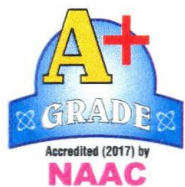




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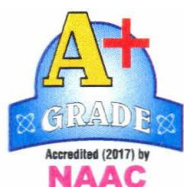
**Faculty of Medical Sciences
B. Sc (Anaesthesia & OT Technology)
New Syllabus**



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SYLLABUS
SEM I TO SEM VI
B. Sc
(ANAESTHESIA & OT
TECHNOLOGY)
and
ABILITY ENHANCEMENT
ELECTIVE COURSES



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BACHELOR OF SCIENCE (B.Sc) COURSES

BHARATI VIDYAPEETH

MEDICAL COLLEGE PUNE, 411043

(Choice Based Credit System (CBCS))

Under Faculty of Medical Science

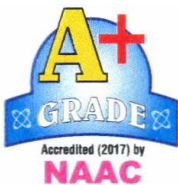
(To be implemented from Academic Year 2020-21)

B.Sc

ANAESTHESIA & OT
TECHNOLOGY

DOCUMENT ON

CONDUCT OF COURSE



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BACHELOR OF SCIENCE (B.Sc) COURSES

BHARATI VIDYAPEETH

MEDICAL COLLEGE PUNE, 411043

(Choice Based Credit System (CBCS))

Under Faculty of Medical Science

(To be implemented from Academic Year 2019-20)

(All BSc Skilled SYLLABUS)

General Rules & Regulations

These Rules & Regulations may be called as, “The Rules & Regulations For B.Sc. Paramedical Courses of Bharati Vidyapeeth Medical College”, Pune.

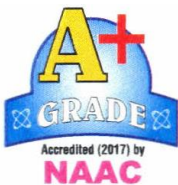
Introduction

Bharati Vidyapeeth Deemed University, Pune has developed the training Programme for capacity building since we have ‘State of Art’ infrastructure, the necessary renowned, experienced and dedicated faculty. We are attached to a spacious well equipped tertiary care hospital and excellent clinical exposure.

These courses will increase the employability in various hospitals, private clinics, medical centers, doctors office etc. It will help in overall development of technical and interpersonal skills required to work under the respective health care areas.

Notification

The notification for the conduct of courses have been issued by Registrar Bharati Vidyapeeth based on the decision taken during various academic committee meetings. These are attached as **Notification No 1124**.



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B.Sc. Health Skilled Courses

Learning Objectives

- To learn Basic Sciences including Anatomy, functions & surface landmarks of various organs & systems.
- To learn Physics & technology related to Radiography & Imaging Technologies.
- Introduction to basic imaging including CT & Ultrasound
- Knowledge of working of MRI machine including care of the patients undergoing MRI
- Administration & Radiation safety in Interventional procedures.

Learning Outcomes

- To be able to effectively handle the various diagnostics technologies such as X-Ray, USG, CT, MRI, 2D Echo & other scans.
- To be able to effectively interpret abnormalities observed in the imaging and bring to the knowledge of radiologist & concerned specialist.
- To be able to manage all the equipment effectively used in diagnostic radiology & interventional radiology.
- To be able to understand & ensure implementation of Radiation Safety measures.

Eligibility for Admission

- The minimum age for admission shall be 17 years on 31st December of the year in which admission is sought

Minimum education

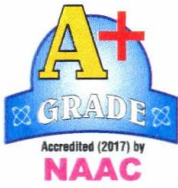
10+2 class passed with Science subjects (Physics, Chemistry, Biology) & English Core/English Elective with aggregate of 50% marks from any recognized board.

Method Of Selection

Admission are made based on the merit list prepared following on interview by a board of faculty members.

Course Structure

- B.Sc. Courses

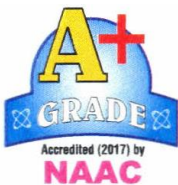


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The duration of courses is 3 years divided in to 6 semesters including followed by one year of internship. I & II semester shall be common for all the specialization. III, IV, V & VI semesters involve theory, practical and handling of equipment in the respective specialty. I & II semester

will have minimum of 90 days, teaching spread over 15 weeks excluding holidays Sundays, vacations, and three weeks of exams followed by CAP.



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- 1) The Syllabus is common during I and II semesters for all B.Sc. Paramedical courses. The subjects include Anatomy, Physiology, Microbiology, Pathology, Biochemistry, Pharmacology, Community medicine, English and Communication skills, Principles of Nursing, Computer related to Medical Care.
- 2) The Syllabus and the related topics and numbers of hours of teaching in each semester (both theory and practical's) has been based on 'Credit Based Scoring System. As per UGC guidelines, component wise weightage will be as follows :-
 - i) General Education Components – 40%
 - ii) Skill Development Components – 60%



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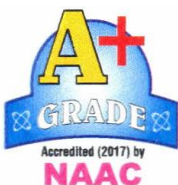


- 3) **CHOICE BASED CREDIT SYSTEM (CBCS)** :- The CBCS provides choice for students to select from prescribed courses (Core, elective or minor or soft Skill Courses). Under the CBCS, the requirement for awarding a degree of diploma or certificate is prescribed in terms of number

of credit to be completed by the student. The teaching curriculum has been designed and comprises of 140 credit points in three years.

a) **Credit**

- A unit by which the course work measured.
- It determines the number of hours of instruction required per week.
- While assigning credit values to courses, one credit is considered to be equal to 15 hours of lectures and 30 hours of lab / fieldwork / in-plant training/ internship/ or any other .
- In each of the courses, credits will be assigned on the basis of the number of lectures/ tutorials/ laboratory work other forms of learning required for completing the course the instructional days for one academic year are 180 working days i.e. 90 days per semester.
- Credit Point it is the product of grade point and number of credit for a course.
- The courses in a programme shall be majorly of three kinds, namely, core courses, Open courses, or general courses. Core courses are those which are in the discipline of study and are either foundational or specializations. Core courses may either hard core (Courses which are compulsory to all students in the programme) or soft core (courses which are elective). The hard core courses also include laboratory courses, capstone courses such as internships, in – plant training or full – term projects.
- The core courses should be about 70-75% of the minimum credits that constitute the programme. Remaining 25-30% of the credits may be open courses or general courses. The open courses may be ancillary courses from other disciplines or other



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specializations or inter – disciplinary. About 5 – 10 % of the credits may be for general courses. .

- The evaluation for all courses shall have two components – Internal assessment (IA) and end of the term University Examination (UE).

b) **Grade Point:- Grading System For Various B.Sc. Courses :-**

The university shall adopt a 10 – point absolute grading system for grading in each head of passing. The system will have seven grade points, the highest being 10. The grading system shall be as shown in table – 1 below. The performance indicators O, A+, A, B+, B, C and D shall respectively mean Outstanding, Excellent, Very Good, Good, Average, satisfactory and poor. It may be noted that entries in table are meant for converting marks in individual courses to grade points. The respective grade points can also be computed from the following formulas in given table 2.

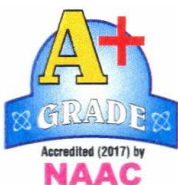
Table – 1 : The Grading System Under CBCS

% Marks in a paper / practical	Grade Point	Grade Point (GP)
$80 \leq \text{Marks} \leq 100$	10	O
$70 \leq \text{Marks} < 80$	9	A+
$60 \leq \text{Marks} < 70$	8	A
$55 \leq \text{Marks} < 60$	7	B+
$50 \leq \text{Marks} < 55$	6	B
$40 \leq \text{Marks} < 50$	5	C
Marks < 40	0	D

The Formulas to calculate the Grade Points (GP) :

Suppose that ‘Max’ is the maximum marks assigned for an examination or evaluation based on which GP will be computed. In order to determine the GP, set $x = \text{Max}/10$ (since we have adapted 10 – point system). Then GP is calculated by the formulas shown in table 2. After computing the grade point the grade can be found from table 1.

Table – 2: Formula to Calculate Grade Point
In Individual Evaluations

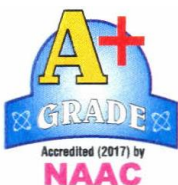


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Range of Marks at the evaluation	Formula for the Grade Point
$8x \leq M \leq 10x$	10
$5.5x \leq M < 8x$	Truncate(M/x)+2
$4x \leq M < 5.5x$	Truncate(M/x)+1

- c) **Nature Of Examination:** For all courses there shall be Internal Assessment (IA) conducted by the university. The UE will be based on the entire syllabus.
- d) Computation of grade point Averages: Cumulative performance indicators such as GPA, SGPA, or CGPA shall be calculated as described and illustrated below.
- e) (i) The performance at UE and IA will be combined to obtain the Grade Point Average (GPA) for the course. The weights for performance at UE and IA shall respectively be 60% and 40%.
- (ii) The grade point average (GPA) for a course shall be calculated by first finding the total marks out of 100 for the course. The corresponding GP (as per the table in (2) above) shall be the GPA for the course.
- (iii) Two kinds of performance indicators, namely the Semester Grade Point Average (SGPA) and the Cumulative Grade Point Average (CGPA) shall be computed at the end of each term. The SGPA measures the cumulative performance of a learner in all the courses in a particular semester, while the CGPA measures the cumulative performance in all courses since his/her enrolment. The CGPA of a learner when he/she completes the programme is the final result of the learner.
- (iv) The SGPA is calculated by the formula $SGPA = \frac{\sum C_k * GP_k}{\sum C_k}$, where C_k is the credit – Value assigned to a course and GP_k is the GPA obtained by the learner in the course. In the above, the sum is taken over all the courses that the learner has undertaken for the study from the time of his/her enrolment and also during the semester for which
- CGPA is calculated, including those in which he/she might have failed or those for which he/she remained absent. The CGPA shall be calculated up to two decimal place accuracy.



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(v) The CGPA is calculated by the formula $CGPA = \frac{\sum Ck * GPk}{\sum Ck}$, where Ck is the credit –

Value assigned to a course and GPk is the GPA obtained by the learner in the course. In the above, the sum is taken over all the courses that the learner has undertaken for the study from the time of his/her enrolment and also the during the semester for which CGPA is calculated, including those I which he/she might have failed or those for which he/she remained absent.

The CGPA shall be calculated up to two decimal place accuracy.

(vi) The CGPA, calculated after the minimum credits Specified for the programme are ‘earned’ will be the final result.

f) Standards of Passing and ATKT Rules:-

1. For all courses, both UE and IE constitute separate heads – of – passing (HoP). In order to pass in such courses and to ‘earn’ the assigned credits.

