pediatrics

PE3.8	Discuss the etio-pathogenesis, clinical presentation and multi-disciplinary approach in the management of Cerebral palsy	K	KH	Y	Lecture, Small group discussion, Bed side clinics	Written/ Viva voce			Physical Medicine & Rehabilitation

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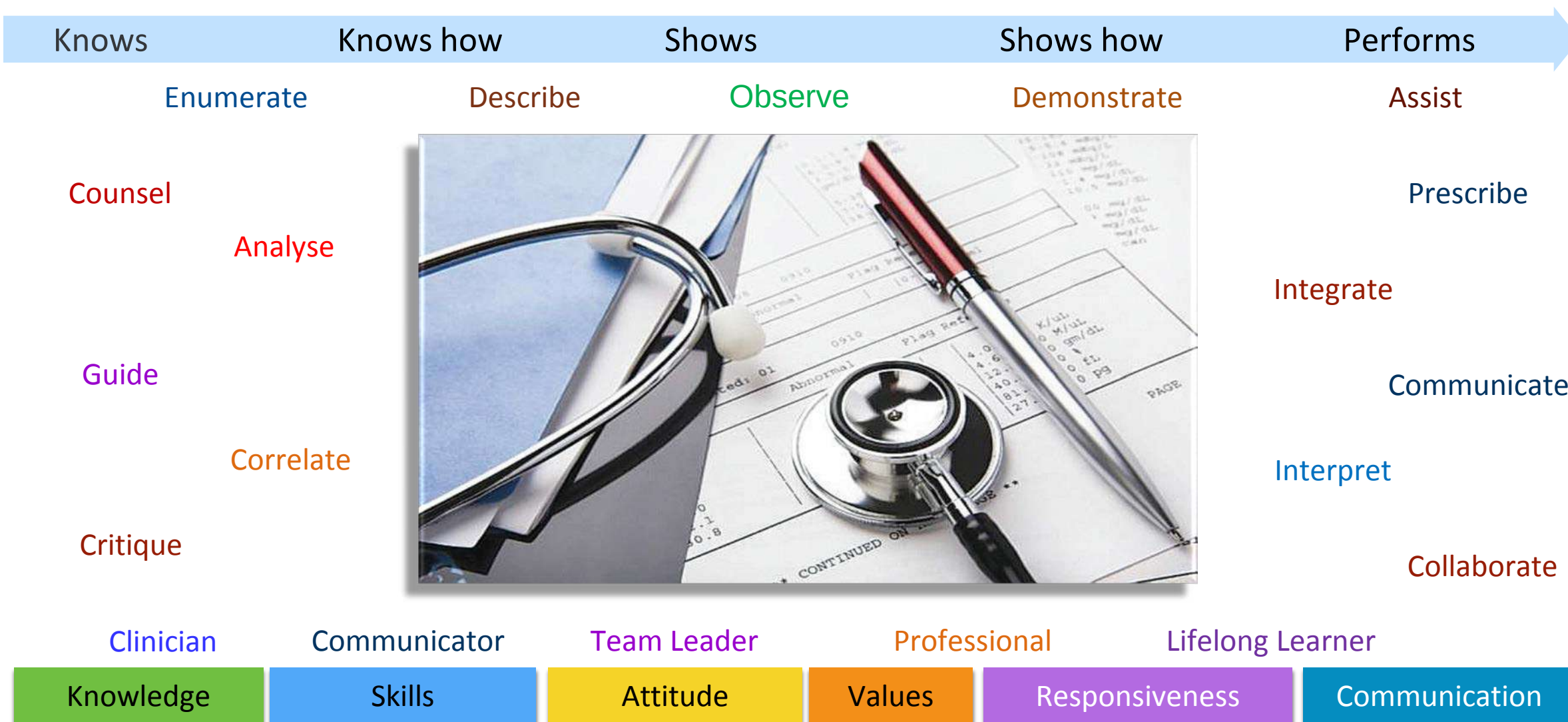
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MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



VOLUME-III (2018)

**COMPETENCY BASED UNDERGRADUATE CURRICULUM
FOR THE
INDIAN MEDICAL GRADUATE
2018**



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भारतीय आयुर्विज्ञान परिषद के अधिक्रमण में शासी बोर्ड

BOARD OF GOVERNORS IN SUPERSESSION OF MEDICAL COUNCIL OF INDIA

FOREWORD

The Medical Council of India, aware of its responsibilities in creation of trained health manpower, has been engaged for the past few years in updating the medical curriculum for undergraduates and postgraduates to be in consonance with the changing health needs of the country. The task of updating and reorganization of the postgraduate curriculum in nearly 50 broad specialty disciplines to the competency pattern was accomplished by the Academic Cell of the Council with the help of subject experts and members of its Reconciliation Board and have been uploaded on the Council Website for use of the medical fraternity.

The Council visualized that the Indian Medical Graduate, at the end of the undergraduate training program, should be able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations towards the realization of this goal. To fulfill the mandate of the undergraduate medical curriculum which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. The student should be trained to effectively communicate with patients and their relatives in a manner respectful of the patient's preferences, values, beliefs, confidentiality and privacy and to this purpose, a book on Attitude, Ethics & Communication was prepared by the Medical Council of India; the teaching faculty of medical colleges have been receiving training on this module since 2015.

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-2-

Competency based Medical Education provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies. Keeping this objective as the core ingredient, the Medical Council of India with the help of panel of experts drawn from across the country, laid the basic framework for the revised undergraduate medical curriculum. Over the past four years, a group of highly committed medical professionals working as Members of the MCI Reconciliation Board developed this information into a document incorporating appropriate teaching-learning strategies, tools and techniques of teaching, and modes of assessment which have culminated in the current competency based undergraduate curriculum. We understand that maximum efforts were made to encourage integrated teaching between traditional subject areas using a problem-based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both the understanding and resolution of the problem. All efforts have been made to de-emphasize compartmentalisation of disciplines so as to achieve both horizontal and vertical integration in different phases. We are proud of their work accomplishment and congratulate them in the onerous task accomplished.

It gives us great satisfaction to state that the '**competency based undergraduate curriculum**' that has been prepared by the Medical Council of India would definitely serve the cause of medical education and in creating a competent Indian Medical Graduate to serve the community.

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The Competency based Undergraduate Curriculum for MBBS students prepared by subject experts was scrutinized by members of the Reconciliation Board and Academic Cell. The contents, embodied in this document, have received Copyright from the Register of Copyrights, Copyright Office, Government of India with Registration Number L-63913/2016.

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COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Preamble

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide health care to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2018 will reveal that the 2018 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using “broad competencies”; instead, the reports have written end of phase subject (sub) competencies. These “sub-competencies” can be mapped to the global competencies in the Graduate Medical Education Regulations.

A significant attempt has been made in the outcome driven undergraduate curriculum to provide the orientation and the skills necessary for life-long learning to enable proper care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc. in suggesting skill acquisition and assessment methods; use of skills labs, simulated and guided environments are encouraged. In the pre-internship years,- the highest level of skill acquisition is a show how (SH) in a simulated or guided environment; few skills require independent performance and certification - these are marked with P (for performance). Opportunity to ‘perform’ these skills will be available during internship.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above, an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self directed learning and co-curricular activities.

Formative and internal assessments have been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened, increasing the involvement of Curriculum Committee and Medical Education Departments/Units.

The curriculum document in conjunction with the new Graduate Medical Education Regulations (GMR), when notified, must be seen as a “living document” that should evolve as stakeholder requirements and aspirations change. We hope that the current GMR does just that. The Medical Council of India is

grateful to all the teachers, subject experts, process experts, patients, students and trainees who have contributed through invaluable inputs, intellectual feedbacks and valuable time spent to make this possible. This document would not have been possible without the dedicated and unstinting intellectual, mental and time-consuming efforts of the members of the Reconciliation Board of the Council and the Academic Cell of MCI.

How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. They must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the global competencies extracted from the Graduate Medical Education Regulations, 2018. The global competencies identified as defining the roles of the **Indian Medical Graduate** are the broad competencies that the learner has to aspire to achieve; teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Graduate Medical Education Regulations, 2018

2. Objectives of the Indian Graduate Medical Training Programme

The undergraduate medical education program is designed with a goal to create an “Indian Medical Graduate” (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed:-

2.1. National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) recognize “health for all” as a national goal and health right of all citizens and by undergoing training for medical profession fulfill his/her social obligations towards realization of this goal.
- (b) learn every aspect of National policies on health and devote herself/himself to its practical implementation.
- (c) achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

2.2. Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities, be familiar with the administration of the "essential drugs" and their common side effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

- (e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:
 - (i) Family Welfare and Maternal and Child Health (MCH);
 - (ii) Sanitation and water supply;
 - (iii) Prevention and control of communicable and non-communicable diseases;
 - (iv) Immunization;
 - (v) Health Education;
 - (vi) Indian Public Health Standards (IPHS) at various level of service delivery;
 - (vii) Bio-medical waste disposal; and
 - (viii) Organizational and or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, General and hospital management, principal inventory skills and counseling.
- (h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.
- (i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- (j) be competent to work in a variety of health care settings.
- (k) have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11 Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate, as given in the Graduate Medical Education Regulations, 2018

2. 3. Goals for the Learner

In order to fulfil this goal, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- 2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- 2.3.2. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- 2.3.3. Communicator with patients, families, colleagues and community.
- 2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.
- 2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. *Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion*

- 3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioral and social perspective.
- 3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- 3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

- 3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- 3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- 3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- 3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- 3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- 3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- 3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- 3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
 - i) Disease prevention,
 - ii) Health promotion and cure,
 - iii) Pain and distress alleviation, and
 - iv) Rehabilitation and palliation.

- 3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- 3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- 3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

- 3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- 3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- 3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- 3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.
- 3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- 3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

3.3. *Communicator with patients, families, colleagues and community*

- 3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- 3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- 3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically reevaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. *Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession*

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise outcomes

Section 2 contains subject-wise outcomes so called “sub-competencies” that must be achieved at the end of instruction in that subject. These are organised in tables and have two parts. The core subject outcomes are in first part. The second part in the same document (titled Integration) contains outcomes/competencies in other subjects which have been identified by experts in those subjects as requiring alignment or integration with the core subject.

Outcomes (competencies) in each subject are grouped according to topics number-wise. It is important to review the individual outcomes (competencies) in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section “definitions used in this document”. The suggested number of times a skill must be performed independently for certification in the learner’s log book is also given. Last two columns indicate subjects within the same phase and other phases with which the topic can be taught - together - aligned (temporal coordination), shared, correlated or nested.

The number of topics and competencies in each subject are given below:

Topics & outcomes in Pre-clinical & Para-clinical subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Human Anatomy	82	409
2.	Physiology	11	137
3.	Biochemistry	11	89
4.	Pharmacology	05	85
5.	Pathology	36	182
6.	Microbiology	08	54
7.	Forensic Medicine & Toxicology	14	162
	Total	167	1118

Topics & outcomes in Medicine and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	Community Medicine	20	107
2.	General Medicine	26	506
3.	Respiratory Medicine	02	47
4.	Pediatrics	35	406
5.	Psychiatry	19	117
6.	Dermatology, Venereology & Leprosy	18	73
7.	Physical Medicine & Rehabilitation	09	43
	Total	129	1299

Topics & outcomes in Surgery and Allied subjects

Sr. No.	Subjects	Number of topics	Number of outcomes
1.	General Surgery	30	133
2.	Ophthalmology	09	60
3.	Otorhinolaryngology	04	76
4.	Obstetrics & Gynaecology	38	126
5.	Orthopedics	14	39
6.	Anesthesiology	10	46
7.	Radiodiagnosis	01	13
8.	Radiotherapy	05	16
9.	Dentistry	05	23
	Total	116	532

Section 3

Sample topics used for alignment & integration

Section 3 contains a sample selection of topics that run across the phases which can be used for alignment and integration. These are suggestions and institutions can select their own set of topics which can run across phases.

It is important to design the curriculum with a view to ensure with several broad outcomes in mind: a) achievement of the broad competencies by the learner at the end of the MBBS program, b) retain the subject - wise character of learning and assessment and ensure that phase-wise subject outcomes are met and assessed, c) teaching topics that are similar together thereby reducing redundancy and allowing the learner to integrate the concept as the most important step in integration (alignment or temporal coordination) (see document on integration), and d) align learning and assessment experiences to the outcome and the level of achievement specified.

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H	I	J
No.	Competencies	Domain	K/KH/SH/P	Core	Suggested Teaching Learning Method	Suggested Assessment method	No. required to certify (P)	Vertical Integration	Horizontal Integration
Physiology									
Summary Name of Topic: General Physiology Number of Competencies: (08)									
PY1.1	Describe the structure and functions of a	K	KH	Y	Lectures, Small group discussion	Written/Viva			Biochemistry
IM25.4	Elicit <i>document</i> and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	Skill assessment		Community Medicine	

Unique number of the competency. First two alphabets represent the subject (see list); number following alphabet reflects topic number, following period is a running number.

Description of competency

Identifies the domain or domains addressed
 K - Knowledge
 S - Skill
 A - Attitude
 C - Communication

Identifies the level of competency required based on the Miller's pyramid
 K - Knows
 KH - Knows How
 S - Skill
 SH - Show How
 P - Perform independently

Identifies if the competency is core or desirable.
 Y indicates Core;
 N-non-core

Identifies the suggested learning method.
 DOAP - Demonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
 Skill assessment - Clinics, Skills lab, Practicals etc.

no of times a skill needs to be done independently to be certified for independent performance;
 Rarely used in UG

Subject (s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject (s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

PA42.1*	At the end of the session the phase II student must be able to enumerate the most common causes of meningitis correctly
PA42.2*	At the end of the session the phase II student must be able to enumerate the components of CSF analysis correctly
PA42.3*	At the end of the session the phase II student must be able to describe the CSF features for a given etiology of meningitis accurately
PA42.4*	At the end of the session the phase II student must be able to identify the aetiology of meningitis correctly from a given set of CSF parameters

Audience - who will do the behavior

Behavior - What should the learner be able to do?

Condition - Under what conditions should the learner be able to do it?

Degree – How well must it be done

Objective: Statement of what a learner should be able to do at the end of a specific learning experience
***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning methods from competencies

Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Lecture	small group discussion
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Related objectives can be combined into one teaching session	
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given etiologic of meningitis accurately		
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	small group discussion, practical session	

*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies-1

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	Identify the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the ~~Phase II student~~ must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the Phase II student must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the Phase II student must be able to describe the CSF features for a given aetiology of meningitis accurately	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4*	At the end of the session the Phase II student must the able to identify the aetiology of meningitis correctly from a given set of CSF parameters	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document

Deriving assessment methods from competencies-2

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

MI2.4*	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine	Pathology

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the morphology of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects -teachers from both subjects usually not needed. Ensure redundancy and duplication by reviewing both subjects



Horizontally aligned and integrated with pathology

Vertically integrated with General Medicine



Integrate concept - not necessarily teachers Plan session with teachers from both phases. Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient). Using teachers from both phases is rarely required

The concept of integration

Concept of integration used in the Manual

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application. The GMR 2018 applies these principles to the extent that will retain the strengths of silo - based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind, the Regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be thought separately but during the same time frame (Figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to Share (Figure 1b) topics or Correlate (Figure 1c) topics by using an integration session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed. Care must be taken to ensure that achievement phase - based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasized that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may be involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - Nesting (Figure 1d) (Harden). Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year.

Assessment will continue to be subject based. However, efforts must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application.

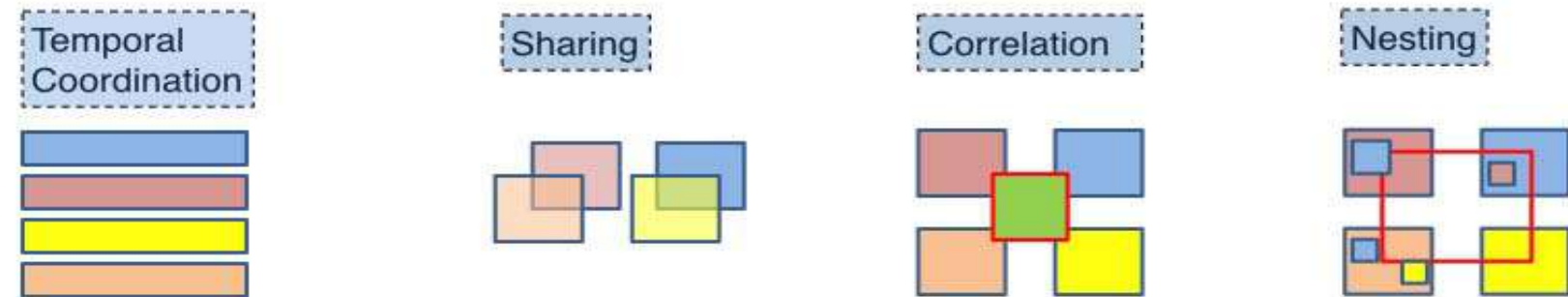


Figure 1 : Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Definitions used in the Manual

- 1. Goal:** A projected state of affairs that a person or system plans to achieve.
In other words: Where do you want to go? or What do you want to become?
- 2. Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.
In other words: What should you have? or What should have changed?
- 3. Objective:** Statement of what a learner should be able to do at the end of a specific learning experience.
In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Interpret	
Elicit		
Report		

Note:

1. Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.
2. The word ‘perform’ or ‘do’ is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
3. Most tasks that require performance during undergraduate years will be performed under supervision.
4. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

Lecture	Any instructional large group method including traditional lecture and interactive lecture
Small group discussion	Any instructional method involving small groups of students in an appropriate learning context
DOAP (Demonstration- Observation - Assistance - Performance)	A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently
Skill assessment	A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands
Core	A competency that is necessary in order to complete the requirements of the subject (traditional must know)
Non-Core	A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified.

Volume III

Competency based Undergraduate Curriculum in Surgery and Allied subjects

GENERAL SURGERY (CODE: SU)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
GENERAL SURGERY									
Topic: Metabolic response to injury Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU1.1	Describe Basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators.	K	KH	Y	Lecture, Bed side clinic, Small group discussion	Written/ Viva voce		Physiology, Biochemistry	
SU1.2	Describe the factors that affect the metabolic response to injury.	K	KH	Y	Lecture, Bed side clinic, Small group discussion	Written/ Viva voce		Biochemistry	
SU1.3	Describe basic concepts of perioperative care.	K	KH	Y	Lecture, Bed side clinic, Small group discussion	Written/ Viva voce			
Topic: Shock Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU2.1	Describe Pathophysiology of shock, types of shock & principles of resuscitation including fluid replacement and monitoring.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology, Physiology	
SU2.2	Describe the clinical features of shock and its appropriate treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU2.3	Communicate and counsel patients and families about the treatment and prognosis of shock demonstrating empathy and care	A/C	SH	Y	DOAP session	Skill assessment		AETCOM	
Topic: Blood and blood components Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU3.1	Describe the Indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
SU3.2	Observe blood transfusions.	S	SH	Y	Small group discussion, DOAP session	Skills assessment/ Log book			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU3.3	Counsel patients and family/ friends for blood transfusion and blood donation.	A/C	SH	Y	DOAP session	Skills assessment			
Topic: Burns Number of competencies: (04) Number of procedures that require certification: (NIL)									
SU4.1	Elicit document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
SU4.2	Describe Clinical features, Diagnose type and extent of burns and plan appropriate treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU4.3	Discuss the Medicolegal aspects in burn injuries.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU4.4	Communicate and counsel patients and families on the outcome and rehabilitation demonstrating empathy and care.	A /C	SH	Y	Small group discussion, Role play, Skills assessment	Viva voce			
Topic: Wound healing and wound care Number of competencies: (04) Number of procedures that require certification: (NIL)									
SU5.1	Describe normal wound healing and factors affecting healing.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
SU5.2	Elicit, document and present a history in a patient presenting with wounds.	C	SH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU5.3	Differentiate the various types of wounds, plan and observe management of wounds.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU5.4	Discuss medico legal aspects of wounds	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Surgical infections Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU6.1	Define and describe the aetiology and pathogenesis of surgical Infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU6.2	Enumerate Prophylactic and therapeutic antibiotics Plan appropriate management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Surgical Audit and Research Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU7.1	Describe the Planning and conduct of Surgical audit	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
SU7.2	Describe the principles and steps of clinical research in General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	
Topic: Ethics Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU8.1	Describe the principles of Ethics as it pertains to General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment	-	Forensic Medicine, AETCOM	
SU8.2	Demonstrate Professionalism and empathy to the patient undergoing General Surgery	A/C	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Forensic Medicine, AETCOM	
SU8.3	Discuss Medico-legal issues in surgical practice	A/C	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Forensic Medicine, AETCOM	
Topic: Investigation of surgical patient Number of competencies (03) Number of procedures that require certification: (NIL)									
SU9.1	Choose appropriate biochemical, microbiological, pathological, imaging investigations and interpret the investigative data in a surgical patient	C	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Microbiology, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU9.2	Biological basis for early detection of cancer and multidisciplinary approach in management of cancer	C	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU9.3	Communicate the results of surgical investigations and counsel the patient appropriately	C	SH	Y	DOAP session	Skill assessment			
Topic: Pre, intra and post- operative management. Number of competencies: (04) Number of procedures that require certification: (NIL)									
SU10.1	Describe the principles of perioperative management of common surgical procedures	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU10.2	Describe the steps and obtain informed consent in a simulated environment	S/A/C	SH	Y	DOAP session	Skill assessment/ Log book		AETCOM	
SU10.3	Observe common surgical procedures and assist in minor surgical procedures; Observe emergency lifesaving surgical procedures.	S	KH	Y	DOAP sessions	Log book			
SU10.4	Perform basic surgical Skills such as First aid including suturing and minor surgical procedures in simulated environment	S	P	Y	DOAP session	Skill assessment			
Topic: Anaesthesia and pain management Number of competencies: (06) Number of procedures that require certification: (NIL)									
SU11.1	Describe principles of Preoperative assessment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anaesthesiology
SU11.2	Enumerate the principles of general, regional, and local Anaesthesia.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anaesthesiology
SU11.3	Demonstrate maintenance of an airway in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			Anaesthesiology
SU11.4	Enumerate the indications and principles of day care General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU11.5	Describe principles of providing post-operative pain relief and management of chronic pain.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anaesthesiology
SU11.6	Describe Principles of safe General Surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Nutrition and fluid therapy Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU12.1	Enumerate the causes and consequences of malnutrition in the surgical patient	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU12.2	Describe and discuss the methods of estimation and replacement of the fluid and electrolyte requirements in the surgical patient	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Physiology	
SU12.3	Discuss the nutritional requirements of surgical patients, the methods of providing nutritional support and their complications	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce		Biochemistry	
Topic: Transplantation Number of competencies: (04) Number of procedures that require certification: (NIL)									
SU13.1	Describe the immunological basis of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU13.2	Discuss the Principles of immunosuppressive therapy.Enumerate Indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology, Pharmacology	
SU13.3	Discuss the legal and ethical issues concerning organ donation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		AETCOM	
SU13.4	Counsel patients and relatives on organ donation in a simulated environment	S	SH	Y	DOAP session	Skill assessment		AETCOM	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Basic Surgical Skills Number of competencies: (04) Number of procedures that require certification: (NIL)									
SU14.1	Describe Aseptic techniques, sterilization and disinfection.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU14.2	Describe Surgical approaches, incisions and the use of appropriate instruments in Surgery in general.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU14.3	Describe the materials and methods used for surgical wound closure and anastomosis (sutures, knots and needles)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU14.4	Demonstrate the techniques of asepsis and suturing in a simulated environment	S	SH	Y	DOAP session	Skill assessment/ Log book			
Topic: Biohazard disposal Number of competencies: (01) Number of procedures that require certification: (NIL)									
SU15.1	Describe classification of hospital waste and appropriate methods of disposal.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
Topic: Minimally invasive General Surgery Number of competencies: (01) Number of procedures that require certification: (NIL)									
SU16.1	Minimally invasive General Surgery: Describe indications advantages and disadvantages of Minimally invasive General Surgery	K	K	Y	Lecture, Demonstration, Bedside clinic, Discussion	Theory/ Practical / Orals/Written/ Viva voce			
Topic: Trauma Number of competencies: (10) Number of procedures that require certification: (NIL)									
SU17.1	Describe the Principles of FIRST AID	S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Anaesthesiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU17.3	Describe the Principles in management of mass casualties	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.4	Describe Pathophysiology, mechanism of head injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.5	Describe clinical features for neurological assessment and GCS in head injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.6	Chose appropriate investigations and discuss the principles of management of head injuries	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.7	Describe the clinical features of soft tissue injuries. Chose appropriate investigations and discuss the principles of management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.8	Describe the pathophysiology of chest injuries.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.9	Describe the clinical features and principles of management of chest injuries.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU17.10	Demonstrate Airway maintenance. Recognize and manage tension pneumothorax, hemothorax and flail chest in simulated environment.	S	SH	Y	DOAP session	Skill assessment/ Log book			Anaesthesiology
Topic: Skin and subcutaneous tissue Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU18.1	Describe the pathogenesis, clinical features and management of various cutaneous and subcutaneous infections.	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce			
SU18.2	Classify skin tumors Differentiate different skin tumors and discuss their management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU18.3	Describe and demonstrate the clinical examination of surgical patient including swelling and order relevant investigation for diagnosis. Describe and discuss appropriate treatment plan.	S	SH	Y	Bedside clinic, Small group discussion, DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Developmental anomalies of face, mouth and jaws Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU19.1	Describe the etiology and classification of cleft lip and palate	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce		Human Anatomy	
SU19.2	Describe the Principles of reconstruction of cleft lip and palate	K	KH	Y	Lecture, Small group Discussion	Written/ Viva voce		Human Anatomy	
Topic: Oropharyngeal cancer Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU20.1	Describe etiopathogenesis of oral cancer symptoms and signs of oropharyngeal cancer.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
SU20.2	Enumerate the appropriate investigations and discuss the Principles of treatment.	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Disorders of salivary glands Number of competencies: (02) Number of procedures that require certification: (NIL)									
SU21.1	Describe surgical anatomy of the salivary glands, pathology, and clinical presentation of disorders of salivary glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU21.2	Enumerate the appropriate investigations and describe the Principles of treatment of disorders of salivary glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Endocrine General Surgery: Thyroid and parathyroid Number of competencies: (06) Number of procedures that require certification: (NIL)									
SU22.1	Describe the applied anatomy and physiology of thyroid	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU22.2	Describe the etiopathogenesis of thyroidal swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU22.3	Demonstrate and document the correct clinical examination of thyroid swellings and discuss the differential diagnosis and their management	S	SH	Y	Bedside clinic	Skill assessment			
SU22.4	Describe the clinical features, classification and principles of management of thyroid cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU22.5	Describe the applied anatomy of parathyroid	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU22.6	Describe and discuss the clinical features of hypo - and hyperparathyroidism and the principles of their management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
Topic: Adrenal glands Number of competencies: (03) Number of procedures that require certification: (NIL)									
SU23.1	Describe the applied anatomy of adrenal glands	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU23.2	Describe the etiology, clinical features and principles of management of disorders of adrenal gland	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
SU23.3	Describe the clinical features, principles of investigation and management of Adrenal tumors	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Pancreas		Number of competencies: (03)			Number of procedures that require certification: (NIL)				
SU24.1	Describe the clinical features, principles of investigation, prognosis and management of pancreatitis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU24.2	Describe the clinical features, principles of investigation, prognosis and management of pancreatic endocrine tumours	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU24.3	Describe the principles of investigation and management of Pancreatic disorders including pancreatitis and endocrine tumors.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
Topic: Breast		Number of competencies: (05)			Number of procedures that require certification: (NIL)				
SU25.1	Describe applied anatomy and appropriate investigations for breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU25.2	Describe the etiopathogenesis, clinical features and principles of management of benign breast disease including infections of the breast	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU25.3	Describe the etiopathogenesis, clinical features, Investigations and principles of treatment of benign and malignant tumours of breast.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
SU25.4	Counsel the patient and obtain informed consent for treatment of malignant conditions of the breast	A/ C	SH	Y	DOAP session	Skill assessment			
SU25.5	Demonstrate the correct technique to palpate the breast for breast swelling in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			
Topic: Cardio-thoracic General Surgery- Chest - Heart and Lungs		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
SU26.1	Outline the role of surgery in the management of coronary heart disease, valvular heart diseases and congenital heart diseases	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU26.3	Describe the clinical features of mediastinal diseases and the principles of management	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
SU26.4	Describe the etiology, pathogenesis, clinical features of tumors of lung and the principles of management	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Vascular diseases Number of competencies: (08) Number of procedures that require certification: (NIL)									
SU27.1	Describe the etiopathogenesis, clinical features, investigations and principles of treatment of occlusive arterial disease.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU27.2	Demonstrate the correct examination of the vascular system and enumerate and describe the investigation of vascular disease	S	SH	Y	DOAP session	Skill assessment			
SU27.3	Describe clinical features, investigations and principles of management of vasospastic disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU27.4	Describe the types of gangrene and principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU27.5	Describe the applied anatomy of venous system of lower limb	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
SU27.6	Describe pathophysiology, clinical features, Investigations and principles of management of DVT and Varicose veins	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
SU27.7	Describe pathophysiology, clinical features, investigations and principles of management of Lymph edema, lymphangitis and Lymphomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU27.8	Demonstrate the correct examination of the lymphatic system	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
Topic: Abdomen Number of competencies: (18) Number of procedures that require certification: (NIL)									
SU28.1	Describe pathophysiology, clinical features, Investigations and principles of management of Hernias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU28.2	Demonstrate the correct technique to examine the patient with hernia and identify different types of hernias.	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
SU28.3	Describe causes, clinical features, complications and principles of mangament of peritonitis	K	K	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce			
SU28.4	Describe pathophysiology, clinical features, investigations and principles of management of Intra-abdominal abscess, mesenteric cyst, and retroperitoneal tumors	K	K	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU28.5	Describe the applied Anatomy and physiology of esophagus	K	K	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy, Physiology	
SU28.6	Describe the clinical features, investigations and principles of management of benign and malignant disorders of esophagus	K	K	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU28.7	Describe the applied anatomy and physiology of stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
SU28.8	Describe and discuss the aetiology, the clinical features, investigations and principles of management of congenital hypertrophic pyloric stenosis, Peptic ulcer disease, Carcinoma stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU28.9	Demonstrate the correct technique of examination of a patient with disorders of the stomach	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
SU28.10	Describe the applied anatomy of liver. Describe the clinical features, Investigations and principles of management of liver abscess, hydatid disease, injuries and tumors of the liver	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	
SU28.11	Describe the applied anatomy of spleen. Describe the clinical features, investigations and principles of management of splenic injuries. Describe the post-splenectomy sepsis - prophylaxis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU28.12	Describe the applied anatomy of biliary system. Describe the clinical features, investigations and principles of management of diseases of biliary system	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	
SU28.13	Describe the applied anatomy of small and large intestine	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce		Human Anatomy	
SU28.14	Describe the clinical features, investigations and principles of management of disorders of small and large intestine including neonatal obstruction and Short gut syndrome	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
SU28.15	Describe the clinical features, investigations and principles of management of diseases of Appendix including appendicitis and its complications.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
SU28.16	Describe applied anatomy including congenital anomalies of the rectum and anal canal	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU28.17	Describe the clinical features, investigations and principles of management of common anorectal diseases	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
SU28.18	Describe and demonstrate clinical examination of abdomen. Order relevant investigations. Describe and discuss appropriate treatment plan	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment			
Topic: Urinary System Number of competencies: (11) Number of procedures that require certification: (NIL)									
SU29.1	Describe the causes, investigations and principles of management of Hematuria	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.2	Describe the clinical features, investigations and principles of management of congenital anomalies of genitourinary system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU29.3	Describe the Clinical features, Investigations and principles of management of urinary tract infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Microbiology	
SU29.4	Describe the clinical features, investigations and principles of management of hydronephrosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.5	Describe the clinical features, investigations and principles of management of renal calculi	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.6	Describe the clinical features, investigations and principles of management of renal tumours	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.7	Describe the principles of management of acute and chronic retention of urine	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.8	Describe the clinical features, investigations and principles of management of bladder cancer	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
SU29.9	Describe the clinical features, investigations and principles of management of disorders of prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment			
SU29.10	Demonstrate a digital rectal examination of the prostate in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			
SU29.11	Describe clinical features, investigations and management of urethral strictures	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
Topic: Penis, Testis and scrotum Number of competencies: (06) Number of procedures that require certification: (NIL)									
SU30.1	Describe the clinical features, investigations and principles of management of phimosis, paraphimosis and carcinoma penis.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
SU30.2	Describe the applied anatomy clinical features, investigations and principles of management of undescended testis.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.3	Describe the applied anatomy clinical features, investigations and principles of management of epididymo-orchitis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.4	Describe the applied anatomy clinical features, investigations and principles of management of varicocele	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.5	Describe the applied anatomy, clinical features, investigations and principles of management of Hydrocele	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
SU30.6	Describe classification, clinical features, investigations and principles of management of tumours of testis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
	Column C: K- Knowledge, S – Skill , A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Human Anatomy									
AN6.3	Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system	K	KH	N	Lecture	Written		General Surgery	
AN9.2	Breast-Describe the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied anatomy of breast	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN10.4	Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN10.6	Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis	K	KH	N	Lecture	Written		General Surgery	
AN10.7	Explain anatomical basis of enlarged axillary lymph nodes	K	KH	N	Lecture	Written		General Surgery	
AN11.3	Describe the anatomical basis of Venepuncture of cubital veins	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	
AN12.8	Describe anatomical basis of Claw hand	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN12.10	Explain infection of fascial spaces of palm	K	KH	N	Lecture	Written		General Surgery	
AN12.11	Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN12.12	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN12.13	Describe the anatomical basis of Wrist drop	K	KH	Y	Lecture	Written/Viva voce		General Surgery	