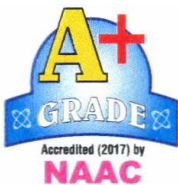
(a) The learner must obtained a minimum grade point of 5.0 (40% marks) at UE and also a minimum grade point of 5.0 (40% marks) at IA;

2. If he/she fails in IA, the learner passes in the course provided he/she obtains a minimum of 25% in IA and GPA for the course is atleast 6.0 (50% in aggregate). The GPA for a course will be calculated only if the learner passes at the UE. The following examples illustrate this rule for passing in a course under.

Table – 3 : Illustration of passing Rule specified in E. 1

Case No.	UE marks Out Of 60	IA marks out of 40	Total marks out of 100	GP of UE	GP of IA	GPA	Remarks
1	24	16	40	5.0	5.0	5.0	Pass
2	40	10	50	7.0	0	6.0	Pass
3	40	06	46	7.0	0	5.0	Fails at IA
4	20	40	--	0	10.0	0	Fails at UE
5	34	12	46	7.0	0	5.0	Fails at IA
6	20	15	--	0	0	0	Fails at both UE &IA

1. A student who fails at UE in a course has to reappear only at UE as a backlog candidate and clear the HoP. Similarly, A student who fails in a course at IA has to reappear only at IA as a backlog candidate and clear the HoP.



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ATKT RULES :-

- A student is allowed to carry backlog of courses prescribed for Semester I, III & V to Sem – II, IV & VI respectively.
- A student is allowed to keep term for Semester III if he/she is failing in any number of subjects of Sem – I & II.
- Student is allowed to keep term of Sem – V, if he/she is failing in any number of subjects of Sem – III & IV but passed in all subjects of Sem – I & II.
- Students should have cleared all subjects of Semester I, II, III, IV and V to be eligible for appearing in Semester VI examination.

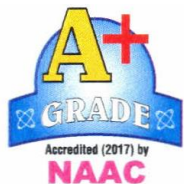
4) **Semester wise and teaching subject wise credits number of hours of teaching required in a semester and per week and scoring pattern of examination is as follows**



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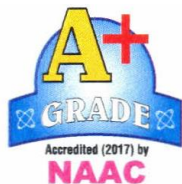
CHOICE BASED CREDIT SYSTEM (SEM I AND SEM II)



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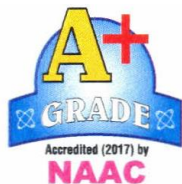
SEMESTER I (COMMON)											
CORE COURSES											
Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme					
						Theory Marks			Practical Marks		
				Theory/ Tutorial	Practical	U/E	I/A	Total	U/E	I/A	Total
AH 101	ANATOMY	2 (30)	2.5(75)	3	4	40	20	60	60	40	100
AH 102	PHYSIOLOGY	2 (30)	2.5(75)	3	4	40	20	60	60	40	100
AH 103	BIOCHEMISTRY	2 (30)	2.5(75)	3	4	40	20	60	60	40	100



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AH 104	ENGLISH	3 (45)	-	3	-	60	40	100	-	-	-		
ABILITY ENHANCEMENT ELECTIVE COURSE													
AEEC 105	PRINCIPLES OF NURSING	2 (30)	2.5(75)	3	4	40	20	60	60	40	100		
CORE ELECTIVE COURSES													
CEC 106	COMMUNICATION SKILLS*	2 (30)	-	2	-	60	40	100	-	-	-		
CEC 107	COMPUTER RELATED TO MEDICAL CARE **	1(15)	1 (30)	1	2	40	20	60	60	40	100		
1 theory credit = 15 classroom &/or experiential learning hours									1 practical credit = 30 practical training hours			Total Credit Points	25
Note : Students have chosen all subjects for studying in Semester I													



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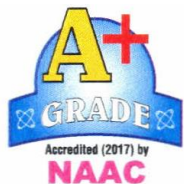
SEMESTER II COMMON)												
CORE COURSES												
Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme						
						Theory Marks			Practical Marks			
				Theory/ Tut/ Sem	Practical	U/E	I/A	Total	U/E	I/A	Total	
AH 201	MICROBIOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
AH 202	PATHOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
AH 203	PHARMACOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
AH 204	COMMUNITY MEDICINE	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
ABILITY ENHANCEMENT ELECTIVE COURSE												
AEEC 205	ENVIRONMENT STUDIES	3 (45)	-	3	-	60	40	100	-	-	-	
CORE ELECTIVE COURSE												
CEC 206	HOSPITAL OPERATIONAL MANAGEMENT	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
OR												
CEC 207	INTRODUCTION TO QUALITY AND PATIENT SAFETY	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
1 theory credit = 15 classroom &/or experiential learning hours						1 practical credit = 30 practical training hours			Total Credit Points		23	



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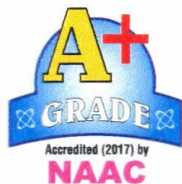
SEMESTER PATTERN
TEACHING DAYS
AND
EXAMINATION PATTERN (Including)



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INTERNAL ASSESSMENT



SEMESTER DURATION AND TEACHING DAYS



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Distribution of semester will be as follows

Semester III (Jul 2023 – Dec 2023)
Semester IV (Jan 2024 – Jun 2024)
Semester V (Jul 2024 – Dec 2024)
Semester VI (Jan 2025 – Jun 2025).

Each semester will have minimum 90 teaching days spreaded over a period of 16 weeks.

Weekly Training Programme

Weekly Training Programme will be made based on 'Credit Points' and allotted 'Teacher hours per week' and its record will be kept in respective departments and a copy of the same will also be forwarded to 'School of Allied Health Sciences' (Skill Development Courses)

Examination Pattern

Has been given separately in subsequent pages.

Remuneration

Following remuneration / honorarium will be paid to faculties:-

Existing Faculty	Rs. 600/- per lecture
Visiting / Guest Faculty	Rs. 1000/ - per lecture

Remuneration/Honorarium will be paid online after consolidated summary made at the end of each month



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Remuneration will only be generated by School Of Allied Health Sciences after receiving the training Programme of previous month.

B.Sc. (All B.Sc. Courses)

University Exam Pattern (Semester-I)
THEORY- Core Course (Except English)
(Anatomy, Physiology, Biochemistry)

Theory			Practical			Grand Total
University Exam (U/E)	Internal Assessment (I/A)	Total	U/E	I/A	Total	160
40	20	60	60	40	100	

A) Theory: Question paper pattern (40 marks)



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Type of Questions	No of questions	Marks allotted for each question	Total marks
Long Answer Question (LAQ)	2 out of 4	07	14
Short answers Question (SAQ)	4 out of 6	04	16
Multiple Choice Question (MCQ)	10 out of 10	01	10
Total	16	--	40

Theory: Question paper pattern (60 marks)

(ENGLISH)

Type of Questions	No of questions	Marks allotted for each question	Total marks
Long Answer Question (LAQ)	2 out of 4	10	20



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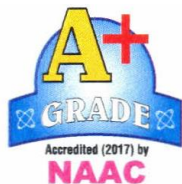
Short answers Question (SAQ)	4 out of 6	05	20
Multiple Choice Question (MCQ)	10 out of 10	02	20
Total	16	--	60

THEORY – CORE ELECTIVE COURSES

Following examination pattern will be follows.

Computers related to Medical Care

Type of Questions	No of questions	Marks allotted for each question	Total marks
Long Answer Question (LAQ)	2 out of 4	07	14
Short answers Question (SAQ)	4 out of 6	04	16
Multiple Choice Question (MCQ)	10 out of 10	01	10



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Total	16	--	40
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Communication Skill

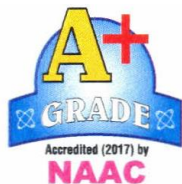
Theory: Question paper pattern (60 marks)

Type of Questions	No of questions	Marks allotted for each question	Total marks
Long Answer Question (LAQ)	2 out of 4	10	20
Short answers Question (SAQ)	4 out of 6	05	20
Multiple Choice Question (MCQ)	10 out of 10	02	20
Total	16	--	60

ABILITY ENHANCEMENT ELECTIVE COURSES

Theory: Question paper pattern (40 marks)

(PRINCIPLES OF NURSING)



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Type of Questions	No of questions	Marks allotted for each question	Total marks
Long Answer Question (LAQ)	2 out of 4	07	14
Short answers Question (SAQ)	4 out of 6	04	16
Multiple Choice Question (MCQ)	10 out of 10	01	10
Total	16	--	40

UNIVERSITY EXAM

PRACTICAL

PRACTICALS Total Marks – 60

Distribution of marks will be as follows

- (a) Spots – 20
- (b) Viva – 20
- (c) Practical / Procedure – 20

(In case there is no procedure during a semester, these marks will be added in viva).



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INTERNAL ASSESSMENT
(MID SEMESTER EXAM)

Will be based on their performance in Mid Semester exam which will be conducted at the end of 8/9 weeks of teaching in both theory & practical dates of which will be given by School of Allied Health Sciences

Theory (Total Marks 20)

(ALL EXCEPT ENGLISH & COMMUNICATION SKILL)

Following examination pattern will be follows.

Type of Questions	No of questions	Marks allotted for each question	Total marks
Short answers Question (SAQ)	2 out of 3	05	10
Multiple Choice Question (MCQ)	10 out of 10	01	10
Total		--	20



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THEORY (ENGLISH & COMPUTER SKILL)



Type of Questions	No of questions	Marks allotted for each question	Total marks
Long Answer Question (LAQ)	2 out of 3	2×10	20
Short answers Question (SAQ)	2 out of 3	2×5	10
Multiple Choice Question (MCQ)	10 out of 10	10×1	10
Total		-	40

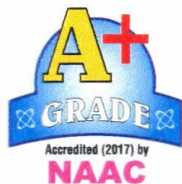
PRACTICAL

Total Marks – 40

Distribution of marks will be as follows

- (a) Spots / Practical's -20
- (b) Viva-20

Each student will be given an assignment / tutorial and will be made to do a presentation for which marks as above will be allotted.



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B.Sc. (All B.Sc. Courses)

University Exam Pattern (Semester-II)

THEORY- Core Courses

(Microbiology, Pathology, Pharmacology, Community Medicine)

Theory			Practical			Grand Total
University Exam	Internal Assessment	Total	U/E	I/A	Total	
						160



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(U/E)	(I/A)					
40	20	60	60	40	100	

Theory: Question paper pattern (40 marks)

(Microbiology, Pathology, Pharmacology, Community Medicine)

Type of Questions	No of questions	Marks allotted for each question	Total marks
Long Answer Question (LAQ)	2 out of 4	07	14
Short answers Question (SAQ)	4 out of 6	04	16
Multiple Choice Question (MCQ)	10 out of 10	01	10
Total	16	--	40

ABILITY ENHANCEMENT ELECTIVE COURSES

Theory: Question paper pattern (60 marks)



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Type of Questions	No of questions	Marks allotted for each question	Total marks
Long Answer Question (LAQ)	2 out of 4	10	20
Short answers Question (SAQ)	4 out of 6	05	20
Multiple Choice Question (MCQ)	10 out of 10	02	20
Total	16	--	60

Theory – Core Elective Courses

Following examination pattern will be follows.