AN12.14	Identify & describe compartments deep to extensor retinaculum	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN15.3	Describe and demonstrate boundaries, floor, roof and contents of femoral triangle	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN15.4	Explain anatomical basis of Psoas abscess & Femoral hernia	K	KH	N	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.2	Describe anatomical basis of sciatic nerve injury during gluteal intramuscular injections	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN16.3	Explain the anatomical basis of Trendelenburg sign	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN18.3	Explain the anatomical basis of foot drop	K	KH	Y	Lecture, DOAP session	Written/ Viva voce		General Surgery	
AN19.3	Explain the concept of "Peripheral heart"	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN20.4	Explain anatomical basis of enlarged inguinal lymph nodes	K	KH	N	Lecture	Written/ Viva voce		General Surgery	
AN20.5	Explain anatomical basis of varicose veins and deep vein thrombosis	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN20.9	Identify & demonstrate palpation of vessels (femoral, popliteal, dorsalis pedis, post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, great and small saphenous veins	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Medicine General Surgery	
AN23.1	Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN23.2	Describe & demonstrate the extent, relations, tributaries of thoracic duct and enumerate its applied anatomy	K/S	SH	Y	Practical, Lecture, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN23.7	Mention the extent, relations and applied anatomy of lymphatic duct	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN27.1	Describe the layers of scalp, its blood supply, its nerve supply and surgical importance	K	KH	Y	Practical, Lecture	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN28.8	Explain surgical importance of deep facial vein	K	KH	Y	Lecture	Written		General Surgery	
AN28.9	Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN28.10	Explain the anatomical basis of Frey's syndrome	K	KH	N	Lecture	Written		General Surgery	
AN29.2	Explain anatomical basis of Erb's & Klumpke's palsy	K	KH	Y	Lecture	Written		General Surgery	
AN29.3	Explain anatomical basis of wry neck	K	KH	N	Lecture	Written		General Surgery	
AN30.1	Describe the cranial fossae & identify related structures.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/Skill assessment		General Surgery	
AN30.2	Describe & identify major foramina with structures passing through them	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN33.2	Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN33.4	Explain the clinical significance of pterygoid venous plexus	K	KH	Y	Lecture	Written		General Surgery	
AN33.5	Describe the features of dislocation of temporomandibular joint	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN34.1	Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibular ganglion	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN34.2	Describe the basis of formation of submandibular stones	K	KH	N	Lecture	Written		General Surgery	
AN35.2	Describe & demonstrate location, parts, borders, surfaces, relations & blood supply of thyroid gland	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN35.5	Describe & demonstrate extent, drainage & applied anatomy of cervical lymph nodes	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN35.8	Describe the anatomically relevant clinical features of Thyroid swellings	K	KH	N	Lecture	Written		General Surgery	
AN35.9	Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib	K	KH	N	Lecture	Written		General Surgery	
AN43.5	Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels	K/S	SH	Y	Practical	Viva voce/ Skill assessment		General Surgery	
AN43.6	Demonstrate surface projection of Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & Accessory nerve	K/S	SH	N	Practical	Viva voce/ Skill assessment		General Surgery	
AN44.1	Describe & demonstrate the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN44.4	Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN44.5	Explain the anatomical basis of inguinal hernia.	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN44.6	Describe & demonstrate attachments of muscles of anterior abdominal wall	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN44.7	Enumerate common Abdominal incisions	K	KH	N	Lecture	Written		General Surgery	
AN46.1	Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN46.4	Explain the anatomical basis of varicocele	K	KH	N	Lecture	Written		General Surgery	
AN46.5	Explain the anatomical basis of Phimosi s & Circumcision	K	KH	N	Lecture	Written		General Surgery	
AN47.1	Describe & identify boundaries and recesses of Lesser & Greater sac	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN47.2	Name & identify various peritoneal folds & pouches with its explanation.	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN47.3	Explain anatomical basis of Ascites & Peritonitis	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN47.4	Explain anatomical basis of Subphrenic abscess	K	KH	N	Lecture	Written		General Surgery	
AN47.5	Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written		General Surgery	
AN47.6	Explain the anatomical basis of Splenic notch, accessory spleens, Kehr's sign, different types of vagotomy, liver biopsy (site of needle puncture), referred pain in cholecystitis, Obstructive jaundice, referred pain around umbilicus, radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach	K	KH	N	Lecture	Written		General Surgery	
AN47.7	Mention the clinical importance of Calot's triangle	K	KH	N	Lecture	Written		General Surgery	
AN47.10	Enumerate the sites of portosystemic anastomosis	K	KH	Y	Lecture	Written		General Surgery	
AN47.11	Explain the anatomic basis of hematemesis & caput medusae in portal hypertension	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN47.14	Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia	K	KH	N	Lecture	Written		General Surgery	
AN48.5	Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation	K	KH	N	Lecture	Written		General Surgery	
AN48.6	Describe neurological basis of automatic bladder	K	KH	N	Lecture	Written		General Surgery	
AN48.7	Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer	K	KH	N	Lecture	Written		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN48.8	Mention the structures palpable during vaginal & rectal examination	K	KH	N	Lecture	Written		Obstetrics & Gynaecology General Surgery	
AN49.4	Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		General Surgery	
AN52.5	Describe the development and congenital anomalies of diaphragm	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.6	Describe the development and congenital anomalies of foregut, midgut & hindgut	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN52.7	Describe the development of urinary system	K	KH	Y	Lecture	Written/ Viva voce		General Surgery	
AN53.1	Identify & hold the bone in the anatomical position, describe the salient features, articulations & demonstrate the attachments of muscle groups	K/S	SH	Y	Lecture, DOAP session	Viva voce/ Skill assessment		General Surgery, Obstetrics & Gynaecology	
AN55.1	Demonstrate the surface marking of regions and planes of abdomen, superficial inguinal ring, deep inguinal ring, McBurney's point, Renal Angle & Murphy's point	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Surgery	
AN55.2	Demonstrate the surface projections of: stomach, liver, fundus of gall bladder, spleen, duodenum, pancreas, ileocaecal junction, kidneys & root of mesentery	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		General Surgery	
Biochemistry									
BI10.1	Describe the cancer initiation promotion oncogenes & oncogene activation.	K	KH	Y	Lectures, Small group discussion	Written/ viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy.	K	KH	Y	Lectures, Small group discussion	Written/ viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lectures, Small group discussion	Written/ viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
Pathology									
PA4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.2	Enumerate and describe the mediators of acute inflammation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA5.1	Define and describe the process of repair and regeneration including wound healing and its types	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA6.3	Define and describe shock, its pathogenesis and its stages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.1	Describe the diagnostic role of cytology and its application in clinical care	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA8.2	Describe the basis of exfoliative cytology including the technique, stains used	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ Skill assessment		General Surgery	
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA19.4	Describe and discuss the pathogenesis pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	S	SH	Y	DOAP session	Skill assessment		General Surgery	
PA19.6	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.4	Enumerate blood components and describe their clinical uses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA24.4	Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.5	Describe and etiology and pathogenesis and pathologic features of Tuberculosis of the intestine	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.6	Describe and etiology and pathogenesis and pathologic and distinguishing features of inflammatory bowel disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.7	Describe the etiology and pathogenesis and pathologic and distinguishing features of carcinoma of the colon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA28.13	Define, classify and describe the etiology, pathogenesis, pathology, laboratory urinary findings, distinguishing features, progression and complications of renal stone disease and obstructive uropathy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA28.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of urothelial tumors	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.1	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.3	Describe the pathogenesis, pathology, hormonal dependency, presenting and distinguishing features, urologic findings and diagnostic tests of benign prostatic hyperplasia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.4	Describe the pathogenesis, pathology, hormonal dependency, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.2	Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast	S	SH	N	DOAP session	Skill assessment		General Surgery	
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy , Physiology, General Medicine, Pathology	
PA32.6	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
Microbiology									
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	K	KH	Y	Small group discussions, Case discussion	Written/ Viva voce/ OSPE		General Surgery	
MI7.1	Describe the etio-pathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)	S	P	Y	DOAP session	Skill assessment	3 each in (Hand hygiene & PPE)	General Surgery	Community Medicine
Community Medicine									
CM13.1	Define and describe the concept of Disaster management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
CM13.2	Describe disaster management cycle	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
CM13.3	Describe man-made disasters in the world and in India	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
CM13.4	Describe the details of the National Disaster management Authority	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery, General Medicine	
Forensic Medicine & Toxicology									
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially --maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. -- documents of issuance of wound certificate -- documents of issuance of drunkenness certificate. -- documents of issuance of sickness and fitness certificate. -- documents for issuance of death certificate. -- documents of Medical Certification of Cause of Death - Form Number 4 and 4A -- documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM2.19	Investigation of anaesthetic, operative deaths:Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
FM2.25	Describe types of injuries, clinical features, patho-physiology, post-mortem findings and medico-legal aspects in cases of burns, scalds, lightening, electrocution and radiations.	K	KH	Y	Lecture, Small group discussion, Autopsy, DOAP session	Written/ Viva voce/ OSPE		General Surgery	
FM3.3	Mechanical injuries and wounds: Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self-inflicted/fabricated wounds and their medico-legal aspects.	K	KH	Y	Lectures, Small group discussion, Bed side clinic/ DOAP session	Written/ Viva voce/ OSCE		General Surgery	
FM3.4	Mechanical injuries and wounds: define injury, assault & hurt. Describe IPC pertaining to injuries	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		General Surgery	
FM3.6	Mechanical injuries and wounds:Describe healing of injury and fracture of bones with its medico-legal importance	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
FM3.8	Mechanical injuries and wounds:Describe and discuss different types of weapons including dangerous weapons and their examination.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.9	Firearm injuries:Describe different types of firearms including structure and components, along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking.	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		General Surgery, Orthopaedics	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		General Surgery, Orthopaedics	
FM3.11	Regional Injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
FM3.12	Regional Injuries: Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine.	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic or autopsy, DOAP session	Written/ Viva voce/ OSCE/OSPE		General Surgery, Orthopaedics	
Dermatology, Venereology & Leprosy									
DR15.3	Enumerate the indications and describe the pharmacology, indications and adverse reactions of topical and systemic drugs used in treatment of pyoderma	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Surgery	Microbiology, Pharmacology
DR15.4	Enumerate the indications for surgical referral	S	KH	Y	DOAP session	Written/Viva voce		General Surgery	
Anesthesiology									
AS3.1	Describe the principles of preoperative evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery, General Medicine
AS3.2	Elicit, present and document an appropriate history including medication history in a patient undergoing Surgery as it pertains to a preoperative anaesthetic evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AS3.3	Demonstrate and document an appropriate clinical examination in a patient undergoing General Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.4	Choose and interpret appropriate testing for patients undergoing Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.5	Determine the readiness for General Surgery in a patient based on the preoperative evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS5.6	Observe and describe the principles and steps/ techniques involved in common blocks used in Surgery(including brachial plexus blocks)	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS6.3	Describe the common complications encountered by patients in the recovery room, their recognition and principles of management	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS9.3	Describe the principles of fluid therapy in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS9.4	Enumerate blood products and describe the use of blood products in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	General Surgery
AS10.3	Describe the role of communication in patient safety	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	General Surgery
General Medicine									
IM5.8	Describe and discuss the pathophysiology, clinical evolution and complications of cholelithiasis and cholecystitis	K	K	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	K	K	Y	Bed side clinic, Small group discussion	Written/ Viva voce		Radiodiagnosis	General Surgery
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites, spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group discussion	Skill assessment/ Written/ Viva voce		Pharmacology	General Surgery
IM5.18	Enumerate the indications for hepatic transplantation	K	K	Y	Written, Small group discussion	Written/ Viva voce			General Surgery
IM12.6	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and severity including systemic signs of thyrotoxicosis and hypothyroidism, palpation of the pulse for rate and rhythm abnormalities, neck palpation of the thyroid and lymph nodes and cardiovascular findings	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			General Surgery
IM12.7	Demonstrate the correct technique to palpate the thyroid	S	SH	Y	Bedside clinic, DOAP session	Skill assessment			General Surgery
IM12.8	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	K	KH	Y	Bedside clinic, small group discussion	Short case			General Surgery
IM12.9	Order and interpret diagnostic testing based on the clinical diagnosis including CBC, thyroid function tests and ECG and radio iodine uptake and scan	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			General Surgery
IM12.10	Identify atrial fibrillation, pericardial effusion and bradycardia on ECG	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.11	Interpret thyroid function tests in hypo-and hyperthyroidism	S	SH	Y	Bedside clinic, lab	Skill assessment			General Surgery
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Viva voce/ Short note		Pharmacology	General Surgery
IM12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and Surgery in the management of thyrotoxicosis	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce, Skill assessment		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM13.7	Elicit document and present a history that will help establish the aetiology of cancer and includes the appropriate risk factors, duration and evolution	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.8	Perform and demonstrate a physical examination that includes an appropriate general and local examination that excludes the diagnosis, extent spread and complications of cancer	S	SH	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.9	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	S	K	Y	Bedside clinic	Skill assessment/ Short case		Human Anatomy	General Surgery
IM13.10	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	K	Y	Bedside clinic	Skill assessment/ Short case			General Surgery
IM13.13	Describe and assess pain and suffering objectively in a patient with cancer	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM13.14	Describe the indications for General Surgery, radiation and chemotherapy for common malignancies	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery
IM14.14	Describe and enumerate the indications and side effects of bariatric surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.1	Enumerate,describe and discuss the aetiology of upper and lower GI bleeding	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.2	Enumerate describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Written/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology, Physiology	General Surgery
IM15.4	Elicit document and present an appropriate history that identifies the route of bleeding, quantity, grade, volume loss, duration, etiology, comorbid illnesses and risk factors	S	SH	Y	Bedside clinic	Skill assessment			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.5	Perform, demonstrate and document a physical examination based on the history that includes general examination, volume assessment and appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	Skill assessment			General Surgery
IM15.6	Distinguish between upper and lower gastrointestinal bleeding based on the clinical features	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.7	Demonstrate the correct technique to perform an anal and rectal examination in a mannequin or equivalent	S	SH	Y	DOAP session	Skill assessment			General Surgery
IM15.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	S	SH	Y	Bedside clinic, Skills lab	Skill assessment/ Short note/ Viva voce			General Surgery
IM15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test.	S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Short note/ Viva voce		Pathology	General Surgery
IM15.10	Enumerate the indications for endoscopy, colonoscopy and other imaging procedures in the investigation of Upper GI bleeding	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce			General Surgery
IM15.11	Develop, document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion, and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM15.13	Observe cross matching and blood / blood component transfusion	S	SH	Y	Bedside clinic	Short note/ Viva voce/ Skill assessment		Pathology	General Surgery
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce		Pharmacology, Microbiology	General Surgery
IM15.16	Enumerate the indications for endoscopic interventions and Surgery	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM15.17	Determine appropriate level of specialist consultation	S	K	Y	Small group discussion				General Surgery
IM15.18	Counsel the family and patient in an empathetic non-judgmental manner on the diagnosis and therapeutic options	S	SH	Y	DOAP session	Skill assessment			General Surgery
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lectures, Small group discussion	Written/ Viva voce		Pathology	General Surgery
IM16.15	Distinguish, based on the clinical presentation, Crohn's disease from ulcerative colitis	S	SH	Y	Lecture, Small group discussion	Short note/ Viva voce		Pathology	General Surgery
IM16.17	Describe and enumerate the indications for Surgery in inflammatory bowel disease	K	K	Y	Lecture, Small group discussion	Short note/ Viva voce			General Surgery
IM18.15	Enumerate the indications for Surgery in a hemorrhagic stroke	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
IM19.9	Enumerate the indications for use of Surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	General Surgery
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pathology	General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.11	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology, General Surgery
Obstetrics & Gynaecology									
OG26.2	Describe the causes, prevention, clinical features, principles of management of genital injuries and fistulae	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Surgery
OG33.2	Describe the principles of management including Surgery and radiotherapy of benign, pre-malignant (CIN) and malignant Lesions of the Cervix	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Surgery
Pediatrics									
PE21.8	Elicit, document and present a history pertaining to diseases of the Genitourinary tract00	S	SH	Y	Bedside clinics, Skills lab	Skill Assessment			General Surgery
PE21.14	Recognize common surgical conditions of the abdomen and genitourinary system and enumerate the indications for referral including acute and subacute intestinal obstruction, appendicitis pancreatitis perforation intussusception, Phimosis, undescended testis, Chordee, hypospadiasis, Torsion testis, hernia Hydrocele, Vulval Synechiae	S	SH	Y	Bed side clinics, Skills lab	Log book assessment			General Surgery
Orthopedics									
OR1.1	Describe and discuss the principles of pre-hospital care and casualty management of a trauma victim including principles of triage	K/S/A/C	K/KH	Y	Lecture with video, Small group discussion	Written/ Viva voce/ OSCE/ Simulation			General Surgery - Anaesthesiology
OR1.2	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of shock	K/S	K/KH	Y	Lecture	Written/ Viva voce/ OSCE/ Simulation			General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR1.3	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of soft tissue injuries	K	KH/ SH	Y	Lecture, Small group discussion	Written/ OSCE			General Surgery
OR1.4	Describe and discuss the principles of management of soft tissue injuries	K	K/KH	Y	Lecture, Small group discussion	Written Assesment/ Viva voce			General Surgery
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/ SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	General surgery
OR3.3	Participate as a member in team for procedures like drainage of abscess, sequestrectomy/ saucerisation and arthrotomy	K/S/A/C	SH	Y	DOAP session, Video demonstration	Viva voce/ OSCE/ Skills assessment			General Surgery
OR4.1	Describe and discuss the clinical features, Investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE		Pathology	General surgery
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, Investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce OSCE		Pathology	General surgery, Radiotherapy
OR11.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture Small Group discussion, Case discussion	Written/ Viva voce/ OSCE		Human Anatomy	General Medicine, General surgery
Physical Medicine & Rehabilitation									
PM5.1	Enumerate the indications and describe the principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, General Surgery

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM7.8	Enumerate the causes of, describe, classify Pressure sores, prevention, and treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
PM7.9	Enumerate the indications of debridement, and Split thickness skin grafting.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics, General Surgery
Radiotherapy									
RT1.1	Describe and discuss definition of radiation, mechanism of action of radiation, types of radiation	K	KH	Y	Lecture	Written/ Viva voce			General Surgery Anaesthesiology
RT1.3	Enumerate, describe and discuss and classify staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, General Medicine
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture, Bed side clinic	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bedside clinic, Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.8	Describe oncological emergencies and palliative care	K/A/S	K/KH	Y	Lecture, Group discussion	Written/ Viva voce			General Surgery, Obstetrics & Gynaecology
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

OPHTHALMOLOGY (CODE: OP)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OPHTHALMOLOGY									
Topic: Visual Acuity Assessment		Number of Competenscs: (05)			Number of procedures that require certification : (NIL)				
OP1.1	Describe the physiology of vision	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology	
OP1.2	Define, classify and describe the types and methods of correcting refractive errors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP1.3	Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, colour vision, the pin hole test and the menace and blink reflexes	S	SH	Y	DOAP session, Lecture	Skill assessment/ Logbook			
OP1.4	Enumerate the indications and describe the principles of refractive surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP1.5	Define, enumerate the types and the mechanism by which strabismus leads to amblyopia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Lids and Adnexa, Orbit		Number of Competencies: (08)			Number of procedures that require certification: (NIL)				
OP2.1	Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP2.2	Demonstrate the symptoms & clinical signs of conditions enumerated in OP2.1	S	S	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP2.3	Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ ectropion, perform the regurgitation test of lacrimal sac. massage technique in cong. dacryocystitis, and trichiatic cilia removal by epilation	S	SH	Y	DOAP session, Lecture	Skill assessment			
OP2.4	Describe the aetiology, clinical presentation. Discuss the complications and management of orbital cellulitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.5	Describe the clinical features on ocular examination and management of a patient with cavernous sinus thrombosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.6	Enumerate the causes and describe the differentiating features, and clinical features and management of proptosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.7	Classify the various types of orbital tumours. Differentiate the symptoms and signs of the presentation of various types of ocular tumours	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP2.8	List the investigations helpful in diagnosis of orbital tumors. Enumerate the indications for appropriate referral	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Conjunctiva Number of Competencies (09) Number of procedures that require certification: (NIL)									
OP3.1	Elicit document and present an appropriate history in a patient presenting with a “red eye” including congestion, discharge, pain	S	SH	Y	DOAP session	Skill Assessment			
OP3.2	Demonstrate document and present the correct method of examination of a “red eye” including vision assessment, corneal lustre, pupil abnormality, ciliary tenderness	S	SH	Y	DOAP session	Skill Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP3.3	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications. and management of various causes of conjunctivitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.4	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of trachoma.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.5	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.6	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.7	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of symblepharon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP3.8	Demonstrate correct technique of removal of foreign body from the eye in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
OP3.9	Demonstrate the correct technique of instillation of eye drops in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Corneas Number of Competencies: (10) Number of procedures that require certification: (NIL)									
OP4.1	Enumerate, describe and discuss the types and causes of corneal ulceration	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
OP4.2	Enumerate and discuss the differential diagnosis of infective keratitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP4.3	Enumerate the causes of corneal edema	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.4	Enumerate the causes and discuss the management of dry eye	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.5	Enumerate the causes of corneal blindness	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.6	Enumerate the indications and the types of keratoplasty	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.7	Enumerate the indications and describe the methods of tarsorrhaphy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.8	Demonstrate technique of removal of foreign body in the cornea in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
OP4.9	Describe and discuss the importance and protocols involved in eye donation and eye banking	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP4.10	Counsel patients and family about eye donation in a simulated environment	A/C	SH	Y	DOAP session	Skill assessment			
Topic: Sclera Number of competencies: (02) Number of procedures that require certification : (NIL)									
OP5.1	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features complications indications for referral and management of episcleritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP5.2	Define, enumerate and describe the aetiology, associated systemic conditions, clinical features, complications, indications for referral and management of scleritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
Topic: Iris and Anterior chamber Number of Competencies (10) Number of procedures that require certification: (NIL)									
OP6.1	Describe clinical signs of intraocular inflammation and enumerate the features that distinguish granulomatous from non-granulomatous inflammation. Identify acute iridocyclitis from chronic condition	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.2	Identify and distinguish acute iridocyclitis from chronic iridocyclitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.3	Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine
OP6.4	Describe and distinguish hyphema and hypopyon	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.5	Describe and discuss the angle of the anterior chamber and its clinical correlates	K	KH		Lecture, Small group discussion	Written/ Viva voce			
OP6.6	Identify and demonstrate the clinical features and distinguish and diagnose common clinical conditions affecting the anterior chamber	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
OP6.7	Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP6.8	Enumerate and choose the appropriate investigation for patients with conditions affecting the Uvea	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.9	Choose the correct local and systemic therapy for conditions of the anterior chamber and enumerate their indications, adverse events and interactions	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP6.10	Counsel patients with conditions of the iris and anterior chamber about their diagnosis, therapy and prognosis in an empathetic manner in a simulated environment	A/C	SH	Y	DOAP session	Skill assessment			
Topic: Lens Number of Competencies: (06) Number of procedures that require certification: (NIL)									
OP7.1	Describe the surgical anatomy and the metabolism of the lens	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Human Anatomy	
OP7.2	Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pathology	
OP7.3	Demonstrate the correct technique of ocular examination in a patient with a cataract	S	SH	Y	DOAP session	Skill assessment			
OP7.4	Enumerate the types of cataract surgery and describe the steps, intra-operative and post-operative complications of extracapsular cataract extraction surgery.	S	KH	Y	DOAP session, Lecture, Small group discussion	Written/ Viva voce			
OP7.5	To participate in the team for cataract surgery	S	SH	Y	DOAP session	Skill assessment/ Logbook documentation			
OP7.6	Administer informed consent and counsel patients for cataract surgery in a simulated environment	S	SH	Y	DOAP session	Skill Assessment			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Retina & optic Nerve Number of Competencies (05) Number of procedures that require certification : (NIL)									
OP8.1	Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Pathology	
OP8.2	Enumerate the indications for laser therapy in the treatment of retinal diseases (including retinal detachment, retinal degenerations, diabetic retinopathy & hypertensive retinopathy)	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
OP8.3	Demonstrate the correct technique of a fundus examination and describe and distinguish the funduscopic features in a normal condition and in conditions causing an abnormal retinal exam	S	SH	Y	Lecture, Small group discussion	Skill Assessment			
OP8.4	Enumerate and discuss treatment modalities in management of diseases of the retina	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OP8.5	Describe and discuss the correlative anatomy, aetiology, clinical manifestations, diagnostic tests, imaging and management of diseases of the optic nerve and visual pathway	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Miscellaneous Number of Competencies (05) Number of procedures that require certification: (01)									
OP9.1	Demonstrate the correct technique to examine extra ocular movements (Uniocular & Binocular)	S	P	Y	DOAP session	Skill Assessment	5		
OP9.2	Classify, enumerate the types, methods of diagnosis and indications for referral in a patient with heterotropia/ strabismus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ skill assessment			
OP9.3	Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OP9.4	Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine
OP9.5	Describe the evaluation and enumerate the steps involved in the stabilisation, initial management and indication for referral in a patient with ocular injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration

Human Anatomy									
AN30.5	Explain effect of pituitary tumours on visual pathway	K	KH	N	Lecture	Written		Ophthalmology	
AN31.3	Describe anatomical basis of Horner's syndrome	K	KH	N	Lecture	Written		Ophthalmology	
AN31.5	Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus	K	KH	Y	Lecture	Written		Ophthalmology	
AN41.1	Describe & demonstrate parts and layers of eyeball	K/S	SH	Y	Practical, Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	
AN41.2	Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion	K	KH	N	Lecture	Written		Ophthalmology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN41.3	Describe the position, nerve supply and actions of intraocular muscles	K	KH	N	Lecture	Written		Ophthalmology	
Physiology									
PY10.17	Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, Refractive errors, colour blindness, Physiology of pupil and light reflex	K	KH	Y	Lecture, Small group discussion	Written/viva		Ophthalmology	
PY10.18	Describe and discuss the physiological basis of lesion in visual pathway	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
PY10.19	Describe and discuss auditory & visual evoke potentials	K	KH	Y	Lecture, Small group discussion	Written/ viva		Ophthalmology	
PY10.20	Demonstrate testing of visual acuity, colour and field of vision in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1	ENT, Ophthalmology	
Pathology									
PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	
Pharmacology									
PH1.58	Describe drugs used in Ocular disorders	K	KH	Y	Lecture	Written/ Viva voce		Ophthalmology	
General Medicine									
IM24.15	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Ophthalmology

OTORHINOLARYNGOLOGY (ENT) (CODE: EN)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OTORHINOLARYNGOLOGY (ENT)									
Topic: Anatomy and Physiology of ear, nose, throat, head & neck		Number of competencies:(02)			Number of procedures that require certification:(NIL)				
EN1.1	Describe the Anatomy & physiology of ear, nose, throat, head & neck	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Human Anatomy	
EN1.2	Describe the pathophysiology of common diseases in ENT	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		Pathology	
Topic: Clinical Skills		Number of competencies: (15)			Number of procedures that require certification : (NIL)				
EN2.1	Elicit document and present an appropriate history in a patient presenting with an ENT complaint	K/S/A/C	SH	Y	Lecture, Small group discussion, Demonstration	Skill assessment			
EN2.2	Demonstrate the correct use of a headlamp in the examination of the ear, nose and throat	S	SH	Y	DOAP session	Skill assessment/ OSCE			
EN2.3	Demonstrate the correct technique of examination of the ear including Otoscopy	K/S/A	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.4	Demonstrate the correct technique of performance and interpret tuning fork tests	K/S/A	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.5	Demonstrate the correct technique of examination of the nose & paranasal sinuses including the use of nasal speculum	S	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.6	Demonstrate the correct technique of examining the throat including the use of a tongue depressor	S	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.7	Demonstrate the correct technique of examination of neck including elicitation of laryngeal crepitus	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN2.8	Demonstrate the correct technique to perform and interpret pure tone audiogram & impedance audiogram	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.9	Choose correctly and interpret radiological, microbiological & histological investigations relevant to the ENT disorders	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment			
EN2.10	Identify and describe the use of common instruments used in ENT surgery	K	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.11	Describe and identify by clinical examination malignant & pre- malignant ENT diseases	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN2.12	Counsel and administer informed consent to patients and their families in a simulated environment	S/A/C	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.13	Identify, resuscitate and manage ENT emergencies in a simulated environment (including tracheostomy, anterior nasal packing, removal of foreign bodies in ear, nose, throat and upper respiratory tract)	K/S/A	SH	Y	DOAP session, Bedside clinic	Skill assessment			
EN2.14	Demonstrate the correct technique to instilling topical medications into the ear, nose and throat in a simulated environment	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment/ OSCE			
EN2.15	Describe the national programs for prevention of deafness, cancer, noise & environmental pollution	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
Topic: Diagnostic and Therapeutic procedures in ENT Number of competencies:(06) Number of procedures that require certification:(NIL)									
EN3.1	Observe and describe the indications for and steps involved in the performance of Otomicroscopic examination in a simulated environment	S	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN3.2	Observe and describe the indications for and steps involved in the performance of diagnostic nasal Endoscopy	S	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN3.3	Observe and describe the indications for and steps involved in the performance of Rigid/Flexible Laryngoscopy	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN3.4	Observe and describe the indications for and steps involved in the removal of foreign bodies from ear, nose & throat	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN3.5	Observe and describe the indications for and steps involved in the surgical procedures in ear, nose & throat	K	KH	N	Lecture, small group discussion, Demonstration	Written/ Viva voce			
EN3.6	Observe and describe the indications for and steps involved in the skills of emergency procedures in ear, nose & throat	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
Topic: Management of diseases of ear, nose & throat Number of competencies: (53) Number of procedures that require certification : (NIL)									
EN4.1	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Otagia	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.2	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of diseases of the external Ear	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.3	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of ASOM	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.4	Demonstrate the correct technique to hold visualize and assess the mobility of the tympanic membrane and its mobility and interpret and diagrammatically represent the findings	K/S/A	SH	Y	Clinical, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.5	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of OME	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.6	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Discharging ear	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.7	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of CSOM	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.8	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of CSOM	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.9	Demonstrate the correct technique for syringing wax from the ear in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
EN4.10	Observe and describe the indications for and steps involved in myringotomy and myringoplasty	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.11	Enumerate the indications describe the steps and observe a mastoidectomy	K/S	KH	Y	DOAP session	Written/ Viva voce			
EN4.12	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Hearing loss	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.13	Describe the clinical features, investigations and principles of management of Otosclerosis	K	KH	Y	Lecture, Small group discussion; Demonstration	Written/ Viva voce/ Skill assessment			
EN4.14	Describe the clinical features, investigations and principles of management of Sudden Sensorineural Hearing Loss	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.15	Describe the clinical features, investigations and principles of management of Noise Induced Hearing Loss	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.16	Observe and describe the indications for and steps involved in the performance of pure tone audiometry	S	KH	Y	DOAP session	Written/ Viva			
EN4.17	Enumerate the indications and interpret the results of an audiogram	S	SH	Y	DOAP session	Skill assessment			
EN4.18	Describe the clinical features, investigations and principles of management of Facial Nerve palsy	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.19	Describe the clinical features, investigations and principles of management of Vertigo	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.20	Describe the clinical features, investigations and principles of management of Meniere's Disease	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.21	Describe the clinical features, investigations and principles of management of Tinnitus	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.22	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Nasal Obstruction	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.23	Describe the clinical features, investigations and principles of management of DNS	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.24	Enumerate the indications observe and describe the steps in a septoplasty	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.25	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Nasal Polyps	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.26	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Adenoids	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.27	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Allergic Rhinitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.28	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Vasomotor Rhinitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.29	Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Acute & Chronic Rhinitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.30	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Epistaxis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.31	Describe the clinical features, investigations and principles of management of trauma to the face & neck	K/S	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.32	Describe the clinical features, investigations and principles of management of nasopharyngeal Angiofibroma	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.33	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Acute & Chronic Sinusitis	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.34	Describe the clinical features, investigations and principles of management of Tumors of Maxilla	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.35	Describe the clinical features, investigations and principles of management of Tumors of Nasopharynx	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.36	Describe the clinical features, investigations and principles of management of diseases of the Salivary glands	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.37	Describe the clinical features, investigations and principles of management of Ludwig's angina	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.38	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of type of dysphagia	K/S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.39	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Acute & Chronic Tonsillitis	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.40	Observe and describe the indications for and steps involved in a tonsillectomy / adenoidectomy	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.41	Describe the clinical features, investigations and principles of management of Acute & chronic abscesses in relation to Pharynx	K/S	KH	Y	Lecture, Small group discussion Demonstration	Written/ Viva voce			
EN4.42	Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of hoarseness of voice	K/S	SH	Y	Lecture, Small group discussion, DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
EN4.43	Describe the clinical features, investigations and principles of management of Acute & Chronic Laryngitis	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.44	Describe the clinical features, investigations and principles of management of Benign lesions of the vocal cord	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce			
EN4.45	Describe the clinical features, investigations and principles of management of Vocal cord palsy	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.46	Describe the clinical features, investigations and principles of management of Malignancy of the Larynx & Hypopharynx	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.47	Describe the clinical features, investigations and principles of management of Stridor	K	KH	Y	Lecture, Small group discussion Demonstration	Written/ Viva voce/ Skill assessment			
EN4.48	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Airway Emergencies	S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
EN4.49	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of foreign bodies in the air & food passages	S	SH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.50	Observe and describe the indications for and steps involved in tracheostomy	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.51	Observe and describe the care of the patient with a tracheostomy	S	KH	Y	DOAP session	Written/ Viva voce			
EN4.52	Describe the Clinical features, Investigations and principles of management of diseases of Oesophagus	K	ENT	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment			
EN4.53	Describe the clinical features, investigations and principles of management of HIV manifestations of the ENT	K	KH	N	Lecture, Small group discussion, Demonstration	Written/ Viva voce/ Skill assessment		General Medicine	
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								

Integration

Human Anatomy									
AN36.1	Describe the (1) morphology, relations, blood supply and applied anatomy of palatine tonsil and (2) composition of soft palate	K	KH	Y	Lecture	Written		ENT	
AN36.2	Describe the components and functions of waldeyer's lymphatic ring	K	KH	Y	Lecture	Written		ENT	
AN36.3	Describe the boundaries and clinical significance of pyriform fossa	K	KH	N	Lecture	Written		ENT	
AN36.4	Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess	K	KH	N	Lecture	Written		ENT	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN36.5	Describe the clinical significance of Killian's dehiscence	K	KH	N	Lecture	Written		ENT	
AN37.1	Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN37.2	Describe location and functional anatomy of paranasal sinuses	K	KH	Y	Lecture	Written		ENT	
AN37.3	Describe anatomical basis of sinusitis & maxillary sinus tumours	K	KH	N	Lecture	Written		ENT	
AN38.1	Describe the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN38.2	Describe the anatomical aspects of laryngitis	K	KH	N	Lecture	Written		ENT	
AN38.3	Describe anatomical basis of recurrent laryngeal nerve injury	K	KH	N	Lecture	Written		ENT	
AN39.2	Explain the anatomical basis of hypoglossal nerve palsy	K	KH	N	Lecture	Written		ENT	
AN40.1	Describe & identify the parts, blood supply and nerve supply of external ear	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.2	Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		ENT	
AN40.3	Describe the features of internal ear	K	KH	N	Lecture	Written		ENT	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN40.4	Explain anatomical basis of otitis externa and otitis media	K	KH	N	Lecture	Written		ENT	
AN40.5	Explain anatomical basis of myringotomy	K	KH	N	Lecture	Written		ENT	
Physiology									
PY10.13	Describe and discuss perception of smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		ENT	
PY10.15	Describe and discuss functional anatomy of ear and auditory pathways & physiology of hearing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
PY10.16	Describe and discuss pathophysiology of deafness. Describe hearing tests	K	KH	Y	Lecture, Small group discussion	Written /Viva voce		ENT	
PY10.20	Demonstrate (i) hearing (ii) testing for smell and (iii) taste sensation in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1 each x 3	ENT, Ophthalmology	
Community Medicine									
CM3.1	Describe the health hazards of air, water, noise, radiation and pollution.	K	KH	Y	Lecture, small group discussion	Written/ Viva voce		General Medicine, ENT	
Dentistry									
DE4.1	Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity	K	K	N	Lecture	Viva voce		Pathology	ENT
DE4.2	Discuss the role of etiological factors in the formation of precancerous /cancerous lesions	K	KH	Y	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.3	Identify potential pre-cancerous /cancerous lesions	S	SH	N	Observation, Bed side clinics	Skill assessment		Pathology	ENT

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DE4.4	Counsel patients to risks of oral cancer with respect to tobacco, smoking, alcohol and other causative factors	A/C	SH	Y	DOAP session	Document in Log book	2	Pathology	ENT
General Medicine									
IM24.17	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of hearing loss in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			ENT
Pediatrics									
PE14.2	Discuss the risk factors, clinical features, Diagnosis and management of Kerosene ingestion	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.1	Discuss the etio-pathogenesis, clinical features and management of Naso pharyngitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.2	Discuss the etio-pathogenesis of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.3	Discuss the clinical features and management of Pharyngo Tonsillitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.4	Discuss the etio-pathogenesis, clinical features and management of Acute Otitis Media (AOM)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.5	Discuss the etio-pathogenesis, clinical features and management of Epiglottitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.6	Discuss the etio-pathogenesis, clinical features and management of Acute laryngo- trachea-bronchitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.7	Discuss the etiology, clinical features and management of Stridor in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
PE28.8	Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE28.9	Elicit, document and present age appropriate history of a child with upper respiratory problem including Stridor	S	SH	Y	Bedside clinics, skill lab	Skill Assessment		ENT	
PE28.10	Perform otoscopic examination of the ear	S	SH	Y	DOAP session	Skill Assessment		ENT	
PE28.11	Perform throat examination using tongue depressor	S	SH	Y	DOAP session	Skill Assessment		ENT	
PE28.12	Perform examination of the nose	S	P	Y	DOAP session	Skill Assessment		ENT	
PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use written report in case of management. Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in pediatric chest X-rays	S	P	Y	Bedside clinics, Small group discussion	Skills Assessment	3	ENT, Radiodiagnosis	
PE31.1	Describe the etio-pathogenesis, management and prevention of Allergic Rhinitis in Children	K	KH	Y	Lecture Small group discussion	Written/ Viva voce		ENT	
PE31.3	Describe the etio-pathogenesis, clinical features and management of Atopic dermatitis in children	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	
General Surgery									
SU20.1	Describe etiopathogenesis of oral cancer, symptoms and signs of pharyngeal cancer. Enumerate the appropriate investigations and discuss the principles of treatment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		ENT	