Type of Questions	No of questions	Marks allotted for each question	Total marks
Long Answer Question (LAQ)	2 out of 4	07	14
Short answers Question (SAQ)	4 out of 6	04	16



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Multiple Choice Question (MCQ)	10 out of 10	01	10
Total	16	--	40

UNIVERSITY EXAM

PRACTICAL

PRACTICALS Total Marks – 60

Distribution of marks will be as follows

- (d) Spots – 20
- (e) Viva – 20
- (f) Practical / Procedure – 20

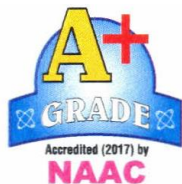
(In case there is no procedure during a semester, these marks will be added in viva).

INTERNAL ASSESSMENT
(MID SEMESTER EXAM)

Will be based on their performance in Mid Semester exam which will be conducted at the end of 8/9 weeks of teaching in both theory & practical dates of which will be given by School of Allied Health Sciences

Theory (Total Marks 20)

Following examination pattern will be follows.



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Type of Questions	No of questions	Marks allotted for each question	Total marks
Short answers Question (SAQ)	2 out of 3	05	10
Multiple Choice Question (MCQ)	10 out of 10	01	10
Total		--	20

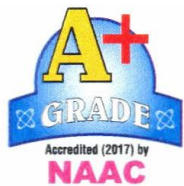
PRACTICAL

Total Marks – 40

Distribution of marks will be as follows

- (c) Spots -20
- (d) Viva-20

Each student will be given an assignment / tutorial and will be made to do a presentation for which marks as above will be allotted.



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SEMESTER - I



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SUBJECT-ANATOMY (AH101)

Learning Objectives:-

- 1) To give theoretical knowledge and its application, to undertake training in Anatomy.
- 2) To broaden the horizon of students by teaching them regarding various bones, joints, musculoskeletal system and loco motor system.

Syllabus is as follows :-

Unit I - Human Body as a whole

1. Define anatomy.
2. List the sub-divisions of anatomy.
3. Describe the Anatomical terms of location and position of various parts and organs in the human body
4. Fundamental planes of the body.
5. Enumerate the levels of organization of human body.
6. Structure of cell
7. Basic Tissues of the body - classification and preparation of tissue for observation under microscope – describe properties of various basic tissues of the body with examples – Epithelial tissue, connective tissue, muscular tissue, nervous tissue.
8. Microscope- Parts of microscope and functions
- 9.



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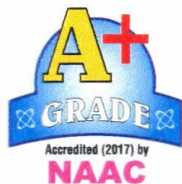
Unit II - Loco motor System

Skeletal system:

1. Classify different types of bones.
2. Describe different parts of bone.
3. Understand blood supply of a long bone.
4. Identify major bones of the body and their parts
5. Classify different joints with examples.
6. Describe general features of a synovial joint.
7. Classification of different types of synovial joints with type of movements and examples.
8. Classify different types of muscles.
9. List the names of muscles as functional groups.
10. Describe important muscles in the body.- Trapezius, Deltoid, Pectoralis major, Gluteus maximus, Hamstring muscles, Soleus, sternocleidomastoid, oblique muscles of abdomen, muscles of tongue, scapular muscles
11. **Describe the following :**
Axilla, cubital fossa, popliteal fossa, Triangles of neck, Flexor and Extensor Retinaculum, Palmar and Plantar Apo neurosis
12. Describe Type, Sub type, Articular surface, Ligaments, Relations, Blood supply, Nerve supply, Movements and Clinical Anatomy of Shoulder joint, Elbow Joint, Wrist joint, 1st carpo-metacarpal joint, Hip Joint, Knee Joint, Ankle Joint

Unit III - Nervous System

1. Parts of nervous system.
2. Structure of nervous tissue.
3. Spinal cord - coverings, extent, general features, sub-divisions, structural organization of grey matter and



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white matter. Blood supply. Formation of tracts –Posterior column pathway, pyramidal tract and their clinical importance. Injuries to spinal cord.

4. Brain stem – components, Blood supply, important functional components and effect of their injury
5. Cerebellum – location, parts, functional subdivisions, connexions, blood supply and functional importance
6. Cerebrum – surfaces, poles, lobes, blood supply, sulci, gyri and important functional areas and their clinical importance. Thalamus, hypothalamus, basal ganglia, corpus striatum, hippocampus and amygdala – their location and function.
7. Cranial nerves – names, location of nucleus and the functional components
8. Spinal nerves – Course of a typical spinal nerve. Formation of plexuses – brachial, lumbar – important nerves of upper limb, lower limb.

Unit IV - Circulatory System

1. General plan of circulatory system.
2. Pulmonary, portal and systemic circulations.
3. Structure of cardiac muscle, blood vessels.
4. Thoracic cavity – Bony cage, muscles – intercostal muscles, diaphragm
5. Mediastinum – sub-divisions, contents
6. Heart - coverings, external features, chambers, blood supply, nerve supply.
7. Major arteries of upper limb, lower limb, head and neck, abdomen and pelvis.
8. Important veins – superior and inferior vena cava, portal vein, veins of upper limb and lower limb - varicose veins and their importance
9. Lymphatic system – components, Describe in brief anatomy and microscopic structure of lymphoid organs – lymphnode, tonsil, thymus, spleen, thoracic duct.

Unit V - Respiratory System

1. Parts of respiratory system.
2. Nasal cavity, paranasal air sinuses, nasal septum, lateral wall of nose.



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3. Pharynx – extent, sub-divisions, muscles
4. Larynx – cartilages, muscles, parts, nerve supply
5. Trachea and bronchial tree – extent, measurements, histological structure of trachea – subdivisions of bronchial tree – broncho-pulmonary segments and their clinical importance
6. Pleura – types, reflections, recesses
7. Lung – location, relations, lobes, fissures, surfaces.

Unit VI - Digestive System

1. Abdomen – quadrants, musculature of wall, Formation inguinal canal, rectus sheath and their importance
2. Components of digestive system.
3. Mouth - Tongue, palate – Structure of tongue
4. Salivary glands – parotid, sub-mandibular – Brief anatomy and structure
5. Stomach – position, parts, blood supply, nerve supply, lymphatic drainage, relations, structure
6. Small intestine – sub-divisions, microscopic structure
7. Large intestine in general - sub-divisions, microscopic structure. Specific -caecum and appendix
8. Accessory organs of digestive system –Liver, pancreas, extra hepatic biliary apparatus - Gross features, relations, blood supply, microscopic structure.

Unit VII - Excretory and Reproductive Systems Learning objectives:

1. Excretory system – parts
2. Kidney – Gross anatomy and microscopic structure.
3. Ureter, urinary bladder and urethra – gross anatomy in brief.
4. Male reproductive system – parts – external genitalia – Testis and duct system in detail. Microscopic structure of testis.
5. Female reproductive system - parts – external genitalia – Ovaries and duct system in detail. Microscopic structure of Ovary and uterus.



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6. Accessory organs of reproduction – prostate gland, mammary gland- gross anatomy and their structure

Unit VIII - Endocrine System

1. List the endocrine glands and their location
2. Thyroid and parathyroid glands – location, relations, blood supply, functions, clinical importance – Microscopic structure
3. Pituitary gland – location, parts, relations, blood supply, functions, clinical importance- Microscopic structure
4. Supra renal gland - location, parts, relations, blood supply, functions, clinical importance - Microscopic structure.

Syllabus (Practical)

- General Anatomy of cartilage, bone, joints, muscles and vessels
- Bones, muscles and joints of Upper limb
- Bones, muscles and joints of Lower limb
- Thorax - Bones of thorax, Mediastinum, Lungs and pleura, Heart and pericardium
- Abdomen – pelvis, organs of Alimentary system, excretory system, male and female reproductive System
- Vertebral column
- CNS – parts of brain with functions, cerebrum, cerebellum
- Histology – of basic tissues – epithelium, bone, cartilage, muscles, vessels
- Living anatomy and Bony landmarks
- Embryology – spermatogenesis, oogenesis, Fertilization, early development
- Introduction to Genetics



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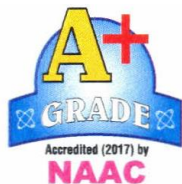


SUBJECT- PHYSIOLOGY (AH102)

Learning Objectives:-

1. To have an enhanced knowledge and appreciation of mammalian physiology;
2. To understand the basic functions of important physiological systems including the cardio-respiratory, renal, reproductive and metabolic systems;
3. To understand how these separate systems interact to yield integrated physiological responses to challenges such as exercise, fasting and ascent to high altitude, and how they can sometimes fail;
5. To be able to recognize and identify principal tissue structures.

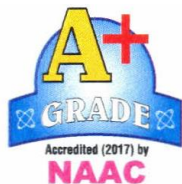
S. No	Chapter	Topics
1	General Physiology	Concept of Homeostasis, Cell structure and function, Transport across cell membrane
2	Nerve Muscle Physiology	Action Potential, Structure and classification of nerves, N-M Junction, Muscle contraction and E-C coupling
3	Blood	Blood Composition and functions, Leucocyte structure and function, RBC- Structure, Function and Erythropoiesis, Platelet- Structure and



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		Functions, Plasma Proteins and Immunity
4	Cardiovascular System	Functional anatomy and Nerve supply of heart, Origin and spread of cardiac impulse, Cardiac cycle, cardiac output, Heart rate, ECG
5	Respiratory System	Structure of Respiratory tract, Mechanism of Respiration, Regulation of respiration, Transport of Oxygen and Transport of CO ₂ , Hypoxia and Cyanosis
6	Excretory System	Structure of nephron and blood supply, Formation of urine- Filtration, Formation of Urine- Reabsorption and secretion, Micturition reflex, Daily output of urine, Bladder abnormalities, Diuretics,
7	Skin	Sweat gland, Temperature regulation
8	Digestive system	Functions of saliva, Stomach- Structure, gastric glands, Functions of gastric juice, Pancreatic juice- Composition and function, Functions of bile, Deglutition and Motility
9	Nervous system	Synapse and synaptic transmission, Reflex and properties of reflex, Sensory ending and sensory mechanisms, Spinal cord pathways, Thalamus, Basal Ganglia and Parkinsonism, Cerebellum – Functions, Cerebrospinal fluid and Autonomic Nervous system
10	Special senses	Physiology of vision, Audition and Vestibular apparatus



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11	Endocrine system	Anterior and posterior Pituitary gland hormone, Diabetes insipidus, Dwarfism, Gigantism, Acromegaly Thyroid hormone- Functions, Cretinism, Myxedema, Goiter and Grave's disease Parathyroid hormone- Functions, Tetany Insulin- Actions, Diabetes mellitus Adrenal cortical hormones
12	Reproductive system	Male reproductive organs, Spermatogenesis, Testosterone Female Reproductive organs- Menstrual cycle, Male and female contraceptive methods



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SUBJECT- BIOCHEMISTRY (AH103)

Learning Objectives:-

By the end of the course, the students should be able to demonstrate knowledge and understanding in the following core areas.