OBSTETRICS & GYNECOLOGY (CODE: OG)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OBSTETRICS & GYNAECOLOGY									
Topic: Demographic and Vital Statistics Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG1.1	Define and discuss birth rate, maternal mortality and morbidity	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	
OG1.2	Define and discuss perinatal mortality and morbidity including perinatal and neonatal mortality and morbidity audit	K	KH	Y	Lecture, Small group discussion	Short notes		Community Medicine	Pediatrics
OG1.3	Define and discuss still birth and abortion	K	KH	Y	Lecture, Small group discussion	Short notes		Forensic Medicine & Toxicology	
Topic: Anatomy of the female reproductive tract (Basic anatomy and embryology) Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG2.1	Describe and discuss the development and anatomy of the female reproductive tract, relationship to other pelvic organs, applied anatomy as related to Obstetrics and Gynaecology.	K	KH	Y	Lecture, Small group discussion	Theory/ Skill station		Human Anatomy	
Topic: Physiology of conception Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG3.1	Describe the physiology of ovulation, menstruation, fertilization, implantation and gametogenesis.	K	K	Y	Lecture, seminars	Theory		Physiology	
Topic: Development of the fetus and the placenta Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG4.1	Describe and discuss the basic embryology of fetus, factors influencing fetal growth and development, anatomy and physiology of placenta, and teratogenesis	K	K	Y	Lecture, Small group discussion	Theory		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Preconception counselling Number of competencies:(02) Number of procedures that require certification : (NIL)									
OG5.1	Describe, discuss and identify pre-existing medical disorders and discuss their management; discuss evidence-based intrapartum care	K/S	SH	Y	Lecture, Bedside clinics	Theory/ clinical assessment			
OG5.2	Determine maternal high risk factors and verify immunization status	K/S	SH	Y	Lecture, Bedside clinics	Theory/ clinical assessment			
Topic: Diagnosis of pregnancy Number of competencies:(01) Number of procedures that require certification : (NIL)									
OG6.1	Describe, discuss and demonstrate the clinical features of pregnancy, derive and discuss its differential diagnosis, elaborate the principles underlying and interpret pregnancy tests.	S	SH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ Clinical assessment/ Viva voce			
Topic: Maternal Changes in pregnancy Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG7.1	Describe and discuss the changes in the genital tract, cardiovascular system, respiratory, haematology, renal and gastrointestinal system in pregnancy	K	KH	Y	Lecture, seminars	Theory		Physiology	
Topic: Antenatal Care Number of competencies: (08) Number of procedures that require certification : (NIL)									
OG8.1	Enumerate, describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors.	K	KH	Y	Small group discussion, Bedside clinics, Lecture	Written/ Viva voce/ Skill assessment		Community Medicine	
OG8.2	Elicit document and present an obstetric history including menstrual history, last menstrual period, previous obstetric history, comorbid conditions, past medical history and surgical history	K/S	SH	Y	Small group discussion, Bedside clinics, Lecture	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG8.3	Describe, demonstrate, document and perform an obstetrical examination including a general and abdominal examination and clinical monitoring of maternal and fetal well-being;	K/S	SH	Y	Bed side clinic, DOAP session	Skill assessment			
OG8.4	Describe and demonstrate clinical monitoring of maternal and fetal well-being	K/S	SH	Y	Bedside clinic, DOAP session, Small group discussion	Skill assessment/ Written/ Viva voce			
OG8.5	Describe and demonstrate pelvic assessment in a model	K/S	SH	Y	DOAP session	Skill assessment			
OG8.6	Assess and counsel a patient in a simulated environment regarding appropriate nutrition in pregnancy	K/S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
OG8.7	Enumerate the indications for and types of vaccination in pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG8.8	Enumerate the indications and describe the investigations including the use of ultrasound in the initial assessment and monitoring in pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Complications in early pregnancy Number of competencies: (05) Number of procedures that require certification: (NIL)									
OG9.1	Classify, define and discusses the aetiology and management of abortions including threatened, incomplete, inevitable, missed and septic	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation	S	SH	Y	DOAP session, Bedside clinic	Viva voce		Forensic Medicine	
OG9.3	Discuss the aetiology, clinical features, differential diagnosis of acute abdomen in early pregnancy (with a focus on ectopic pregnancy) and enumerate the principles of medical and surgical management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG9.4	Discuss the clinical features, laboratory investigations, ultrasonography, differential diagnosis, principles of management and follow up of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Radiodiagnosis
OG9.5	Describe the etiopathology, impact on maternal and fetal health and principles of management of hyperemesis gravidarum	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Antepartum haemorrhage Number of competencies: (02) Number of competencies that require certification: (NIL)									
OG10.1	Define, classify and describe the aetiology, pathogenesis, clinical features, ultrasonography, differential diagnosis and management of antepartum haemorrhage in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinic				
OG10.2	Enumerate the indications and describe the appropriate use of blood and blood products, their complications and management.	K	KH	Y	Lecture, Small group discussion			Pathology	
Topic: Multiple pregnancies Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG11.1	Describe the etiopathology, clinical features; diagnosis and investigations, complications, principles of management of multiple pregnancies	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ OSCE/ Clinical assessment/ Viva voce			
Topic: Medical Disorders in pregnancy Number of competencies: (08) Number of procedures that require certification : (NIL)									
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations; principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia.	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG12.2	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.3	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.5	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of urinary tract infections in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.6	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of liver disease in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.7	Describe and discuss screening, risk factors, management of mother and newborn with HIV	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Medicine
OG12.8	Describe the mechanism, prophylaxis, fetal complications, diagnosis and management of isoimmunization in pregnancy	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Labour Number of competencies: (05) Number of procedures that require certification : (01)									
OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labor in occipito-anterior presentation; monitoring of labor including partogram; conduct of labor, pain relief; principles of induction and acceleration of labor; management of third stage of labor.	K/S	KH	Y	Lecture, Small group discussion (with models/ videos/ AV aids, etc.)	Theory/Clinical assessment/ Viva voce			
OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Theory/ OSCE/ Clinical assessment/ Viva voce			
OG13.3	Observe/ assist in the performance of an artificial rupture of membranes	S	SH	N	DOAP session, Bedside clinic	Skill assessment			
OG13.4	Demonstrate the stages of normal labor in a simulated environment / mannequin and counsel on methods of safe abortion.	S	SH	Y	DOAP session	Skill assessment			
OG13.5	Observe and assist the conduct of a normal vaginal delivery	S	P	Y	DOAP session	Log book	10		
Topic: Abnormal Lie and Presentation; Maternal Pelvis Number of competencies: (04) Number of procedures that need certification : (NIL)									
OG14.1	Enumerate and discuss the diameters of maternal pelvis and types	K	KH	Y	Lecture, Small group discussion DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment		Human Anatomy	
OG14.2	Discuss the mechanism of normal labor, Define and describe obstructed labor, its clinical features; prevention; and management	K	KH	Y	Lecture, Small group discussion DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG14.3	Describe and discuss rupture uterus, causes, diagnosis and management.	K	KH	Y	Lecture, Small group discussion DOAP session, Bedside clinic	Written/ Viva voce/ Skill assessment			
OG14.4	Describe and discuss the classification; diagnosis; management of abnormal labor	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment			
Topic: Operative obstetrics Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG15.1	Enumerate and describe the indications and steps of common obstetric procedures, technique and complications: Episiotomy, vacuum extraction; low forceps; Caesarean section, assisted breech delivery; external cephalic version; cervical cerclage	S	KH	Y	Lecture, Small group discussion, seminars	Written/ skill assessment			
OG15.2	Observe and assist in the performance of an episiotomy and demonstrate the correct suturing technique of an episiotomy in a simulated environment. Observe/Assist in operative obstetrics cases – including - CS, Forceps, vacuum extraction, and breech delivery	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			
Topic: Complications of the third stage Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG16.1	Enumerate and discuss causes, prevention, diagnosis, management, appropriate use of blood and blood products in postpartum haemorrhage	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment			
OG16.2	Describe and discuss uterine inversion – causes, prevention, diagnosis and management.	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG16.3	Describe and discuss causes, clinical features, diagnosis, investigations; monitoring of fetal well-being, including ultrasound and fetal Doppler; principles of management; prevention and counselling in intrauterine growth retardation	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ skill assessment/ Viva voce			
Topic: Lactation Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG17.1	Describe and discuss the physiology of lactation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG17.2	Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding	S/A/C	SH	Y	DOAP session	Skill assessment			
OG17.3	Describe and discuss the clinical features, diagnosis and management of mastitis and breast abscess	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Care of the new born Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG18.1	Describe and discuss the assessment of maturity of the newborn, diagnosis of birth asphyxia, principles of resuscitation, common problems.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.2	Demonstrate the steps of neonatal resuscitation in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Pediatrics
OG18.3	Describe and discuss the diagnosis of birth asphyxia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics
OG18.4	Describe the principles of resuscitation of the newborn and enumerate the common problems encountered	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Pediatrics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Normal and abnormal puerperium. Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG19.1	Describe and discuss the physiology of puerperium, its complications, diagnosis and management; counselling for contraception, puerperal sterilization	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce			
OG19.2	Counsel in a simulated environment, contraception and puerperal sterilisation	S/A/C	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG19.3	Observe/ assist in the performance of tubal ligation	S	KH	Y	DOAP session, intraoperative	Skill assessment			
OG19.4	Enumerate the indications for, describe the steps in and insert and remove an intrauterine device in a simulated environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Medical termination of pregnancy Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG20.1	Enumerate the indications and describe and discuss the legal aspects, indications, methods for first and second trimester MTP; complications and management of complications of Medical Termination of Pregnancy	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic Medicine	
OG20.2	In a simulated environment administer informed consent to a person wishing to undergo Medical Termination of Pregnancy	S/A/C	SH	Y	DOAP session	Skill assessment		Forensic Medicine	
OG20.3	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC& PNDT) Act 1994 & its amendments	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Forensic Medicine	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Contraception Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG21.1	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications; selection of patients, side effects and failure rate including Ocs, male contraception, emergency contraception and IUCD	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment		Community medicine	
OG21.2	Describe & discuss PPIUCD programme	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Vaginal discharge Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG22.1	Describe the clinical characteristics of physiological vaginal discharge.	K	KH	Y	Lecture	Theory			
OG22.2	Describe and discuss the etiology (with special emphasis on Candida, T. vaginalis, bacterial vaginosis), characteristics, clinical diagnosis, investigations, genital hygiene, management of common causes and the syndromic management	K	KH	Y	Lecture, Bedside clinics	Written/ Viva voce/ Skill assessment			
Topic: Normal and abnormal puberty Number of competencies: (03) Number of procedures that require certification : (NIL)									
OG23.1	Describe and discuss the physiology of puberty, features of abnormal puberty, common problems and their management	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce			
OG23.2	Enumerate the causes of delayed puberty. Describe the investigation and management of common causes	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG23.3	Enumerate the causes of precocious puberty	K	K	N	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Abnormal uterine bleeding Number of competencies: (01) Number of procedures that require certification: (NIL)									
OG24.1	Define, classify and discuss abnormal uterine bleeding, its aetiology, clinical features, investigations, diagnosis and management	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Amenorrhea Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG25.1	Describe and discuss the causes of primary and secondary amenorrhea, its investigation and the principles of management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Genital injuries and fistulae Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG26.1	Describe and discuss the etiopathogenesis, clinical features; investigation and implications on health and fertility and management of endometriosis and adenomyosis	K/S	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG26.2	Describe the causes, prevention, clinical features, principles of management of genital injuries and fistulae	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Surgery
Topic: Genital infections Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG27.1	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of sexually transmitted infections	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG27.2	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of genital tuberculosis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
OG27.3	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of HIV	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG27.4	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of Pelvic Inflammatory Disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
Topic: Infertility Number of competencies:(04) Number of procedures that require certification : (NIL)									
OG28.1	Describe and discuss the common causes, pathogenesis, clinical features, differential diagnosis; investigations; principles of management of infertility – methods of tubal patency, ovulation induction, assisted reproductive techniques	K	KH	Y	Lecture, seminars, Bedside clinics	Written/ Viva voce			
OG28.2	Enumerate the assessment and restoration of tubal latency	K	K	N	Lecture, seminars, Bedside clinics	Written/ Viva voce			
OG28.3	Describe the principles of ovulation induction	K	KH	Y	Lecture, seminars, Bedside clinics	Written/ Viva voce			
OG28.4	Enumerate the various Assisted Reproduction Techniques	K	K	N	Lecture, seminars, Bedside clinics	Written/ Viva voce			
Topic: Uterine fibroids Number of competencies: (01) Number of procedures that require certification : (NIL)									
OG29.1	Describe and discuss the etiology; pathology; clinical features; differential diagnosis; investigations; principles of management, complications of fibroid uterus	K/A/C	KH	Y	Lecture, Bedside clinics	Theory/ OSCE/ Clinical Assessment/ Viva voce			
Topic: PCOS and hirsutism Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG30.1	Describe and discuss the etiopathogenesis; clinical features; differential diagnosis; investigations; management, complications of PCOS	K/A/C	KH	Y	Lecture	Theory/ OSCE/ Clinical Assessment/ Viva voce			
OG30.2	Enumerate the causes and describe the investigations and management of hyperandrogenism	K	KH	N		Theory/ OSCE/ Clinical Assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Uterine prolapse Number of competencies: (01) Number of procedures that require certification :(NIL)									
OG31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus	K/S	KH	Y	Lecture, small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
Topic: Menopause Number of competencies: (02) Number of procedures that require certification : (NIL)									
OG32.1	Describe and discuss the physiology of menopause, symptoms, prevention, management and the role of hormone replacement therapy.	K	KH	Y	Lecture, small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
OG32.2	Enumerate the causes of postmenopausal bleeding and describe its management	K	KH	Y	Lecture, small group discussion Bedside clinics	Written/ Viva voce			
Topic: Benign, Pre-malignant (CIN) and Malignant Lesions of the Cervix Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG33.1	Classify, describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations and staging of cervical cancer	K/S	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			
OG33.2	Describe the principles of management including surgery and radiotherapy of Benign, Pre-malignant (CIN) and Malignant Lesions of the Cervix	K	KH	Y	Lecture, Small group discussion, Bedside clinics	Written/ Viva voce/ Skill assessment			General Surgery
OG33.3	Describe and demonstrate the screening for cervical cancer in a simulated environment	K/S	SH	Y	DOAP session	Skill assessment		Community Medicine	
OG33.4	Enumerate the methods to prevent cancer of cervix including visual inspection with acetic acid (VIA), visual inspection of cervix with Lugol's iodine (VILI), pap smear and colposcopy	K	K	Y	Lecture, Small group discussion, Bedside clinics	Viva voce/ Written			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Benign and malignant diseases of the uterus and the ovaries Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer	K	KH	Y	Lecture, Bedside clinics	Viva voce/ Written/ skill assessment			
OG34.2	Describe and discuss the etiology, pathology, classification, staging of ovarian cancer, clinical features, differential diagnosis, investigations, principal of management including staging laparotomy	K/S	KH	Y	Lecture	Theory/ OSCE/ clinical assessment/ Viva voce			
OG34.3	Describe and discuss the etiology, pathology, classification, staging, clinical features, differential diagnosis, investigations and management of gestational trophoblastic disease	K/S	KH	Y	Lecture	Theory/ OSCE/ clinical assessment/			
OG34.4	Operative Gynaecology : Understand and describe the technique and complications: Dilatation & Curettage (D&C); EA-ECC; cervical biopsy; abdominal hysterectomy; myomectomy; surgery for ovarian tumours; staging laparotomy; vaginal hysterectomy including pelvic floor repair; Fothergill's operation, Laparoscopy; hysteroscopy; management of postoperative complications	K/S	SH	Y	Videos, on manikins, observe procedures and surgeries in OR	Viva voce			
Topic: Obstetrics & Gynecological skills - I Number of competencies: (17) Number of procedures that require certification : (NIL)									
OG35.1	Obtain a logical sequence of history, and perform a humane and thorough clinical examination, excluding internal examinations (per-rectal and per-vaginal)	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.2	Arrive at a logical provisional diagnosis after examination.	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.3	Recognize situations, which call for urgent or early treatment at secondary and tertiary centres and make a prompt referral of such patients after giving first aid or emergency treatment.	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG35.4	Demonstrate interpersonal and communication skills befitting a physician in order to discuss illness and its outcome with patient and family	A/C	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.5	Determine gestational age, EDD and obstetric formula	K/S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.6	Demonstrate ethical behavior in all aspects of medical practice.	A/C	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.7	Obtain informed consent for any examination / procedure	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.8	Write a complete case record with all necessary details	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.9	Write a proper discharge summary with all relevant information	S	SH	Y	Bedside clinics	Clinical assessment			
OG35.10	Write a proper referral note to secondary or tertiary centres or to other physicians with all necessary details.	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG35.11	Demonstrate the correct use of appropriate universal precautions for self-protection against HIV and hepatitis and counsel patients	S	SH	Y	DOAP session	Skill assessment			
OG35.12	Obtain a PAP smear in a stimulated environment	S	SH	Y	DOAP session	Skill assessment			
OG35.13	Demonstrate the correct technique to perform artificial rupture of membranes in a simulated / supervised environment	S	SH	Y	DOAP session	Skill assessment			
OG35.14	Demonstrate the correct technique to perform and suture episiotomies in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			
OG35.15	Demonstrate the correct technique to insert and remove an IUD in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG35.16	Diagnose and provide emergency management of antepartum and postpartum hemorrhage in a simulated / guided environment	K/S	SH	Y	DOAP session	Skill assessment			
OG35.17	Demonstrate the correct technique of urinary catheterisation in a simulated/ supervised environment	S	SH	Y	DOAP session	Skill assessment			
Topic: Obstetrics & Gynecological skills - II Number of competencies: (03) Number of procedures that require certification: (NIL)									
OG36.1	Plan and institute a line of treatment, which is need based, cost effective and appropriate for common conditions taking into consideration (a) Patient (b) Disease (c) Socio-economic status (d) Institution/ Governmental guidelines.	K/S	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG36.2	Organise antenatal, postnatal, well-baby and family welfare clinics	K/S	KH	Y	Bedside clinics	Clinical assessment/ Viva voce			
OG36.3	Demonstrate the correct technique of punch biopsy of uterus in a simulated/ supervised environment	S	SH	Y	Bedside clinics	Clinical assessment/ Viva voce			
Topic: Obstetrics & Gynecological skills - III Number of competencies: (07) Number of procedures that require certification : (NIL)									
OG37.1	Observe and assist in the performance of a Caesarean section	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Log book			
OG37.2	Observe and assist in the performance of Laparotomy	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG37.3	Observe and assist in the performance of Hysterectomy – abdominal/vaginal	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OG37.4	Observe and assist in the performance of Dilatation & Curettage (D&C)	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG37.5	Observe and assist in the performance of Endometrial aspiration - endocervical curettage (EA-ECC)	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Viva voce			
OG37.6	Observe and assist in the performance of outlet forceps application of vacuum and breech delivery	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Log book			
OG37.7	Observe and assist in the performance of MTP in the first trimester and evacuation in incomplete abortion	K/S/A/C	SH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
Topic: Should observe Number of competencies: (04) Number of procedures that require certification : (NIL)									
OG38.1	Laparoscopy	K/S/A/C	KH	Y	Bedside clinic, Small group discussion	Clinical assessment/ Viva voce			
OG38.2	Hysteroscopy	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG38.3	Lap sterilization	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
OG38.4	Assess the need for and issue proper medical certificates to patients for various purposes	K/S/A/C	KH	Y	Bedside clinics, Small group discussion	Clinical assessment/ Viva voce			
Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Integration									
Human Anatomy									
AN48.8	Mention the structures palpable during Vaginal & Rectal examination	K	KH	N	Lecture	Written		Obstetrics & Gynaecology, General Surgery	
AN49.1	Describe & demonstrate the Superficial & Deep perineal pouch (boundaries and contents)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.2	Describe & identify Perineal body	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN49.5	Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN52.8	Describe the development of male & female reproductive system	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
AN53.1	Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		General Surgery, Obstetrics & Gynaecology	
AN53.2	Demonstrate anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN53.3	Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis	K/S	SH	Y	Lecture, DOAP session	Viva voce/ skill assessment		Obstetrics & Gynaecology	
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN75.5	Describe the principles of genetic counselling	K	KH	Y	Lecture	Written		Pediatrics, Obstetrics & Gynaecology	
AN77.1	Describe the uterine changes occurring during the menstrual cycle	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.2	Describe the synchrony between the ovarian and menstrual cycles	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.3	Describe spermatogenesis and oogenesis along with diagrams	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.4	Describe stages and consequences of fertilisation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.5	Enumerate and describe the anatomical principles underlying contraception	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN77.6	Describe teratogenic influences; fertility and sterility, surrogate motherhood, social significance of "sex-ratio".	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN78.3	Describe the process of implantation & common abnormal sites of implantation	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN78.5	Describe in brief abortion: decidual reaction, pregnancy test	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN79.4	Describe the development of somites and intra-embryonic coelom	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN79.5	Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN79.6	Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN80.3	Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.4	Describe embryological basis of twinning in monozygotic & dizygotic twins	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.5	Describe role of placental hormones in uterine growth & parturition	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN80.6	Explain embryological basis of estimation of fetal age.	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN80.7	Describe various types of umbilical cord attachments	K	KH	N	Lecture	Written		Obstetrics & Gynaecology	
AN81.1	Describe various methods of prenatal diagnosis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.2	Describe indications, process and disadvantages of amniocentesis	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
AN81.3	Describe indications, process and disadvantages of chorion villus biopsy	K	KH	Y	Lecture	Written		Obstetrics & Gynaecology	
Physiology									
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Community Medicine	
PY9.8	Describe and discuss the physiology of pregnancy, parturition & lactation and outline the psychology and psychiatry-disorders associated with it.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PY9.10	Discuss the physiological basis of various pregnancy tests	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PY9.11	Discuss the hormonal changes and their effects during perimenopause and menopause	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PY9.12	Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility.	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Biochemistry									
BI10.1	Describe cancer initiation, promotion, oncogenes & oncogene activation.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.2	Describe various biochemical tumor markers and the biochemical basis of cancer therapy.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
BI10.3	Describe the cellular and humoral components of the immune system & describe the types and structure of antibody	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Surgery, Pathology	
Pathology									
PA22.2	Enumerate the indications describe the principles enumerate and demonstrate the steps of compatibility testing	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.1	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA30.2	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.6	Describe the etiology and morphologic features of cervicitis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.7	Describe the etiology, hormonal dependence, features and morphology of endometriosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.8	Describe the etiology and morphologic features of adenomyosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.9	Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Pharmacology									
PH1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications of the drugs used for contraception	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.40	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
Community Medicine									
CM9.2	Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates	S	SH	Y	Lecture, Small group discussion, DOAP sessions	Skill assessment		Obstetrics & Gynaecology, Pediatrics	
CM9.5	Describe the methods of population control	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
CM10.1	Describe the current status of Reproductive, maternal, newborn and Child Health	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.2	Enumerate and describe the methods of screening high risk groups and common health problems	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Small group discussion, Lecture	Written/ Viva voce		Obstetrics & Gynaecology, Pediatrics	
CM10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Small group discussion, Lecture	Written / Viva voce		Obstetrics & Gynaecology, Pediatrics	
Forensic Medicine & Toxicology									
FM3.13	Describe different types of sexual offences. Describe various sections of IPC regarding rape including definition of rape (Section 375 IPC), Punishment for Rape (Section 376 IPC) and recent amendments notified till date.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.14	SEXUAL OFFENCES Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases.	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.15	SEXUAL OFFENCES Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic, DOAP session	Written/ Viva voce/ OSCE		Obstetrics & Gynaecology, Psychiatry	
FM3.16	SEXUAL OFFENCES Describe and discuss adultery and unnatural sexual offences - sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.17	Describe and discuss the sexual perversions fetishism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, Psychiatry	
FM3.18	Describe anatomy of male and female genitalia, hymen and its types. Discuss the medico-legal importance of hymen. Define virginity, defloration, legitimacy and its medicolegal importance.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.19	Discuss the medicolegal aspects of pregnancy and delivery, signs of pregnancy, precipitate labour superfoetation, superfecundation and signs of recent and remote delivery in living and dead	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.20	Discuss disputed paternity and maternity	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.21	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PCPNDT)- Prohibition of Sex Selection Act 2003 and Domestic Violence Act 2005	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, AETCOM	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology, General Medicine	
FM3.23	Discuss Sterilization of male and female, artificial insemination, Test Tube Baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
FM3.24	Discuss the relative importance of surgical methods of contraception (vasectomy and tubectomy) as methods of contraception in the national family Planning Programme	K	K/KH	N	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.25	Discuss the major results of the National Family Health Survey	K	K/KH	N	Lecture	Written		Obstetrics & Gynaecology	
FM3.26	Discuss the National Guidelines for accreditation, supervision & regulation of ART Clinics in India	K	K/KH	Y	Lecture, Small group discussion	Written		Obstetrics & Gynaecology	
FM3.27	Define, classify and discuss abortion, methods of procuring MTP and criminal abortion and complication of abortion: MTP Act 1971	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology, AETCOM	
FM3.28	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	Lecture, Small group discussion	Written/Viva voce		Obstetrics & Gynaecology, AETCOM	
Dermatology & Venereology									
DR10.11	Describe the etiology, diagnostic and clinical features and management of vaginal discharge	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
General Medicine									
IM26.43	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as they pertain to in vitro fertilisation donor insemination and surrogate motherhood	K	KH	N	Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
Radiodiagnosis									
RD1.13	Describe the components of the PC & PNDT Act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics & Gynaecology, Forensic Medicine	
Pediatrics									
PE7.1	Awareness on the cultural beliefs and practices of breast feeding	K	K	N	Lecture, Small group discussion	Viva voce			Obstetrics & Gynaecology
PE7.7	Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess	S	SH	Y	Bed side clinics Skill Lab	Skill Assessment			Obstetrics & Gynaecology
PE7.8	Educate mothers on ante natal breast care and prepare mothers for lactation	A/C	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology, AETCOM
PE7.9	Educate and counsel mothers for best practices in breast feeding	A/C	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology, AETCOM
PE18.1	List and explain the components, plans , outcomes of Reproductive Child Health (RCH) program and appraise the monitoring and evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology
PE18.2	Explain preventive interventions for Child survival and safe motherhood	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Community Medicine	Obstetrics & Gynaecology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bed side clinics	Skill station		Community Medicine	Obstetrics & Gynaecology
PE18.4	Provide intra-natal care and conduct a normal Delivery in a simulated environment	S	SH	Y	DOAP session, Skills lab	Document in Log Book		Community Medicine	Obstetrics & Gynaecology
PE18.5	Provide intra-natal care and observe the conduct of a normal delivery	S	SH	Y	DOAP session	Document in Log Book			Obstetrics & Gynaecology
PE18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bed side clinics, Skill Lab	Skill Assessment		Community Medicine	Obstetrics & Gynaecology
PE18.8	Observe the implementation of the program by visiting the Rural Health Centre	S	KH	Y	Bed side clinics, Skill Lab	Document in log book		Community Medicine	Obstetrics & Gynaecology
PE20.6	Explain the follow up care for neonates including Breast feeding, temperature maintenance, immunization, importance of growth monitoring and red flags	S	SH	Y	DOAP session	Log book entry			Obstetrics & Gynaecology
PE32.6	Discuss the genetic basis, risk factors, clinical features, complications, prenatal diagnosis, management and genetic counselling in Turner's Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynaecology
PE32.8	Interpret normal Karyotype and recognize the Turner Karyotype	S	SH	N	Bed Side clinics, Skill lab	Log book			General Medicine, Obstetrics & Gynaecology
PE32.9	Discuss the referral criteria and multidisciplinary approach to management of Turner Syndrome	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Obstetrics & Gynaecology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Radiotherapy									
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture, Bed side clinic	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bed side clinic, group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.8	Describe oncological emergencies and palliative care	K/A/S	K/KH	Y	Lecture and group discussion	Written/ Viva voce			General Surgery, Obstetrics & Gynaecology
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

ORTHOPÆDICS (CODE: OR)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
ORTHOPEDICS									
Topic: Skeletal Trauma, Poly trauma		Number of competencies : (06)			Number of procedures that require certification: (NIL)				
OR1.1	Describe and discuss the Principles of pre-hospital care and Casualty management of a trauma victim including principles of triage	K/S/A/C	K/KH	Y	Lecture with video, Small group discussion	Written/ Viva voce/ OSCE/ Simulation			General Surgery, Anaesthesiology
OR1.2	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of shock	K/S	K/KH	Y	Lecture	Written/ Viva voce/ OSCE/ Simulation			General Surgery
OR1.3	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of soft tissue injuries	K	KH/SH	Y	Lecture, Small group discussion	Written/ OSCE			General Surgery
OR1.4	Describe and discuss the Principles of management of soft tissue injuries	K	K/KH	Y	Lecture, Small group discussion	Written/ Assesment/ Viva voce			General Surgery
OR1.5	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of dislocation of major joints, shoulder, knee, hip	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE/ Simulation			
OR1.6	Participate as a member in the team for closed reduction of shoulder dislocation / hip dislocation / knee dislocation	K/S/A/C	SH	Y	Simulation, DOAP session	OSCE/ Simulation			
Topic: Fractures		Number of competencies : (16)			Number of procedures that require certification: (NIL)				
OR2.1	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fracture of clavicle	K/S	KH/SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.2	Describe and discuss the mechanism of Injury, clinical features, investigations and plan management of fractures of proximal humerus	K	K/KH/ SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.3	Select, prescribe and communicate appropriate medications for relief of joint pain	K	KH/SH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.4	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft of humerus and intercondylar fracture humerus with emphasis on neurovascular deficit	K/S	K/KH	Y	Lecture, Small group discussion, Bed side clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.5	Describe and discuss the aetiopathogenesis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galeazzi and Monteggia injury	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.6	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of distal radius	K	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.7	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability	K	K/KH/ SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.8	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of spine injuries with emphasis on mobilisation of the patient	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.9	Describe and discuss the mechanism of injury, Clinical features, investigations and principle of management of acetabular fracture	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR2.10	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of fractures of proximal femur	K/S/A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.11	Describe and discuss the aetiopathogenesis, mechanism of injury, clinical features, investigations and principles of management of (a) Fracture patella (b) Fracture distal femur (c) Fracture proximal tibia with special focus on neurovascular injury and compartment syndrome	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.12	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fat embolism as a complication	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.13	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of: (a) Fracture both bones leg (b) Calcaneus (c) Small bones of foot	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.14	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of ankle fractures	K/S/C	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.15	Plan and interpret the investigations to diagnose complications of fractures like malunion, non-union, infection, compartmental syndrome	K/S	SH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	
OR2.16	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of open fractures with focus on secondary infection prevention and management	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE		Human Anatomy	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Musculoskeletal Infection Number of competencies : (03) Number of Procedures that require certification: (NIL)									
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Bone and Joint infections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/ SH	Y	Lecture, Small group discussion, Video assisted lecture	Written/ Viva voce/ OSCE		Pathology, Microbiology	General surgery
OR3.2	Participate as a member in team for aspiration of joints under supervision	K/S/A/C	SH	Y	Small group Discussion. DOAP session	Viva voce/ OSCE/ Skills assessment		—	
OR3.3	Participate as a member in team for procedures like drainage of abscess, sequestrectomy/ saucerisation and arthrotomy	K/S/A/C	SH	Y	DOAP session, Video demonstration	Viva voce/ OSCE/ Skills assessment			General Surgery
Topic: Skeletal Tuberculosis Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR4.1	Describe and discuss the clinical features, Investigation and principles of management of Tuberculosis affecting major joints (Hip, Knee) including cold abscess and caries spine	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE		Pathology	General surgery
Topic: Rheumatoid Arthritis and associated inflammatory disorders Number of competencies : (01) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR5.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of various inflammatory disorder of joints	K	K/KH	Y	Lecture, Small group discussion, Bedside clinic	Written/ Viva voce/ OSCE			General Medicine
Topic: Degenerative disorders Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR6.1	Describe and discuss the clinical features, investigations and principles of management of degenerative condition of spine (Cervical Spondylosis, Lumbar Spondylosis, PID)	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Metabolic bone disorders Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR7.1	Describe and discuss the aetiopathogenesis, clinical features, investigation and principles of management of metabolic bone disorders in particular osteoporosis, osteomalacia, rickets, Paget's disease	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Poliomyelitis Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR8.1	Describe and discuss the aetiopathogenesis, clinical features, assessment and principles of management a patient with Post Polio Residual Paralysis	K	K/KH	Y	Lecture, Small group discussion, Case discussion	Written/ Viva voce/ OSCE			
Topic: Cerebral Palsy Number of competencies : (01) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR9.1	Describe and discuss the aetiopathogenesis, clinical features, assessment and principles of management of Cerebral palsy patient	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE			
Topic: Bone Tumors Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce/ OSCE		Pathology	General surgery, Radiotherapy
Topic: Peripheral nerve injuries Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR11.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of peripheral nerve injuries in diseases like foot drop, wrist drop, claw hand, palsies of Radial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture, Small group discussion, case discussion	Written/ Viva voce/ OSCE		Human Anatomy	General Medicine, General surgery
Topic: Congenital lesions Number of competencies : (01) Number of procedures that require certification: (NIL)									
OR12.1	Describe and discuss the clinical features, investigations and principles of management of Congenital and acquired malformations and deformities of: a. limbs and spine - Scoliosis and spinal bifida b. Congenital dislocation of Hip, Torticollis, c. congenital talipes equino varus	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce/ OSCE		Human Anatomy	
Topic: Procedural Skills Number of competencies : (02) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR13.1	Participate in a team for procedures in patients and demonstrating the ability to perform on mannequins / simulated patients in the following: i. Above elbow plaster ii. Below knee plaster iii. Above knee plaster iv. Thomas splint v. splinting for long bone fractures vi. Strapping for shoulder and clavicle trauma	S/A	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			
OR13.2	Participate as a member in team for Resuscitation of Polytrauma victim by doing all of the following : (a) I.V. access central - peripheral (b) Bladder catheterization (c) Endotracheal intubation (d) Splintage	S/A	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			Anaesthesiology
Topic: Counselling Skills Number of competencies : (03) Number of procedures that require certification: (NIL)									
OR14.1	Demonstrate the ability to counsel patients regarding prognosis in patients with various orthopedic illnesses like a. fractures with disabilities b. fractures that require prolonged bed stay c. bone tumours d. congenital disabilities	K/S/A/C	KH / SH	Y	Case discussion, Video assisted lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM
OR14.2	Demonstrate the ability to counsel patients to obtain consent for various orthopedic procedures like limp amputation, permanent fixations etc..	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
OR14.3	Demonstrate the ability to convince the patient for referral to a higher centre in various orthopedic illnesses, based on the detection of warning signals and need for sophisticated management	K/S/A/C	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skills lab sessions	OSCE with Simulation based assessment			AETCOM
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Human Anatomy									
AN2.4	Describe various types of cartilage with its structure & distribution in body	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN2.5	Describe various joints with subtypes and examples	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
AN8.4	Demonstrate important muscle attachment on the given bone	K/S	SH	Y	Practical, DOAP session, Small group teaching	Viva voce/ Practicals		Orthopedics	
AN8.6	Describe scaphoid fracture and explain the anatomical basis of avascular necrosis	K	KH	N	DOAP session	Viva voce		Orthopedics	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN10.12	Describe and demonstrate Shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skills assessment		Orthopedics	
AN11.4	Describe the anatomical basis of Saturday night paralysis	K	KH	Y	Practical, Lecture	Written/ Viva voce		Orthopedics	
AN17.2	Describe anatomical basis of complications of fracture neck of femur.	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN17.3	Describe dislocation of hip joint and surgical hip replacement	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN18.6	Describe knee joint injuries with its applied anatomy	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN18.7	Explain anatomical basis of Osteoarthritis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.4	Explain the anatomical basis of rupture of calcaneal tendon	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.6	Explain the anatomical basis of Flat foot & Club foot	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN19.7	Explain the anatomical basis of Metatarsalgia & Plantar fasciitis	K	KH	N	Lecture	Written/ Viva voce		Orthopedics	
AN50.4	Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida	K	KH	N	Lecture	Written		Orthopedics	
Pathology									