Aspects of protein structure

Enzyme kinetic behavior and mechanisms

Bioinformatics

Chromatin structure in relation to gene expression

Mechanism and control of DNA transcription in animals

DNA damage repair, and integrity, immortalization

Protein synthesis & translational control.

Molecular microbiology of infectious disease

Syllabus is as follows:-

1. H⁺, Acids, Bases, Buffers :

Equilibrium constant, dissociation of water, H⁺ concentration, pH, acids-strong and weak, bases, titration behavior, Henderson-Hasselbach equation, buffers, pH measurement, physiological buffers.

2. Membrane and Cell:

Organelles, functions, membrane structure, transport across membranes, ionophores, membrane proteins, transporters.



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3. Chemistry of Carbohydrates:

Classification, important monosaccharides, stereoisomerism, anomerism. Reaction with acids, amines, oxidizing agents, reducing agents. Osazones, Disaccharides, polysaccharides.

4. Chemistry of lipids:

Definition, classification, nature of fatty acids, triacyl glycerol, saponification and iodine number, rancidity, antioxidants, complex lipids, steroids. energetics, Lipolysis.

5. Chemistry of amino acids, peptides, proteins:

Structure of 20 amino acids, grouping isomerism, charge properties, ninhydrin reaction, peptide bond, examples of peptides, Proteins –classification, Structure-primary, secondary, tertiary and quaternary forms, denaturation.

6. Chemistry of Nucleic Acids including protein synthesis :

History, bases, nucleosides, nucleotides. DNA and gene. Types of RNAs, Nucleotides coenzymes.

7. Haemoglobin :

Structure and functions of haemoglobin, Hb derivatives, degradation of Hb, Jaundice, Haemoglobinopathies

8. Enzymes:

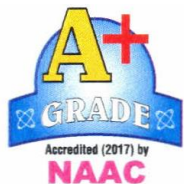
History, catalyst, classification, efficiency, specificity, basic account of mechanism of action. Factors affecting enzyme activity. Units of measurement, Inhibitors – competitive, non- competitive, examples. Coenzymes, proenzymes, isoenzymes, Clinical enzymology, normal values.

9. Vitamins:

History, Vitamins A, D, E and K. B-complex vitamins – thiamine, riboflavin, niacin, pyridoxine, folic acid, pantothenic acid, biotin, B-12, Vitamin C. Brief account of chemistry, source, requirements, deficiency diseases, biochemical functions, Hypervitaminosis.

10. Mineral metabolism:

Bulk and trace elements. Sodium, potassium, Calcium, Phosphorous, Iron. Brief account of iodine, magnesium, copper, zinc, fluoride, manganese, selenium and molybdenum.



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11. Energy Metabolism:

Calorimetry, basal metabolism, specific dynamic action, energy requirements under different conditions. Hormonal influence.

12. Nutrition:

Distribution of energy in dietary factors, Nitrogen balance, Protein quality, Kwashiorkar and Marasmus. Protein supplementation, Recommended dietary allowance and diet planning.

13. Immunology :

BASICS : Innate & acquired immunity, humoral & cell mediated immunity, antigen & antibodies

Practical Examination Scheme for BSc Skill Development Course I year-I Semester

Question	Heading	Marks
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Q.A	Spots There will be total 5 spots of 2 marks each on following a) Identification and use of common laboratory equipments and glassware: Ovens, incubators, refrigerators, deep fridge, centrifuges, water baths, water distillation apparatus, analytical balance, flasks, pipettes, cylinders funnels, tubes, thermometers, colorimeter, spectrophotometer, ELISA, Chemiluminescence. b) Identification and use of appropriate specimen collection containers.	10 Marks
Q.B	Qualitative Experiment on Candidate has to Perform one of the following: 1) Tests on Monosaccharides(Glucose and Fructose) 2) Tests on Disaccharides(Lactose and Sucrose) 3) Precipitation Reactions of Proteins 4) Normal Constituents of Urine 5) Abnormal Constituents of Urine	20 Marks
Q.C	Quantitative Estimation: Candidate has to Perform one of the following: 1) Estimation of Blood Glucose 2) Estimation of Blood Urea 3) Estimation of Serum Total Proteins and Albumin, Calculations of Albumin: Globulin Ratio 4) Estimation of Serum Creatinine, Urine Creatinine, and calculation of Creatinine Clearance 5) Estimation of Serum Bilirubin	30 Marks



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	Total	60 Marks
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SUBJECT ENGLISH (AH 104)

Learning Objectives:-

At the end of the course student will be able:-

- to enable the learner to communicate effectively and appropriately in real life situation
- to use English effectively for study purpose across the curriculum
- to develop interest in and appreciation of Literature;
- to develop and integrate the use of the four language skills i.e.

UNIT-1 PROSE

- SECRET OF WORK ---- SWAMI VIVEKANANDA
- PLAYING THE ENGLISH GENTLEMAN ----- M. K. GANDHI



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UNIT-2 POETRY

1. ECOLOGY ----- A.K. RAMANUJAN
2. LA BELLE DAME SANS MERCI -----JOHN KEATS

UNIT – 3 SHORT STORY

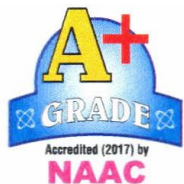
1. THE BOY WHO BROKE THE BANK ----- RUSKIN BOND
2. LOTTERY TICKETS ----- ANTONCHEKOV
3. THE DEATH TRAP ----- SAKI (H.M. MUNRO)

UNIT -4 GRAMMAR

1. CORRECTION OF SENTENCES
2. MATCH THE ONE WORD SUBSTITUTE
3. LETTER WRITING
4. EXPANSION OF PROVERBS
5. PRECIS WRITING
6. COMPREHENSION OF PASSAGE

SUBJECT-PRINCIPLES OF NURSING (AEEC105)

Learning Objectives:-



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1. To help individuals to attain independence in self-care. It necessitates development of compassion and understanding of human behavior among its practitioners to provide care with respect and dignity and protect the rights of individuals and groups.
2. A central goal of care is to promote, maintain, and restore the well-being and health of women, families, and communities. Accountability:
3. To learn principles of nursing keeping SMART in mind :- 'Specific' refers to who, what, when, where, and why. 'Measurable' means that you can actually measure and evaluate the progress of that goal in a concrete way. 'Action-oriented' means there are actions that can be taken to reach the goal.
Reasonable means that they are helpful in patient care & welfare
Timely means that care is provided in a timely manner to avoid complication & morbidities.

Unit I : Nursing & Nursing process:

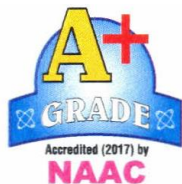
Definition, concept of Nursing, History of Nursing, Nursing process, Problems solving approach, Assessment, Diagnosis, planning, Implementation and Evaluation.

Unit II : First aid and Nursing Emergencies:

Definition, basic principles, scope and rules.

Wounds, hemorrhages, shock, fracture, dislocation and muscle injuries, respiratory emergencies, resuscitation, unconsciousness, Miscellaneous conditions, burns, scalds, foreign bodies in the skin, eyes, ear, nose, throat and stomach. Frost bite, effects of heat cramps, bites and stings. Poisoning.

Transporting injured persons.



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Unit III : Personal Hygiene and Health

Menstrual hygiene, clothing, mental health, common health problems of poor personal hygiene.

Unit IV : Comfort, Rest and Sleep

Unit V : Hospital Housekeeping

Unit VI : Health Education

Introduction to principles and methods of health education. Use of audio visual aids, mass education, role of nurse in health education.

Clinical Practicals :

1. First Aid, CPR, (for pediatric and adult) Bandaging types.
2. Practice of various comfort devices, various positions in nursing foundation lab.
3. Health talk, preparation of 3-5 types of A.V. Aids,
4. Ward visit to monitor BMW management.
5. Assessment of Pulse, Respiration and Temperature (can be add)



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COMMUNICATION SKILLS (CEC 106)

Learning Objectives:

1. Students will be able to understand and apply knowledge of human communication and language processes as they occur across various contexts, e.g., interpersonal, intrapersonal, small group, organizational, media, gender, family, intercultural communication, technologically mediated communication, etc. from multiple perspectives.
2. Students will be able to find, use, and evaluate primary academic writing associated with the communication discipline.
3. Students will develop knowledge, skills, and judgment around human communication that facilitate their ability to work collaboratively with others. Such skills could include communication competencies such as managing conflict, understanding small group processes, active listening, appropriate self-disclosure, etc. Students will be able to communicate effectively orally and in writing.

Syllabus is as follows:-

CS-1: ASPECTS OF COMMUNICATION

Unit-1: Communication: An Introduction



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- Definition, Nature and Scope of Communication
- Importance and Purpose of Communication
- Process of Communication
- Types of Communication

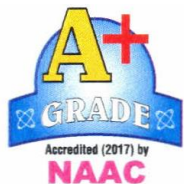
Unit-2: Non-Verbal Communication

- Personal Appearance
 - Gestures
 - Postures
- Facial
 - Expression
 - Eye Contacts
- Body
 - Language(Kinesics)
 - Time language
- Silence
 - Tips for Improving Non-Verbal Communication

Unit-3: Effective Communication

- Essentials of Effective Communication
- Communication Techniques
- Barriers to Communication

CS-2: VERBAL COMMUNICATION (ORAL-AURAL)



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Unit-4: Listening Skills-I

- Purpose of Listening
- Listening to Conversation (Formal and Informal)
- Active Listening- an Effective Listening Skill
- Benefits of Effective Listening
- Barriers to Listening

Unit-5: Listening Skills-II

- Academic Listening (Listening to Lectures)
- Listening to Talks and Presentations

Unit-6: Oral Communication Skills (Speaking Skills)-I

- Importance of Spoken English

Unit-7: Oral Communication Skills-II (Communication in Context-I)

- Asking for and giving information
- Offering and responding to offers
- Requesting and responding to requests
- Congratulating people on their success
- Expressing condolences



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Asking questions and responding politely

Apologizing and forgiving

Unit-8: Oral Communication Skills-III (Communication in Context-II)

Giving instructions

Seeking and giving permission

Expressing opinions(likes and dislikes)

Agreeing and disagreeing

Demanding explanations

Asking for and giving advice and suggestions

Expressing sympathy

CS-3: VERBAL COMMUNICATION (WRITTEN)

Unit-9: Effective Writing Skills-I

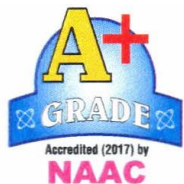
Elements of Effective Writing (What is writing?)