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopedics	Microbiology
PA33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopedics	
PA33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopedics	
PA33.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Orthopedics	
Microbiology									
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections.	K	KH	Y	Lecture	Written/ Viva voce		Orthopedics	
Forensic Medicine & Toxicology									
FM3.7	Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		Forensic medicine, Orthopaedics	
FM3.8	Mechanical injuries and wounds: Describe and discuss different types of weapons including dangerous weapons and their examination.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
FM3.9	Firearm injuries: Describe different types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking.	K	K/KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, Orthopaedics	
FM3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic DOAP session	Written/ Viva voce / OSCE		General Surgery, Orthopaedics	
FM3.11	Regional Injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce / OSCE/ OSPE		General Surgery, Orthopaedics	
FM3.12	Regional Injuries Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine.	K	K/KH	Y	Lecture, Small group discussion, Bed side clinic or autopsy, DOAP session	Written/ Viva voce / OSCE/ OSPE		General Surgery, Orthopaedics	
General Medicine									
IM7.5	Develop a systematic clinical approach to joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.6	Describe and discriminate acute, subacute and chronic causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.7	Discriminate, describe and discuss arthralgia from arthritis and mechanical from inflammatory causes of joint pain	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM7.8	Discriminate, describe and discuss distinguishing articular from periarticular complaints	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.9	Determine the potential causes of join pain based on the presenting features of joint involvement	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.10	Describe the common signs and symptoms of articular and periarticular diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM7.13	Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease	S	SH	Y	Bed side clinic, DOAP session	Skill assessment			Orthopedics
IM7.17	Enumerate the indications for arthrocentesis	K	K	Y	small group discussion, Lecture	Written/ Viva voce			Orthopedics
IM7.18	Enumerate the indications and interpret plain radiographs of joints	K	SH	Y	Bed side clinic, small group discussion	Skill assessment/ Written		Radiodiagnosis	Orthopedics
IM7.21	Select, prescribe and communicate appropriate medications for relief of joint pain	K/C	SH	Y	DOAP session	Skill assessment/ Written		Pharmacology	Orthopedics
IM24.12	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of degenerative joint disease	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
IM24.13	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
IM24.14	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of common fractures in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics, Physical Medicine & Rehabilitation
Physical Medicine & Rehabilitation									
PM1.2	Define and describe disability, its cause, and magnitude, identification and prevention of disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM1.3	Define and describe the methods to identify and prevent disability	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM1.4	Enumerate the rights and entitlements of differently abled persons	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM4.1	Describe the common patterns, clinical features, investigations, diagnosis and treatment of common causes of arthritis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine Orthopedics
PM4.3	Observe in a mannequin or equivalent the administration of an intra-articular injection	S	KH	N	DOAP session	Skill assessment			Orthopedics
PM4.5	Demonstrate correct assessment of muscle strength and range of movements	S	SH	Y	DOAP session, Bedside clinic	Skill assessment			General Medicine Orthopedics
PM5.1	Enumerate the indications and describe the principles of amputation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics General Surgery
PM5.2	Describe the principles of early mobilization, evaluation of the residual limb, contralateral limb and the influence of co-morbidities	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM5.3	Demonstrate the correct use of crutches in ambulation and postures to correct contractures and deformities	S	SH	Y	DOAP session, Bedside clinic discussion	Skill assessment			Orthopedics
PM5.4	Identify the correct prosthesis for common amputations	S	SH	Y	DOAP session	Skill assessment / written			Orthopedics
PM6.3	Describe the principles of skin traction, serial casts and surgical treatment including contracture release, tendon transfer, osteotomies and arthrodesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM6.4	Describe the principles of orthosis for ambulation in PPRP	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM7.1	Describe and discuss the clinical features, diagnostic work up, work up diagnosis and management of spinal cord injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Orthopedics
PM7.2	Describe and demonstrate process of transfer, applications of collar restraints while maintaining airway and prevention of secondary injury in a mannequin/model	S	SH	Y	DOAP session, Small group discussion	Skill assessment			Orthopedics
PM7.3	Perform and demonstrate a correct neurological examination in a patient with spinal injury and determine the neurologic level of injury	S	SH	Y	Bed side clinic	Skill assessment			Orthopedics
PM7.4	Assess bowel and bladder function and identify common patterns of bladder dysfunction	S	KH	Y	Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM7.5	Enumerate the indications and identify the common mobility aids and appliances, wheel chairs	S	S	Y	DOAP session	Skill assessment/ Viva voce			Orthopedics

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PM7.7	Enumerate and describe common life threatening complications following SCI like Deep vein Thrombosis, Aspiration Pneumonia, Autonomic dysreflexia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Medicine, Orthopedics
PM8.1	Describe the clinical features, evaluation, diagnosis and management of disability following traumatic brain injury	K	KH	Y	Lecture, Small group discussion	Written / Viva voce			General Medicine, Orthopedics, General Surgery

ANAESTHESIOLOGY (CODE: AS)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
ANAESTHESIOLOGY									
Topic: Anaesthesiology as a specialty Number of competencies: (04) Number of procedures that require certification: (NIL)									
AS1.1	Describe the evolution of Anaesthesiology as a modern specialty	K	K	N	Lecture	Written/ Viva voce			
AS1.2	Describe the roles of Anaesthesiologist in the medical profession (including as a peri-operative physician, in the intensive care and high dependency units, in the management of acute and chronic pain, including labour analgesia, in the resuscitation of acutely ill)	K	K	N	Lecture	Written/ Viva voce			
AS1.3	Enumerate and describe the principle of ethics as it relates to Anaesthesiology	K	K	N	Lecture	Written/ Viva voce		AETCOM	
AS1.4	Describe the prospects of Anaesthesiology as a career	K	K	N	Lecture	Written/ Viva voce			
Topic: Cardiopulmonary resuscitation Number of competencies: (02) Number of procedures that require certification : (NIL)									
AS2.1	Enumerate the indications, describe the steps and demonstrate in a simulated environment, Basic Life Support in adults, children and neonates	K/S	SH	N	DOAP session	Skill assessment		General Medicine, Pediatrics	
AS2.2	Enumerate the indications, describe the steps and demonstrate in a simulated environment, Advanced Life Support in adults and children	S	SH	N	DOAP session	Skill assessment		General Medicine	
Topic: Preoperative evaluation and medication Number of competencies: (06) Number of procedures that require certification : (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS3.1	Describe the principles of preoperative evaluation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			General Surgery, General Medicine
AS3.2	Elicit, present and document an appropriate history including medication history in a patient undergoing Surgery as it pertains to a preoperative anaesthetic evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.3	Demonstrate and document an appropriate clinical examination in a patient undergoing General Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.4	Choose and interpret appropriate testing for patients undergoing Surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.5	Determine the readiness for General Surgery in a patient based on the preoperative evaluation	S	SH	Y	DOAP session, Bedside clinic	Skill station			General Surgery, General Medicine
AS3.6	Choose and write a prescription for appropriate premedications for patients undergoing surgery	S	SH	Y	DOAP session, Bedside clinic	Skill station		Pharmacology	
Topic: General Anaesthesia Number of competencies: (07) Number of procedures that require certification : (NIL)									
AS4.1	Describe and discuss the pharmacology of drugs used in induction and maintenance of general anaesthesia (including intravenous and inhalation induction agents, opiate and non-opiate analgesics, depolarising and non depolarising muscle relaxants, anticholinesterases)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pharmacology	
AS4.2	Describe the anatomy of the airway and its implications for general anaesthesia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS4.3	Observe and describe the principles and the practical aspects of induction and maintenance of anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS4.4	Observe and describe the principles and the steps/ techniques in maintenance of vital organ functions in patients undergoing surgical procedures	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS4.5	Observe and describe the principles and the steps/ techniques in monitoring patients during anaesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS4.6	Observe and describe the principles and the steps/ techniques involved in day care anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS4.7	Observe and describe the principles and the steps/ techniques involved in anaesthesia outside the operating room	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
Topic: Regional anaesthesia Number of competencies: (06) Number of procedures that require certification: (NIL)									
AS5.1	Enumerate the indications for and describe the principles of regional anaesthesia (including spinal, epidural and combined)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
AS5.2	Describe the correlative anatomy of the brachial plexus, subarachnoid and epidural spaces	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy	
AS5.3	Observe and describe the principles and steps/ techniques involved in peripheral nerve blocks	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy	
AS5.4	Observe and describe the pharmacology and correct use of commonly used drugs and adjuvant agents in regional anesthesia	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS5.5	Observe and describe the principles and steps/ techniques involved in caudal epidural in adults and children	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS5.6	Observe and describe the principles and steps/ techniques involved in common blocks used in surgery (including brachial plexus blocks)	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
Topic: Post-anaesthesia recovery Number of competencies: (03) Number of procedures that require certification: (NIL)									
AS6.1	Describe the principles of monitoring and resuscitation in the recovery room	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS6.2	Observe and enumerate the contents of the crash cart and describe the equipment used in the recovery room	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS6.3	Describe the common complications encountered by patients in the recovery room, their recognition and principles of management	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
Topic: Intensive Care Management Number of competencies: (05) Number of procedures that require certification: (NIL)									
AS7.1	Visit, enumerate and describe the functions of an Intensive Care Unit	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS7.2	Enumerate and describe the criteria for admission and discharge of a patient to an ICU	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Medicine
AS7.3	Observe and describe the management of an unconscious patient	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS7.4	Observe and describe the basic setup process of a ventilator	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	General Medicine
AS7.5	Observe and describe the principles of monitoring in an ICU	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Medicine
Topic: Pain and its management Number of competencies: (05) Number of procedures that require certification: (NIL)									
AS8.1	Describe the anatomical correlates and physiologic principles of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Human Anatomy, Physiology	
AS8.2	Elicit and determine the level, quality and quantity of pain and its tolerance in patient or surrogate	S	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Physiology	
AS8.3	Describe the pharmacology and use of drugs in the management of pain	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	
AS8.4	Describe the principles of pain management in palliative care	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
AS8.5	Describe the principles of pain management in the terminally ill	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine
Topic: Fluids Number of competencies: (04) Number of procedures that require certification: (NIL)									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
AS9.1	Establish intravenous access in a simulated environment	S	KH	Y	Small group discussion, DOAP session	Skill assessment			
AS9.2	Establish central venous access in a simulated environment	S	KH	Y	Small group discussion, DOAP session	Skill assessment			
AS9.3	Describe the principles of fluid therapy in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			General Surgery
AS9.4	Enumerate blood products and describe the use of blood products in the preoperative period	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pathology	General Surgery
Topic: Patient safety Number of competencies: (04) Number of procedures that require certification: (NIL)									
AS10.1	Enumerate the hazards of incorrect patient positioning	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS10.2	Enumerate the hazards encountered in the perioperative period and steps/techniques taken to prevent them	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce			
AS10.3	Describe the role of communication in patient safety	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		AETCOM	General Surgery
AS10.4	Define and describe common medical and medication errors in anaesthesia	K	KH	Y	Lecture, Small group discussion, DOAP session	Written/ Viva voce		Pharmacology	General Medicine

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Physiology									
PY3.4	Describe the structure of neuro-muscular junction and transmission of impulses	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anaesthesiology	
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anaesthesiology Pharmacology	
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine Anaesthesiology	
Pharmacology									
PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.17	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of local anaesthetics	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.18	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre-anaesthetic medications	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
Forensic Medicine & Toxicology									

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
FM2.19	Investigation of anaesthetic, operative deaths: Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Anesthesiology, General Surgery	
General Medicine									
IM13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KB	Y	Bedside clinic, small group discussion	short note/ Viva voce		Pharmacology	Anesthesiology
IM24.11	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology General Surgery
General Surgery									
SU11.1	Describe principles of Preoperative assessment.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology
SU11.2	Enumerate the principles of general, regional, and local Anaesthesia.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology
SU11.3	Demonstrate maintenance of an airway in a mannequin or equivalent	S	SH	Y	DOAP session	Skill Assessment			Anesthesiology
SU11.5	Describe principles of providing post-operative pain relief and management of chronic pain.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Anesthesiology
SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	S	SH	Y	DOAP session	Skill assessment			Anesthesiology

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal integration
SU17.10	Demonstrate Airway maintenance and recognize and management of tension pneumothorax, hemothorax and flail chest in simulated environment	S	SH	Y	DOAP session	Skill Assessment/ Log book			Anesthesiology
Orthopaedics									
OR1.1	Describe and discuss the Principles of Pre hospital care and Casualty management of a trauma victim including principles of triage,	K/S/A/C	K, KH	Y	Lecture with video, Small group Discussion	Written/ Viva voce/ OSCE/ Simulation			General Surgery Anaesthesiology
OR13.2	Participate as a member in team for Resuscitation of Polytrauma victim by doing all of the following : (a) IV. access central - peripheral (b) Bladder catheterization (c) Endotracheal intubation (d) Splintage	S/A	KH / SH	Y	Case discussion, Video assisted Lecture, Small group discussion, Teaching, Skill lab sessions	OSCE with Simulation based assessment			Anaesthesiology

RADIODIAGNOSIS (CODE: RD)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
RADIODIAGNOSIS									
Topic: Radiological investigations and Radiation safety		Number of competencies: (13)			Number of procedures that require certification: (NIL)				
RD1.1	Define radiation and the interaction of radiation and importance of radiation protection	K	KH	Y	Lecture, Demonstration				
RD1.2	Describe the evolution of Radiodiagnosis. Identify various radiological equipments In the current era	S	SH	Y	Lecture, Demonstration				
RD1.3	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder of ENT	K/S	SH	Y	Lecture, Demonstration				
RD1.4	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder in Ob & Gy	K/S	SH	Y	Lecture, Demonstration				
RD1.5	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder in internal medicine	K/S	SH	Y	Lecture, Demonstration				
RD1.6	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorders in surgery	K/S	SH	Y	Lecture, Demonstration				
RD1.7	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to disorder in Pediatrics	K/S	SH	Y	Lecture, Demonstration				

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
RD1.8	Enumerate indications for various common radiological investigations, choose the most appropriate and cost effective method and interpret findings in common conditions pertaining to common malignancies	K/S	SH	Y	Lecture, Demonstration				
RD1.9	Describe the role of Interventional Radiology in common clinical conditions	K	KH	Y	Lecture, Demonstration				
RD1.10	Describe the role of Emergency Radiology, miscellaneous & applied aspects, interaction with clinical departments	K	KH	Y	Lecture, Demonstration				
RD1.11	Describe preparation of patient for common imaging procedures	K	KH	Y	Lecture, Demonstration				
RD1.12	Describe the effects of radiation in pregnancy and the methods of prevention/ minimization of radiation exposure	K	KH	Y	Lecture, Demonstration				
RD1.13	Describe the components of the PC & PNDT Act and its medicolegal implications	K	KH	Y	Lecture, Small group discussion			Obstetrics & Gynaecology, Forensic Medicine & Toxicology	
	Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform. Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation								
Integration									
Human Anatomy									
AN13.4	Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand	K/S	SH	Y	Practical, Small group discussion, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN20.6	Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb	K/S	SH	Y	Lecture, Small group discussion, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K/S	SH	Y	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN25.8	Identify and describe in brief a barium swallow	K/S	SH	N	Practical, DOAP session	Written/ Viva voce		Radiodiagnosis, General Medicine	
AN43.7	Identify the anatomical structures in 1) Plain x ray skull, 2) AP view and lateral view 3) Plain x ray cervical spine - AP and lateral view 4) Plain x ray of paranasal sinuses	K/S	SH	Y	Practical	Viva voce/ Skill assessment		Radiodiagnosis	
AN43.8	Describe the anatomical route used for carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ Skill assessment		Radiodiagnosis	
AN43.9	Identify anatomical structures in carotid angiogram and vertebral angiogram	K/S	SH	N	Practical	Viva voce/ Skill assessment		Radiodiagnosis	
AN51.1	Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)	K/S	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
AN51.2	Describe & identify the midsagittal section of male and female pelvis	K	SH	Y	Practical, Lecture, Small group discussion, DOAP session	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
AN54.1.	Describe & identify features of plain X ray abdomen	K/S	SH	Y	Lecture, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	
AN54.2	Describe & identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography &Hysterosalpingography)	K/S	SH	Y	Lecture, DOAP session	Viva voce/ Skill assessment		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
AN54.3	Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen	K	KH	N	Lecture	Viva voce		Radiodiagnosis	
Forensic Medicine & Toxicology									
FM1.9	Describe the importance of documentation in medical practice in regard to medicolegal examinations, Medical Certificates and medicolegal reports especially: – maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. -- maintenance of medico-legal register like accident register. -- documents of issuance of wound certificate -- documents of issuance of drunkenness certificate. -- documents of issuance of sickness and fitness certificate. -- documents for issuance of death certificate. -- documents of Medical Certification of Cause of Death - Form Number4 and 4A -- documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	Lecture/ Small group discussion	Written/ Viva voce		Radiodiagnosis, General Surgery, General Medicine, Pediatrics	
General Medicine									
IM1.19	Enumerate the indications for and describe the findings of heart failure with the following conditions including: 2D echocardiography, brain natriuretic peptide, exercise testing, nuclear medicine testing and coronary angiogram	S	KH	N	Lecture, Small group discussion, Bedside clinic	Skill assessment		Radiodiagnosis	
IM3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	
IM3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	S	SH	Y	Bedside clinic, DOAP session	Skill assessment		Radiodiagnosis, Microbiology	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
IM5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	K	K	Y	Bedside clinic, Small group discussion	Viva voce/ Written		Radiodiagnosis	General Surgery
IM6.12	Enumerate the indications and describe the findings for CT of the chest and brain and MRI	K	K	N	Small group discussion, Lecture, Bedside clinic	Written/ Viva voce		Radiodiagnosis	
IM7.18	Enumerate the indications and interpret plain radiographs of joints	K	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Written		Radiodiagnosis	Orthopedics
IM10.19	Enumerate the indications and describe the findings in renal ultrasound	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Radiodiagnosis	
IM13.12	Describe the indications and interpret the results of Chest X Ray, mammogram, skin and tissue biopsies and tumor markers used in common cancers	K	KH	Y	Bedside clinic, Small group discussion	Short note/ Viva voce		Radiodiagnosis	
IM18.9	Choose and interpret the appropriate diagnostic and imaging test that will delineate the anatomy and underlying cause of the lesion	S	KH	Y	Bedside clinic, DOAP session, Small group discussion	Written/ Viva voce/ Skill assessment		Radiodiagnosis	
IM19.7	Choose and interpret diagnostic and imaging tests in the diagnosis of movement disorders	S	SH	Y	Bedside clinic, Small group discussion	Skill assessment/ Small group session/ Written/ Viva voce		Radiodiagnosis	
Obstetrics & Gynaecology									
OG9.4	Discuss the clinical features, laboratory investigations ultrasonography, differential diagnosis, principles of management and follow up of gestational trophoblastic neoplasms	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Radiodiagnosis
Pediatrics									
PE21.12	Interpret report of Plain radiograph of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PE21.13	Enumerate the indications for and Interpret the written report of Ultra sonogram of KUB	S	SH	Y	Bedside clinics, Skills lab	Log book		Radiodiagnosis	
PE23.13	Interpret a chest radiograph and recognize Cardiomegaly	S	SH	Y	Bedside clinics, Skills lab	Log book entry		Radiodiagnosis	
PE23.16	Use the ECHO reports in management of cases	S	SH	Y	Bedside clinics	Log book entry		Radiodiagnosis	
PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use written report in case of management Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in Pediatric chest X-rays	S	P	Y	Bedside clinics, Small group discussion	Skills Assessment	3	ENT, Radiodiagnosis	
PE30.23	Interpret the reports of EEG, CT, MRI	S	SH	Y	Bedside clinics, Skill lab	Log book		Radiodiagnosis	
PE34.8	Interpret a Chest radiograph	S	SH	Y	Bedside clinics, Skill lab	Skill assessment		Radiodiagnosis	Respiratory Medicine
General Surgery									
SU25.3	Describe the etiopathogenesis, clinical features, Investigations and principles of treatment of benign and malignant tumours of breast.	K	KH	Y	Lecture, Small group discussion, Demonstration	Written/ Viva voce Skill assessment		Radiodiagnosis	

RADIOTHERAPY (CODE: RT)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested teaching learning method	Suggested assessment method	Number required to certify P	Vertical integration	Horizontal integration
RADIOTHERAPY									
Topic: Principles of Radiation Oncology (Radiotherapy) Number of competencies: (03) Number of procedures that require certification : (NIL)									
RT1.1	Describe and discuss definition of radiation, mechanism of action of radiation, types of radiation	K	KH	Y	Lecture	Written/ Viva voce			General Surgery, Anaesthesiology
RT1.2	Describe and discuss interaction of radiation with matter & measurement of radiation	K	KH	Y	Lecture	Written/ Viva voce			
RT1.3	Enumerate, describe and discuss classification and staging of cancer (AJCC, FIGO etc.)	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, General Medicine
Topic: Radiation Protection Number of competencies: (01) Number of procedures that require certification : (NIL)									
RT2.1	Describe and discuss radiation protection and personnel monitoring during radiation treatment	K	KH	Y	Lecture	Written/ Viva voce			
Topic: Radiobiology & Chemoradiation Number of competencies: (02) Number of procedures that require certification : (NIL)									
RT3.1	Describe and discuss cell cycle and cell survival curve, principles of radiobiology	K	KH	Y	Lecture	Written/ Viva voce			
RT3.2	Describe and discuss synergism of radiation and chemotherapy	K	KH	Y	Lecture	Written/ Viva voce			
Topic: Radiation Treatment Delivery & outcome Number of competencies: (09) Number of procedures that require certification : (NIL)									
RT4.1	Describe and discuss teletherapy machine (Co60/LINAC)	K	KH	Y	DOAP session	Written/ Viva voce			
RT4.2	Enumerate, describe and discuss types of treatment plan, basic workflow of 2D/3DCRT/IMRT/IGRT	K	KH	Y	DOAP session	Written/ Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested teaching learning method	Suggested assessment method	Number required to certify P	Vertical integration	Horizontal integration
RT4.3	Describe and discuss Brachytherapy machine (remote after loading)	K	KH	Y	DOAP session	Written/ Viva voce			
RT4.4	Describe and discuss different radioactive isotopes and their use in cancer patients	K	KH	Y	Lecture	Written/ Viva voce			
RT4.5	Describe and discuss role of radiation in management of common malignancies in India (region specific)	K	KH	Y	Lecture and Bed side clinics	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.6	Describe and discuss radiotherapy for benign disease	K	KH	Y	Lecture	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.7	Counsel patients regarding acute and late effects of radiation and supportive care	K/A/S	KH	Y	Bed side clinic, group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology
RT4.8	Describe oncological emergencies and palliative care	K/A/S	K/KH	Y	Lecture, group discussion	Written/ Viva voce			General Surgery, Obstetrics & Gynaecology
RT4.9	Display empathy in the care of patients with cancer	A	SH	N				AETCOM	
Topic: Cancer Prevention & Registries Number of competencies: (01) Number of procedures that require certification : (NIL)									
RT5.1	Describe and discuss cancer prevention, screening, vaccination, cancer registry	K	K	Y	Group discussion	Written/ Viva voce		Pathology	General Surgery, Obstetrics & Gynaecology

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH- Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested teaching learning method	Suggested assessment method	Number required to certify P	Vertical integration	Horizontal integration
Orthopaedics									
OR10.1	Describe and discuss the aetiopathogenesis, Clinical features, Investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small group discussion, Video assisted interactive lecture	Written/ Viva voce/ OSCE		Pathology	General Surgery, Radiotherapy

DENTISTRY (CODE: DE)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DENTISTRY									
Topic: Dental Caries		Number of competencies: (05)			Number of procedures that require certification (NIL)				
DE1.1	Enumerate the parts of the tooth	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
DE1.2	Discuss the role of causative microorganisms in the aetio-pathogenesis of dental caries	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology	
DE1.3	Identify Dental caries	S	SH	N	Observation, Bed side clinics	Skill assessment			
DE1.4	Discuss the role of dental caries as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Viva voce		Microbiology, General Medicine	
DE1.5	Counsel patients with respect to oral hygiene, diet and the direct bearing on systemic health	A/C	SH	Y	DOAP session	Document in Log book			
Topic: Edentulous state		Number of competencies: (05)			Number of procedures that require certification (NIL)				
DE2.1	Discuss the various causes for partial /complete loss of teeth and associated structures	K	K	N	Lecture, Small group discussion	Viva voce			
DE2.2	Discuss the local and systemic sequelae of the above	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE2.3	Identify complete complement of teeth and identify missing teeth	S	SH	N	Observation, Bed side clinics	Skill assessment			
DE2.4	Enumerate common ways of restoring the edentulous state	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE2.5	Counsel patients on the importance of restoring missing teeth/tissues with respect to the benefits on oral and systemic health.	A/C	SH	Y	DOAP session	Document in Log book			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: Malocclusion		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
DE3.1	Aware of malocclusion and the tissues that cause it	K	K	N	Lecture, Small group discussion	Viva voce			
DE3.2	Enumerate the impact of malocclusion on aesthetics, health	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE3.3	Identify malocclusion	S	SH	N	Observation, Bedside clinics	Skill assessment			
DE3.4	Counsel patients with respect to correction of malocclusion and the role it might have on oral health specifically on the TMJ	A/C	SH	Y	DOAP session	Document in Log book			
Topic: Oral cancer		Number of competencies: (04)			Number of procedures that require certification: (NIL)				
DE4.1	Discuss the prevalence of oral cancer and enumerate the common types of cancer that can affect tissues of the oral cavity	K	K	N	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.2	Discuss the role of etiological factors in the formation of precancerous /cancerous lesions	K	KH	Y	Lecture, Small group discussion	Viva voce		Pathology	ENT
DE4.3	Identify potential pre-cancerous /cancerous lesions	S	SH	N	Observation, Bed side clinics	Skill assessment		Pathology	ENT
DE4.4	Counsel patients to risks of oral cancer with respect to tobacco, smoking, alcohol and other causative factors.	A/C	SH	Y	DOAP session	Document in Log book		Pathology	ENT
Topic: Periodontal disease		Number of competencies: (05)			Number of procedures that require certification: (NIL)				
DE5.1	Enumerate the parts of the tooth and supporting structures	K	K	N	Lecture, Small group discussion	Viva voce		Human Anatomy	
DE5.2	Enumerate the common diseases that affect the periodontium and identify local and systemic causative factors	K	KH	Y	Lecture, Small group discussion	Viva voce			

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
DE5.3	Identify Periodontal disease	S	SH	N	Observation, Bedside clinics	Skill assessment			
DE5.4	Discuss the role of Periodontal disease as a focus of sepsis	K	KH	Y	Lecture, Small group discussion	Viva voce			
DE5.5	Counsel patients with respect to oral hygiene, diet and the direct bearing on systemic health and vice versa	A/C	SH	Y	DOAP session	Document in Log book			

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication.

Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

Integration									
Pathology									
PA24.1	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dentistry	

List of contributing subject Experts

1. Human Anatomy

- Dr. Praveen R Singh, Professor & Head, Department of Anatomy, Pramukhswami Medical College, Karamsad, Gujarat
- Dr. Nachiket Shankar, Associate Professor, Department of Anatomy, St. John's Medical College & Hospital, Bangalore

2. Physiology

- Dr. Mario Vaz, Professor, Department of Physiology, St. John's Medical College & Hospital, Bangalore
- Dr. Jayashree Sengupta, Former Professor & Head, Department of Physiology, All India Institute of Medical Sciences, New Delhi.
- Dr Hasmukh D Shah, Professor & Head, Department of Physiology, Pramukhswami Medical College, Karamsad, Gujarat

3. Biochemistry

- Dr. Nibhriti Das, Professor, Department of Biochemistry, All India Institute of Medical Sciences, New Delhi
- Dr. S. P. Singh, Professor, Department of Biochemistry, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh
- Dr. Hitesh N Shah, Professor & Head, Department of Biochemistry, Pramukhswami Medical College, Karamsad, Gujarat

4. Pharmacology

- Dr. S. K. Maulik, Professor, Department of Pharmacology, All India Institute of Medical Sciences, New Delhi
- Dr. Vandana Roy, Professor, Department of Pharmacology, Maulana Azad Medical College, New Delhi

5. Pathology

- Dr. S. Datta Gupta, Professor, Department of Pathology, All India Institute of Medical Sciences, New Delhi
- Dr. Uma Chaturvedi, Professor, C-1303, Freedom Park Life, Sector- 57, Gurugram

6. Microbiology

- Dr. S. Geetalakshmi, Dean, Professor, Department of Microbiology, Stanley Medical College, Chennai, Tamil Nadu.
- Dr. Padma Srikanth, Professor, Department of Microbiology, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suman Singh, Professor, Department of Microbiology, Pramukhswami Medical College, Karamsad, Gujarat

7. Forensic Medicine & Toxicology

- Dr. Sanjeev Lalwani, Professor & Registrar (Academics), Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. T. D. Dogra, Former Director & Former Head, Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi; currently, Vice Chancellor, SGT University, Gurugram
- Col. Ravi Rautji, Professor & Head, Department of Forensic Medicine, Commanding Officer, Directorate General of Medical Services (Army), New Delhi
- Dr. S.D. Nanandkar, Professor & Head, Department of Forensic Medicine, Grant Government Medical College & Sir J.J. Group of Hospitals, Mumbai
- Dr. Indrajit L. Khandekar, In-charge CFMU and Associate Professor, Department of Forensic Medicine & Toxicology, MGIMS and Kasturba Hospital, Sewagram, Wardha.
- Dr. S. B. Punpale, Professor & Head, Department of Forensic Medicine, B. J. Medical College, Pune, Maharashtra

8. Community Medicine

- Dr. B. S. Garg, Professor & Head, Department of Community Medicine, Mahatama Gandhi Institute of Medical Sciences, Wardha, Sewagram, Maharashtra
- Dr. Umesh Kapil, Professor, Department of Community Medicine, All India Institute of Medical Sciences, New Delhi
- Dr. Sanjay Zodpey, Director, Public Health Foundation of India, Isid Campus, 4 Institutional Area, Vasant Kunj, New Delhi
- Dr. Saudan Singh, Professor, Department of Community Medicine, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. Dinesh Kumar, Professor, Department of Community Medicine, Pramukhswami Medical College, Karamsad, Gujarat
- Dr. Pankaj B. Shah, Professor, Department of Community Medicine, Sri Ramachandra Medical College & Research Institute, Chennai.

9. General Medicine & Respiratory Medicine

- Dr. Krishna G. Seshadri, Visiting Professor, Endocrinology & Metabolism, Balaji Vidyapeeth, Puducherry
- Dr. M. K. Bhatnagar, Director Professor, Department of General Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Aparna Agarwal, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi
- Dr. Anil Gurtoo, Director Professor of Medicine, Lady Hardinge Medical College, New Delhi

10. Pediatrics

- Dr. Harish Chellani, Professor of Pediatrics, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi
- Dr. A. K. Dutta, Former Head, Kalawati Saran Children's Hospital, New Delhi

- Dr. S. Aneja, Director Professor & Head, Department of Pediatrics, Kalawati Saran Children's Hospital, New Delhi
- Dr. Latha Ravichandran, Professor, Deartment of Paediatrics, Sri Ramachandra Medical College & Research Institute, Chennai.

11. Psychiatry

- Dr. Rakesh Kumar Chadda, Department of Psychiatry, All India Institute of Medical Sciences, New Delhi
- Dr. N. M. Patil, Professor, Department of Psychiatry, Jawaharlal Nehru Medical College, Belagavi
- Dr. Rajesh Rastogi, Consultant & Head Department of Psychiatry, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi.
- Dr. Jagdish R Varma, Associate Professor, Department of Psychiatry, Pramukhswami Medical College, Karamsad, Gujarat

12. Dermatology, Venereology & Leprosy

- Dr. R. K. Gautam, Professor, Department of Dermatology, Venereology & Leprosy, Dr. Ram Manohar Lohia Hospital, New Delhi.
- Dr. Sujay Khandpur, Professor, Department of Dermatology, Venereology & Leprosy, All India Institute of Medical Sciences, New Delhi
- Dr. S. Murugan, Associate Professor of Dermatology, Sri Ramachandra Medical College & Research Institute, Chennai

13. Physical Medicine and Rehabilitation

- Dr. Sanjay Wadhwa, Professor, Department of Physical Medicine & Rehabilitation, All India Institute of Medical Sciences, New Delhi
- Dr. George Tharion, Head, Department of Physical Medicine & Rehabilitation, Christian Medical College, Vellore, Tamil Nadu

- Dr. Jagdish Menon, Professor & Head, Department of Orthopaedics and Dept. of Physical & Rehabilitative Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry

14. General Surgery

- Dr. N Ananthakrishnan, 2A Vairam Enclave, Siddhananda Nagar, Pondicherry -605005.
- Dr. P. V. Chalam, Former Professor, Department of Surgery, Gandhi Medical College, Secunderabad, Telengana.
- Dr. Dinesh Bhatnagar, Professor, Department of General Surgery, North Delhi Municipal Corporation Medical College, Hindu Rao Hospital, Malka Ganj, Delhi

15. Ophthalmology

- Dr. Smita Singh, Professor, Department of Ophthalmology, Mahatma Gandhi Institute of Medical Sciences, Wardha

16. Oto-rhino-laryngology

- Dr. Achal Gulati, Director Professor, Department of ENT, Maulana Azad Medical College, New Delhi
- Dr. Ravi Kumar, Professor & Head, Department of ENT, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Suma Mathew, Professor, Department of ENT, Christian Medical College, Vellore, Tamil Nadu

17. Obstetrics and Gynaecology

- Dr. Neerja Bhatla, Professor, Department of Obstetrics & Gynecology, All India Institute of Medical Sciences, New Delhi
- Dr. Annie Regi, Professor & Head, Department of Obstetrics & Gynecology, Christian Medical College, Vellore, Tamil Nadu
- Dr. Usha Vishwanath, Professor, Department of Obstetrics & Gynecology, Sri Ramachandra Medical College & Research Institute, Chennai

18. Orthopaedics

- Dr. P.V. Vijayaraghavan, Vice Chancellor & Professor of Orthopedics, Sri Ramachandra Medical College & Research Institute, Chennai
- Dr. Raj Bahadur, Professor & Head, Department of Orthopaedics, Postgraduate Institute of Medical Sciences, Chandigarh
- Dr. SC. Goel, Professor, Department of Orthopaedics, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh

19. Anaesthesiology

- Dr. Baljit Singh, Director Professor of Anaesthesia, G. B. Pant Hospital, Delhi
- Dr. Ramesh Keshav, Department of Anaesthesia, Dr. Ram Manohar Lohia Hospital, New Delhi
- Dr. Mridula Pawar, Consultant & Head, Department of Anaesthesia, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi

20. Radio- Diagnosis

- Dr. Kishor Taori (late), Professor & Head, Department of Radiodiagnosis, Government Medical College, Nagpur

21. Radiotherapy

- Dr. P. K. Jhulka, Dean & Professor of Radiotherapy, All India Institute of Medical Sciences, New Delhi.
- Dr. Shyam Shrivastava, Head, Department of Radiation, Tata Memorial Hospital, Mumbai

22. Dentistry

- Dr. Sridevi Padmanabhan, Professor, Department of Orthodontics, Faculty of Dental Sciences, Sri Ramchandra Medical College & Research Institute, Chennai