The Sentence, Phrases and Clauses

Types of Sentences

Unit-10: Effective Writing Skills-II

Main Forms of Written Communication



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- Paragraph Writing (Linkage and Cohesion)
- Letter Writing(formal and informal)
- Essay writing
- Notices

Unit-11: Effective Writing Skills-III

- Summarising
- Précis Writing
- Note-making

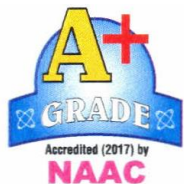
CS-4: COMMUNICATION AS A SKILL FOR CAREER BUILDING

Unit-12: Preparing for a Career

- Identifying job openings
- Applying for a job
- Preparing Cover letters
- Preparing a CV/Resume and Effective Profiling

Unit-13: Presentation Skills

- Preparing a PowerPoint Presentation
- Greeting and introducing



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- Group Discussions
- Preparing for and Facing a Job Interview

Unit-14: Telephone Skills

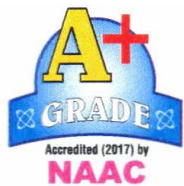
- Basics of Telephone communication
- How to handle calls- telephone manners
- Leaving a message
- Greeting and Leave Taking over phone(etiquette)

Unit-15: Time & Stress Management

- Identifying Time Wasters
- Time Management Tips
- Identifying Factors Responsible for Stress
- Stress Management Tips
- Test Preparation Tips

Unit-16: Soft Skills for Leadership and Team Management

- Qualities of a Good Leader
- Leadership Styles
- Decision Making
- Intrapersonal skills



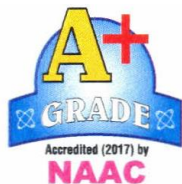
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- Interpersonal skills
- Problem solving
- Critical thinking
- Negotiation skills

Unit-17: Practical Assignments:

- ORAL Communication
- Written Communication



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COMPUTERS RELATED TO MEDICAL CARE (CEC 107)

Learning Objectives:-

After studying this course, one should be able to:

- understand the fundamental hardware components that make up a computer's hardware and the role of each of these components
- understand the difference between an operating system and an application program, and what each is used for in a computer
- describe some examples of computers and state the effect that the use of computer technology has had on some common products

I Introduction to Computers



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Introduction, Computers in the field of health care, advantages and disadvantages of computers, applications of computers in various fields, types of computers, basic computer organization, input output devices

II Number Systems

Introduction to number systems, positional and non-positional number system, decimal, binary, octal and hexadecimal systems and number conversion from one system to another.

III Computer codes and computer arithmetic

Computer codes-BCD, EBCDIC, ASCII, Unicode,
binary arithmetic- addition, subtraction, multiplication and division, additive methods for subtraction, multiplication and division

IV Processor and memory

CPU –internal structure and functions of different parts,
Main memory- basics, types, uses
Secondary memory-basics, types, examples with advantages, disadvantages and uses

V Computer software, programming, languages

Software/hardware concept, software types-system and application software, functions
Programming- program planning, algorithm, flowchart and pseudo code concept with example
Languages- Types-machine, assembly, high level, advantages and limitations, translator program and commonly used high level languages Examples

VI Database management, data and computer communication,



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internet and multimedia

Data and information concept, two methods to organize data, DBMS,

Database models

Basic elements of communication system, techniques, channels and devices, types of computer networks

Concept of internet, basic services, World Wide Web www, uses of internet

Multimedia concept, multimedia computer system, multimedia applications

Computer Practical

Microsoft word

Introduction

Introduction to MS-word

Menus

Shortcuts

Document types

Working with documents

Saving, opening new and existing document

Margins, Header & Footer

Using table properties

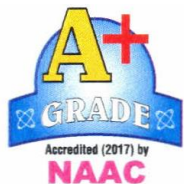
Editing – Deleting, Cut, Paste, Copy, Replace search, etc

Creating graphs, borders & shading, tables

Printing, page set up etc

Assignments covering above points

Microsoft Excel



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Introduction

Introduction to MS-Excel

Opening spread sheet

Shortcuts

Working with Spreadsheets

Opening a file, saving, using Menus

Setting margins, entering data

Rows, columns & cells

Formatting cells

Mathematical operations

Using / creating graphs, labeling & formatting graphs

Assignments covering above points

Microsoft PowerPoint

Introduction

Introduction to PPT

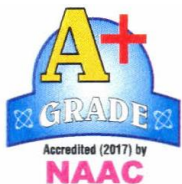
Creating, saving & opening a presentation

Working with templates

Setting backgrounds, presentation layouts

Insert pictures, graphs

Assignments covering above points



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SUBJECT: MICROBIOLOGY (AH 201)

Learning Objectives:-

Students will be able to acquire, articulate, retain and apply specialized language and knowledge relevant to microbiology.

Students will acquire and demonstrate competency in laboratory safety

Students will communicate scientific concepts, experimental results and analytical arguments clearly and concisely, both verbally and in writing

Week No	Contents of Theory	Contents of Practical	Venue	Remark
Week No 01	1. Introduction & History of Microbiology.	1. Visit to Laboratory 2. Gram Staining	Department of	



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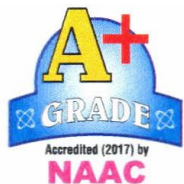
	2. Morphology of bacteria -I		Microbiology, Bharti Vidyapeeth Medical College	
Week No 02	1. Morphology of bacteria –II 2. Growth requirement of bacteria	1.Special Staining & ZN Staining 2.Motility		
Week No 03	1. Sterilization- I 2. Sterilization- II	1.Sterilization-I 2. Sterilization-II		
Week No 04	1. Antibiotic Classes & Their Action. 2. Various methods of sensitivity testing	1.ABST all methods		
Week No 05	1. Infection 2. Infection control	1.Systematic study –I 2.Systematic Study-II		
Week No 06	1. Immunity & Immunization schedule 2. Hypersensitivity-I	1.Serological reactions		
Week No 07	1. Hypersensitivity-II 2. Culture Media	1.Culture media 2.Infection Control		
Week No 08	1. Identification of bacteria 2. Respiratory Infection & meningitis	1.Respiratory infection & Meningitis 2.Enteric fever		
Week No 09	1.Enteric fever & UTI 2.Leprosy & TB	1.UTI 2.Leprosy TB		
Week No 10	1.SDT & Miscellaneous infections 2. Wound Infections & HAI	1.STD 2.Wound infection &HAI		
Week No 11	1.Mycology –I (Yeast) 2. Mycology-II (Moulds)	1.Mycology-I (yeast) 2.Mycology -		
Week No 12	1.Hepatitis, HIV 2.Dengue, Chikungunya, Influenza	1.Virology-I 2.Virology-II		



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Week No 13	1.Polio, Rabies 2. introduction to parasitology	1.Protozoa 2.Helminths		
Week No 14	1.Entamoeba Histolytica, Malaria 2.T.solium, T.saginata, E.granulosus	1.Anaerobic Infections 2.Laboratory Animals		
Week No 15	1.Ascaris, Hookworm 2. Filaria	1.Quality Control In Microbiology		



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SUBJECT: PATHOLOGY (AH 202)

Learning Objectives:-

Students should learn how to evaluate laboratory and pathologic testing, including pitfalls related to specimen collection, handling methodologies, and the skills of individuals performing those tests.

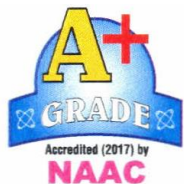
Greater knowledge about laboratory tests will not only enable testing to be used more effectively but will also allow more and better understanding of the nuances and interpretation of laboratory evaluations.

Understand the pathologic basis of disease for which a particular test is performed.

Understand the principles considered in test selection for screening, diagnosis treatment and monitoring of disease.

Syllabus is as follows :-

- Cell injury and adaptation



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- Degeneration, Necrosis and Gangrene
- Hemodynamic disturbances
- Inflammation and healing
- Chronic inflammation
- Nutritional and Environment and mental diseases
- Neoplasia
- Hematology
- Heart & blood vessels
- Respiratory diseases
- GIT, Liver diseases
- Kidney disease
- Endocrine diseases
- Bone and joint diseases
- CNS diseases
- Revision

Syllabus Practical



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- Collections of samples
- Necrosis and Gangrene
- Ischemia , Infarction
- Acute inflammation
- Chronic inflammation
- Inflammation and healing
- Neoplasia
- Anemia ,Leukemia
- CVS,Blood vessels
- Respiratory diseases
- GIT diseases
- Kidney diseases and urine
- Thyroid ,DM
- Bone and joints
- CNS diseases
- Revision

The pattern of practical's/demonstration in Pathology will be decided as per the topic given in the syllabus.



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SUBJECT: PHARMACOLOGY (AH 203)

Learning Objectives:-

The student will be able to identify a range of drugs used in medicine and discuss their mechanisms of action.

The student will be able to report the clinical applications, side effects and toxicities of drugs used in medicine.

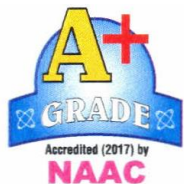
Knowledge of the pathogenesis of diseases, interventions for effective treatment, and mechanisms of health maintenance to prevent disease

Subject : Pharmacology

Syllabus

Theory - Contents

S.No	Topic	No. of Hours
1	General Pharmacology	10
2	Autonomic Nervous System	4
3	Biogenic. amines & Autocoids	4



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4	Kidney - Diuretics	2
5	Chemotherapy	6
6	Endocrinology	2
7	Miscellaneous drugs	2
Total Hours		30

Practicals

S.No	Topic	No. of Hours
1	Practicals	9
2	Drug display	27
3	Student - discussion	27
4	Record work & Model exams	5
Total Hours		68

Bharti Vidyapeeth
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BSc Courses (Pharmacology – Syllabus)

<i>Week No.</i>	<i>Contents of theory</i>	<i>Contents of Practical</i>
	Routes/Dosage forms	Dosage forms ,Routes display
2	Pharmacokinetics	Bioavailability , Instruments
3	Pharmacodynamics	Student discussion
4	Adverse Drug Reactions	Spotters
5	ANS – Adrenergic (Emphasis on Anaphylaxis)	Drug Display Student Discussion
6	Cholinergic	Drug Display
7	Biogenic Amines – Histaminic &	Student Discussion



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	Antihistaminic	
8	Prostaglandins / NSAIDs	Drug Display
9	Contrast Media – Uses & ADRs	Drug Display
10	Chemotherapy – General Concepts	Student Discussion
11	Chemotherapy – Individual agents	Drug Display
12	Chemotherapy – Individual agents	Drug Display
13	Endo - Steroids	Student Discussion
14	Kidney - diuretics	Student Discussion
15	Chelating agents	Student Discussion

The pattern of practical's/demonstration in Pharmacology will be decided as per the topic given in the syllabus.



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SUBJECT: COMMUNITY MEDICINE (AH 204)



LEARNING OBJECTIVES:

At the end of the course, the learner shall be :

1. Aware of the physical, social, psychological, economic, and environmental health determinants of health and disease.
2. Able to think epidemiologically, diagnose totally, treat comprehensively and be able to function as community and first contact physician.
3. Able to apply the clinical skills to recognize and manage common health problems including their physical, emotional and social aspects at the individual, family and community levels and deal with public health emergencies.
4. Able to identify, prioritize and manage the health problems of the community after making community diagnosis.
5. Able to perform as an effective leader of health team at primary care level.

BSc courses (Semester I/II)

Week No.	Mode of teaching- Lecture	No. Of hours	Mode of teaching- Small group (Practical)	No. Of hours
Week 01	Concept in Community Medicine	2	Introduction, Disinfection-I	4
Week 02	Mode of transmission of disease and methods of control	2	Disinfection-II	4
Week 03	Health services and Primary health center	2	Nutrition- I	4
Week 04	Nutritional Health	2	Nutrition- II	4
Week 05	Epidemiology of Communicable Diseases	2	Immunization	4
Week 06	Epidemiology of Communicable Diseases	2	Field visit-I	4
Week 07	Epidemiology of Non Communicable Diseases	2	Field visit-II	4
Week 08	Epidemiology of Non Communicable Diseases	2	Field visit-III	4
Week 09	National Health Programme	2	Family planning	4

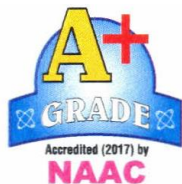


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Week 10	Disease Control Programme	2	Hospital waste management	4
Week 11	Demography and Population Control-I	2	Seminar-I	4
Week 12	Demography and Population Control-II	2	Seminar-II	4
Week 13	Environmental Sanitation	2	Water-I	4
Week 14	Revision and Feedback	2	Water-II	4
Week 15		2	Assignment Evaluation-I	4
Week 16			Assignment Evaluation-II	4
Week 17			Project Evaluation	4
Week 18			Vital statistics- Sources of Health Information	4
Week 19			Revision -I	4
Week 20			Revision -II	4
Total hours				28 hours



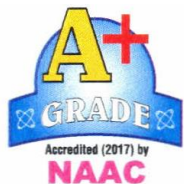
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SUBJECT: ENVIRONMENTAL STUDIES (AEEC 205)

Learning Objectives:-

Master core concepts and methods from ecological and physical sciences and their application in environmental problem solving.
Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.



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Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.

Apply systems concepts and methodologies to analyze and understand interactions between social and environmental processes.

Ability Enhancement Compulsory Courses (AECC – Environmental Studies)

Unit 1: Introduction to Environmental Studies

Multidisciplinary nature of environmental studies; components of environment – atmosphere, hydrosphere, lithosphere and biosphere.

Scope and importance; Concept of sustainability and sustainable development.

(2 Lectures)

Unit 2: Ecosystems

What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession. Case studies of the following ecosystems:

- a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem
- d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) (6 Lectures)

Unit 3: Natural Resources: Renewable and Non-renewable Resources

Land Resources and land use change; Land degradation, soil erosion and desertification.

Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.

Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).

Heating of earth and circulation of air; air mass formation and precipitation.

Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

(8 Lectures)



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Unit 4: Biodiversity and Conservation

Levels of biological diversity :genetic, species and ecosystem diversity;
Biogeography zones of India; Biodiversity patterns and global biodiversity hot spots

India as a mega-biodiversity nation; Endangered and endemic species of India
Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

(8 Lectures)

Unit 5: Environmental Pollution

Environmental pollution : types, causes, effects and controls; Air, water, soil, chemical and noise pollution

Nuclear hazards and human health risks

Solid waste management: Control measures of urban and industrial waste..

Pollution case studies. (8 Lectures)

Unit 6: Environmental Policies & Practices

Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.

Environment Laws : Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife

Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC). Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context (7 Lectures)

Unit 7: Human Communities and the Environment

Human population and growth: Impacts on environment, human health and



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welfares. Carbon foot-print.

Resettlement and rehabilitation of project affected persons; case studies.

Disaster management: floods, earthquakes, cyclones and landslides.

Environmental movements: Chipko, Silent valley, Bishnios of Rajasthan.

Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.

Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

(6 Lectures)

Unit 8: Field work

Visit to an area to document environmental assets; river/forest/flora/fauna, etc.

Visit to a local polluted site – Urban/Rural/Industrial/Agricultural.

Study of common plants, insects, birds and basic principles of identification.

Study of simple ecosystems-pond, river, Delhi Ridge, etc.

SUBJECT: HOSPITAL OPERATIONAL MANAGEMENT (CEC)

Learning Objectives:-

S.N.	Theory Content	Hours
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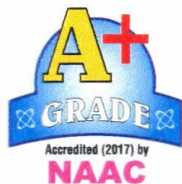
care among all sections of the Indian people.

- To promote awareness among functionaries involved in Health and Hospital Management.
- To promote the development of high quality hospital services and community health care.
- To promote a forum for the exchange of ideas and information among health and hospital planners, academicians, administrators, various statutory bodies and the general public for the improvement of Hospital and Health Care delivery Systems.
- To provide opportunities for training in all aspects of Hospital Services Health

- To promote awareness of health

Care Delivery System and Health Care Administration

To update the knowledge and skill of the Health & Hospital Administrators and other personnel involved in the management of health care organization through continuous education.



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1.	Principles and Practices of Management Definition of management, Difference between management and administration, Functions and Responsibilities of Managers & Organizational Behavior: Meaning, Definition, Significance, Models of Organization Behaviour.	4
2.	Managerial Accounting & Financial Management: Accounting: Concept and Characteristics, Financial Accounting Information, Comparison of Financial and Management Accounting, Principles of Accounting, Concept of Business Finance, role, functions and objectives. of finance management in healthcare sector.	4
3.	Laws Related to Hospital & Medical Services : PCPNDT Act, Medical Termination of Pregnancy Act, Drugs and Cosmetics Act, Payment and Wages Act, Child Labour Act	4
4.	Introduction to hospital material management & Inventory control	3
5.	Introduction to Administration of Clinical & Non-clinical Services : Functions of Clinical & Non-clinical departments	6
6.	Introduction to commonly used softwares & hospital management modules related to hospital management	5
Total Theory Hours		26
Practical teaching contents		
1.	Based on contents related to the theory module practical exposure during hospital postings/ practicals.	52

Mode of conduction of Practical Exam:

SUBJECT : INTRODUCTION TO QUALITY AND PATIENT SAFETY (CEC207)

Learning Objectives:--

- The objective of the course is to help students understand the basic concepts of quality in health Care and develop skills to implement sustainable quality assurance program in the health system.
- To understand the basics of emergency care and life support skills.
- To Manage an emergency

including moving a patient

- To help prevent harm to workers, property, the environment and the general public.
- To provide a broad understanding of the core subject areas of infection prevention and control.
- To provide knowledge on the principles of on-site disaster management

Topic 1: Quality assurance and management – Concepts of Quality of Care, Quality Improvement Approaches, Standards and Norms, Introduction to NABH guidelines



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Topic 2: Basics of emergency care and life support skills - Basic life support (BLS), Vital signs and primary assessment, Basic emergency care – first aid and triage, Ventilations including use of bag-valve-masks (BVMs), Choking, rescue breathing methods, One- and Two-rescuer CPR, Code Blue.

Topic 3: Bio medical waste management and environment safety -Definition of Biomedical Waste, Waste minimization, BMW – Segregation, collection, transportation, treatment and disposal (including color coding), Liquid BMW, Radioactive waste, Metals/ Chemicals / Drug waste, BMW Management & methods of disinfection, Modern technology for handling BMW, Use of Personal protective equipment (PPE), Monitoring & controlling of cross infection (Protective devices)

Topic 4: Infection prevention and control - Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)], Prevention & control of common healthcare associated infections, Components of an effective infection control program, Guidelines (NABH and JCI) for Hospital Infection Control

Topic 5: Patient Care and Safety Standards –Access , assessment and continuity of care, Care of Patients in specific care areas, Management of Medication, patients' Rights and Education and Medical documentation

Topic 6: Disaster preparedness and management and Safety Codes in Hospital - Fundamentals of emergency management, Psychological impact management, Resource management, Preparedness and risk reduction, information management, incident command and institutional mechanisms. Code Red, Code Pink, Code Black, Code Violet and Spill Management.



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BACHELOR OF SCIENCE (B.Sc) COURSES

BHARATI VIDYAPEETH

MEDICAL COLLEGE PUNE, 411043

(Choice Based Credit System (CBCS))

under Faculty of Medical Science

(To be implemented from Academic Year 2020-21)

General Rules & Regulations

These Rules & Regulations may be called as, “The Rules & Regulations For B.Sc. Paramedical Courses of Bharati Vidyapeeth Medical College”, Pune.

Introduction

Bharati Vidyapeeth Deemed University, Pune has developed the training Programme for capacity building since we have ‘State of Art’ infrastructure, the necessary renowned, experienced and dedicated faculty. We are attached to a spacious well equipped tertiary care hospital and excellent clinical exposure.

These courses will increase the employability in various hospitals, private clinics, medical centers, doctors office etc. It will help in overall development of technical and interpersonal skills required to work under the respective health care areas.

Courses Offered

Details of courses offered along with their eligibility criteria and member of seats are as follows:

Sr. No	Name Of The Course	Eligibility	No Of Seats	Duration
1	B.Sc. (Cardiovascular Technology)	10+2(Science) & English with 50% minimum Marks	10	3 years
2	B.Sc. (Neuro Electrophysiology)	10+2(Science) & English with 50% minimum Marks	10	
3	B.Sc. (Anesthesia & OT Technology)	10+2(Science) & English with 50% minimum Marks	10	



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Eligibility for Admission

- 1) The minimum age for admission shall be 17 years on 31st December of the year in which admission is sought

Minimum education

10+2 class passed with Science subjects (Physics, Chemistry, Biology) & English Core/English Elective with aggregate of 50% marks from any recognized board.

Method of Selection

Admission are made based on the merit list prepared following on interview by a board of faculty members.

Course Structure

a) **B.Sc Courses**

The duration of courses is 3 years divided in to 6 semesters followed by One Year internship. I & II semester shall be common for all the specialization. III, IV, V & VI semesters involve theory, practical and handling of equipment in the respective specialty. I & II semester will have minimum of 90 days, teaching spread over 16 weeks excluding holidays Sundays, vacations, and three weeks of exams followed by CAP.

Semester I (Jul 2020 – Dec 2020)

Semester II (Jan 2021 – Jun 2021)

Semester III (Jul 2021 – Dec 2021)

Semester IV (Jan 2022 – Jun 2022).

Semester V (Jul 2022 – Dec 2022)

Semester VI (Jan 2023 – Jun 2023)

Each Semester will have more than 90 teaching days followed by an university exam. The details of these will be submitted to Bharati Vidyapeeth University prior to end of each semester and permission will be sought for conduct of examination.

Commencement of the Programme

The course will ordinarily commence from 01 July 2020.

Medium Of Instruction: English.

Change Of Course :- As all the heads of the courses are compulsory, change of course is not allowed.



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Attendance:- A candidate must have minimum of 80% attendance (irrespective of the kind of absence) in theory and practical in each subjects for appearing for examination. A candidate must have 80% attendance in each of the practical areas before award of degree.

Holidays & Vacation :- As per medical college norms.

Syllabus & Examination Pattern

- 1) The Syllabus is common during I and II semesters for all B.Sc. Paramedical courses. The subjects include Anatomy, Physiology, Microbiology, Pathology, Biochemistry, Pharmacology, Community medicine, English and Communication skills, Principles of Nursing, Computer related to Medical Care.
- 2) The Syllabus and the related topics and numbers of hours of teaching in each semester (both theory and practical's) has been based on 'Credit Based Scoring System. As per UGC guidelines, component wise weightage will be as follows :-
 - i) General Education Components – 40%
 - ii) Skill Development Components – 60%
- 3) **CHOICE BASED CREDIT SYSTEM (CBCS) :-** The CBCS provides choice for students to select from prescribed courses (Core, elective or minor or soft Skill Courses). Under the CBCS, the requirement for awarding a degree of diploma or certificate is prescribed in terms of number of credit to be completed by the student. The teaching curriculum has been designed and comprises of 140 credit points in three years.
 - a) **Credit**
 - A unit by which the course work measured.
 - It determines the number of hours of instruction required per week.

- While assigning credit values to courses, one credit is considered to be equal to 15 hours of lectures and 30 hours of lab / fieldwork / in-plant training/ internship/ or any other .
- In each of the courses, credits will be assigned on the basis of the number of lectures/ tutorials/ laboratory work other forms of learning required for completing the course the instructional days for one academic year are 180 working days i.e. 90 days per semester.
- Credit Point it is the product of grade point and number of credit for a course.
- The courses in a programme shall be majorly of three kinds, namely, core courses, Open courses, or general courses. Core courses are those which are in the discipline of study and are either foundational or specializations. Core courses may either hard core (Courses which are compulsory to all students in the programme) or soft core (courses which are elective). The hard core courses also include laboratory courses, capstone courses such as internships, in – plant training or full – term projects.
- The core courses should be about 70-75% of the minimum credits that constitute the programme. Remaining 25-30% of the credits may be open courses or general courses. The open courses may be ancillary courses from other disciplines or other specializations or inter – disciplinary. About 5 – 10 % of the credits may be for general courses. .
- The evaluation for all courses shall have two components – Internal assessment (IA) and end of the term University Examination (UE).

b) Grade Point:- Grading System For Various B.Sc. Courses :-

- The university shall adopt a 10 – point absolute grading system for grading in each head of passing. The system will have seven grade points, the highest being 10. The grading system shall be as shown in table – 1 below. The performance indicators O, A+, A, B+, B, C and D shall respectively mean Outstanding, Excellent, Very Good, Good, Average, satisfactory and poor. It may be noted that entries in table are meant for converting marks in individual courses to grade points. The respective grade points can also be computed from the following formulas in given table 2.

Table – 1 : The Grading System Under CBCS

% Marks in a paper / practical	Grade Point	Grade Point (GP)
$80 \leq \text{Marks} \leq 100$	10	O
$70 \leq \text{Marks} < 80$	9	A+
$60 \leq \text{Marks} < 70$	8	A
$55 \leq \text{Marks} < 60$	7	B+
$50 \leq \text{Marks} < 55$	6	B
$40 \leq \text{Marks} < 50$	5	C
Marks < 40	0	D

The Formulas to calculate the Grade Points (GP) :

Suppose that ‘Max’ is the maximum marks assigned for an examination or evaluation based on which GP will be computed. In order to determine the GP, set $x = \text{Max}/10$ (since we have adapted 10 – point system). Then GP is calculated by the formulas shown in table – 2. After computing the grade point the grade can be found from table – 1.

Table – 2 : Formula to Calculate Grade Point

In Individual Evaluations

Range of Marks at the evaluation	Formula for the Grade Point
$8x \leq M \leq 10x$	10
$5.5x \leq M < 8x$	$\text{Truncate}(M/x)+2$
$4x \leq M < 5.5x$	$\text{Truncate}(M/x)+1$

- c) **Nature Of Examination:** For all courses there shall be Internal Assessment (IA) conducted by the university. The UE will be based on the entire syllabus.
- d) Computation of grade point Averages: Cumulative performance indicators such as GPA, SGPA, or CGPA shall be calculated as described and illustrated below.
- e) (i) The performance at UE and IA will be combined to obtain the Grade Point Average (GPA) for the course. The weights for performance at UE and IA shall respectively be 60% and 40%.
(ii) The grade point average (GPA) for a course shall be calculated by first finding the total marks out of 100 for the course. The corresponding GP (as per the table in (2) above) shall be the GPA for the course.

(iii) Two kinds of performance indicators, namely the Semester Grade Point Average (SGPA) and the Cumulative Grade Point Average (CGPA) shall be computed at the end of each term. The SGPA measures the cumulative performance of a learner in all the courses in a particular semester, while the CGPA measures the cumulative performance in all courses since his/her enrolment. The CGPA of a learner when he/she completes the programme is the final result of the learner.

(iv) The SGPA is calculated by the formula $SGPA = \frac{\sum C_k * GP_k}{\sum C_k}$, where C_k is the credit –

Value assigned to a course and GP_k is the GPA obtained by the learner in the course. In the above, the sum is taken over all the courses that the learner has undertaken for the study from the time of his/her enrolment and also the during the semester for which CGPA is calculated, including those in which he/she might have failed or those for which he/she remained absent. The CGPA shall be calculated up to two decimal place accuracy.

(v) The CGPA is calculated by the formula $CGPA = \frac{\sum C_k * GP_k}{\sum C_k}$, where C_k is the credit –

Value assigned to a course and GP_k is the GPA obtained by the learner in the course. In the above, the sum is taken over all the courses that the learner has undertaken for the study from the time of his/her enrolment and also the during the semester for which CGPA is calculated, including those in which he/she might have failed or those for which he/she remained absent. The CGPA shall be calculated up to two decimal place accuracy.

(vi) The CGPA, calculated after the minimum credits Specified for the programme are 'earned' will be the final result.

f) Standards of Passing and ATKT Rules:-

1. For all courses, both UE and IE constitute separate heads – of – passing (HoP). In order to pass in such courses and to 'earn' the assigned credits.

(a) The learner must obtained a minimum grade point of 5.0 (40% marks) at UE and also a minimum grade point of 5.0 (40% marks) at IA;

2. If he/she fails in IA, the learner passes in the course provided he/she obtains a minimum of 25% in IA and GPA for the course is at least 6.0 (50% in aggregate). The GPA for a course will be calculated only if the learner passes at the UE. The following examples illustrate this rule for passing in a course under.

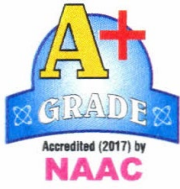
Table – 3 : Illustration of passing Rule specified in E. 1

Case No.	UE marks Out Of 60	IA marks out of 40	Total marks out of 100	GP of UE	GP of IA	GPA	Remarks
1	24	16	40	5.0	5.0	5.0	Pass
2	40	10	50	7.0	0	6.0	Pass
3	40	06	46	7.0	0	5.0	Fails at IA
4	20	40	--	0	10.0	0	Fails at UE
5	34	12	46	7.0	0	5.0	Fails at IA
6	20	15	--	0	0	0	Fails at both UE & IA

3. A student who fails at UE in a course has to reappear only at UE as a backlog candidate and clear the HoP. Similarly, A student who fails in a course at IA has to reappear only at IA as a backlog candidate and clear the HoP.

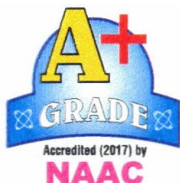
ATKT RULES:-

- A student is allowed to carry backlog of courses prescribed for Semester I, III & V to Sem – II, IV & VI respectively.
 - A student is allowed to keep term for Semester III if he/she is failing in any number of subjects of Sem – I & II.
 - Student is allowed to keep term of Sem – V, if he/she is failing in any number of subjects of Sem – III & IV but passed in all subjects of Sem – I & II.
 - Students should have cleared all subjects of Semester I, II, III, IV and V to be eligible for appearing in Semester VI examination.
- 4) **Semester wise and teaching subject wise credits number of hours of teaching required in a semester and per week and scoring pattern of examination is as follows:**



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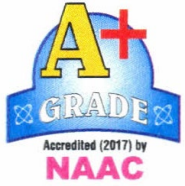


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SEMESTER I (COMMON)												
CORE COURSES												
Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme						
						Theory Marks			Practical Marks			
				Theory/ Tutorial	Practical	U/E	I/A	Total	U/E	I/A	Total	
AH 101	ANATOMY	2 (30)	2.5(75)	3	4	40	20	60	60	40	100	
AH 102	PHYSIOLOGY	2 (30)	2.5(75)	3	4	40	20	60	60	40	100	
AH 103	BIOCHEMISTRY	2 (30)	2.5(75)	3	4	40	20	60	60	40	100	
AH 104	ENGLISH	3 (45)	-	3	-	60	40	100	-	-	-	
ABILITY ENHANCEMENT ELECTIVE COURSE												
AEEC 105	PRINCIPLES OF NURSING	2 (30)	2.5(75)	3	4	40	20	60	60	40	100	
CORE ELECTIVE COURSES												
CEC 106	COMMUNICATION SKILLS*	2 (30)	-	2	-	60	40	100	-	-	-	
CEC 107	COMPUTER RELATED TO MEDICAL CARE **	1(15)	1 (30)	1	2	40	20	60	60	40	100	
1 theory credit = 15 classroom &/or experiential learning hours						1 practical credit = 30 practical training hours				Total Credit Points		25
Note : Students have chosen all subjects for studying in Semester I												

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SEMESTER II COMMON)												
CORE COURSES												
Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme						
						Theory Marks			Practical Marks			
				Theory/ Tut/ Sem	Practical	U/E	I/A	Total	U/E	I/A	Total	
AH 201	MICROBIOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
AH 202	PATHOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
AH 203	PHARMACOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
AH 204	COMMUNITY MEDICINE	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
ABILITY ENHANCEMENT ELECTIVE COURSE												
AEE C 205	ENVIRONMENT STUDIES	3 (45)	-	3	-	60	40	100	-	-	-	
CORE ELECTIVE COURSE												
CEC 206	HOSPITAL OPERATIONAL MANAGEMENT	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
OR												
CEC 207	INTRODUCTION TO QUALITY AND PATIENT SAFETY	2 (30)	2 (60)	2	4	40	20	60	60	40	100	
1 theory credit = 15 classroom &/or experiential learning hours						1 practical credit = 30 practical training hours			Total Credit Points		23	



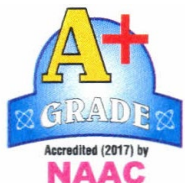
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SEMESTER II COMMON)											
CORE COURSES											
Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme					
						Theory Marks			Practical Marks		
				Theory/ Tut/ Sem	Practical	U/E	I/A	Total	U/E	I/A	Total
AH 201	MICROBIOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100
AH 202	PATHOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100
AH 203	PHARMACOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100
AH 204	COMMUNITY MEDICINE	2 (30)	2 (60)	2	4	40	20	60	60	40	100
ABILITY ENHANCEMENT ELECTIVE COURSE											
AEEC 205	ENVIRONMENT STUDIES	3 (45)	-	3	-	60	40	100	-	-	-
CORE ELECTIVE COURSE											
CEC 206	HOSPITAL OPERATIONAL MANAGEMENT	2 (30)	2 (60)	2	4	40	20	60	60	40	100
OR											
CEC 207	INTRODUCTION TO QUALITY AND PATIENT SAFETY	2 (30)	2 (60)	2	4	40	20	60	60	40	100



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1 theory credit = 15 classroom &/or experiential learning hours	1 practical credit = 30 practical training hours	Total Credit Points	23
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SEMESTER II COMMON)											
CORE COURSES											
Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme					
						Theory Marks			Practical Marks		
				Theory/ Tut/ Sem	Practical	U/E	I/A	Total	U/E	I/A	Total
AH 201	MICROBIOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100
AH 202	PATHOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100
AH 203	PHARMACOLOGY	2 (30)	2 (60)	2	4	40	20	60	60	40	100
AH 204	COMMUNITY MEDICINE	2 (30)	2 (60)	2	4	40	20	60	60	40	100
ABILITY ENHANCEMENT ELECTIVE COURSE											
AEEC 205	ENVIRONMENT STUDIES	3 (45)	-	3	-	60	40	100	-	-	-
CORE ELECTIVE COURSE											
CEC 206	HOSPITAL OPERATIONAL MANAGEMENT	2 (30)	2 (60)	2	4	40	20	60	60	40	100
OR											
CEC 207	INTRODUCTION TO QUALITY AND PATIENT SAFETY	2 (30)	2 (60)	2	4	40	20	60	60	40	100



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1 theory credit = 15 classroom &/or experiential learning hours	1 practical credit = 30 practical training hours	Total Credit Points	23
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SEMESTER III (ANAESTHESIA & OT TECHNOLOGY)

CORE COURSE

Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme							
						Theory Marks			Practical Marks				
				Theory/Tutorial	Practical	U/E	I/A	Total	U/E	I/A	Total		
ATOT 301	APPLIED ANATOMY & PHYSIOLOGY RELATED TO ANESTHESIA TECHNOLOGY	3(45)	3(90)	2	6	60	20	80	80	40	120		
ATOT 302	PHARMACOLOGY RELATED TO ANESTHESIA TECHNOLOGY	2(30)	3(90)	2	6	60	20	80	80	40	120		
ATOT 303	BASIC ANAESTHETIC TECHNIQUES	2 (30)	3(90)	2	6	60	20	80	80	40	120		
ATOT 304	APPLIED MICROBIOLOGY RELATED TO ANESTHESIA TECHNOLOGY	2 (30)	3(90)	2	6	60	20	80	80	40	120		
ABILITY ENHANCEMENT ELECTIVE COURSE													
ATOT/AEEC 305	BIostatISTICS AND RESEARCH METHODOLOGY	2 (30)		2		60	40	100					
OR													
ATOT/AEEC 306	MEDICAL RECORDS MANagements	2 (30)		2		60	40	100					
1 theory credit = 15 classroom &/or experiential learning hours									1 practical credit = 30 practical training hours			Total Credit Points	23

SEMESTER IV (ANAESTHESIA & OT TECHNOLOGY)

CORE COURSE

Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme					
						Theory Marks			Practical Marks		
				Theory/Tutorial	Practical	U/E	I/A	Total	U/E	I/A	Total
ATOT 401	Principles of Anesthesia	2 (30)	3(90)	2	6	60	20	80	80	40	120
ATOT 402	EMERGENCY DRUGS	2 (30)	3(90)	2	6	60	20	80	80	40	120
ATOT 403	MEDICAL ETHICS	2 (30)	3(90)	2	6	60	20	80	80	40	120
ATOT 404	MEDICINE OUTLINES	3(45)	3(90)	2	6	60	20	80	80	40	120
ABILITY ENHANCEMENT ELECTIVE COURSE											
ATOT/AEEC 405	ORGANIZATION BEHAVIOUR	2 (30)		2		60	40	100			
OR											
ATOT/AEEC 406	PERSUIT OF INNER SELF EXCELLENCE	2 (30)		2		60	40	100			
1 theory credit = 15 classroom & /or experiential learning hours practical training hours								1 practical credit = 30		Total Credit Points	23

SEMESTER V (ANAESTHESIA & OT TECHNOLOGY)

CORE COURSE

Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme						
						Theory Marks			Practical Marks			
				Theory/Tutorial	Practical	U/E	I/A	Total	U/E	I/A	Total	
ATOT 501	BASICS OF SURGERY	2 (30)	3(90)	2	6	60	20	80	80	40	120	
ATOT 502	CSSD PROCEDURES	2 (30)	3(90)	2	6	60	20	80	80	40	120	
ATOT 503	ANAESTHESIA FOR SPECIALITY SURGERIES (I)	2 (30)	3(90)	2	6	60	20	80	80	40	120	
ATOT 504	ANAESTHESIA FOR SPECIALITY SURGERIES (II)	3(45)	3(90)	2	6	60	20	80	80	40	120	
ABILITY ENHANCEMENT ELECTIVE COURSE												
ATOT/AEEC 505	MEDICAL BIOETHICS HUMAN RIGHTS PROFESSIONAL VALUES	2 (30)		2		60	40	100				
OR												
ATOT/AEEC 506	HUMAN RIGHTS PROFESSIONAL VALUES	2 (30)		2		60	40	100				
1 theory credit = 15 classroom & /or experiential learning hours practical training hours									1 practical credit = 30		Total Credit Points	23

SEMESTER VI (ANAESTHESIA & OT TECHNOLOGY)

CORE COURSE

Course Code & Course		Theory Credits (Total Hours)	Practical Credits (Total Hours)	Teaching Hours Per Week		Examination Scheme					
						Theory Marks			Practical Marks		
				Theory/Tutorial	Practical	U/E	I/A	Total	U/E	I/A	Total
ATOT 601	BASIC INTENSIVE CARE	2(30)	3(90)	2	6	60	20	80	80	40	120
ATOT 602	STERILIZATION PROCEDURES	2(30)	3(90)	2	6	60	20	80	80	40	120
ATOT 603	BLS	3(45)	3(90)	2	6	60	20	80	80	40	120
ATOT 604	CLINICAL THEATRE	2(30)	3(90)	2	6	60	20	80	80	40	120

ABILITY ENHANCEMENT ELECTIVE COURSE

ATOT 605	PROJECT RELATED TO ANESTHESIA & OT TECHNOLOGIES	2 (30)		2		60	40	100			
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1 theory credit = 15 classroom & /or experiential learning hours
practical training hours

1 practical credit = 30

Total Credit Points

23

SYLLABUS FOR BSc (ANESTHESIA & OT TECHNOLOGY)

COURSE CODE WISE

SEM III

CODE – ATOT – 301

APPLIED ANATOMY & PHYSIOLOGY RELATED TO ANESTHESIA TECHNOLOGY

THEORY

UNIT I. Respiratory System

A. Structure and function of the respiratory tract in relation to Anaesthesia – Nose, Pharynx, Larynx, Trachea & Bronchial tree – vessels, nerve supply, respiratory tract.

B. Respiratory Physiology-Respiratory muscles – diaphragm, intercostals, Lung volumes-dead space, vital capacity, FRC.

C. Oxygen: properties, storage, supply, hypoxia

UNIT II. Cardiovascular System

Anatomy – Chambers of the heart, circulation, ECG, Blood Pressure. How to measure? Hypotension & Hypertension.

UNIT III. Fluids And Electrolytes/Blood Transfusion-Body Fluids – Composition, I.V Fluids – composition & administration, I.V Cannulation, Blood grouping, Cross matching, Transfusion indications, hazards.

UNIT IV: Nervous System-Parts of Central & Peripheral Nervous System, Cerebro spinal fluid

UNIT V: Reproductive System: Physiological changes in pregnancy and labour

PRACTICAL

1. Model of respiratory tract
2. Spotters-pictures in anatomy and physiology of various systems
3. Introduction to basic vital parameters and general examination. How to measure pulse, blood pressure, temperature
4. How to set up things for IV cannulation
5. Introduction to multipara monitor with how to use basic monitors: ECG leads, NIBP cuff, pulse oximeter probe application.

CODE – ATOT – 302

PHARMACOLOGY RELATED TO ANESTHESIA TECHNOLOGY

THEORY

UNIT I-

- Anticholinergics-Atropine, Glycopyrrolate
- Sedatives / Anxiolytics- Diazepam, Phenergan, Lorazepam.
- Narcotics-Morphine, Pethidine, Methoclopramide, Ondansetron
- Induction Agents-Barbiturates-Thiopentone, Benzodiazepines-Diazepam, Midazolam, Phencyclidines - Ketamine, Propofol

UNIT II – Antacids-

- Na Citrate. Gelusil, H₂ Blockers-Ranitidine

UNIT III– Muscle relaxants & Anaesthetics

- Muscle Relaxants-Depolarizing – Suxamethonium, Non Depolarizing – Vecuronium, Atracurium, Narcotics – Morphine, Pethidine, Fentanyl, Fortwin, Tramadol
- Inhalational Gases-Gases-O₂, N₂O, Inhalation Agents– Halothane, Isofluranes, Sevoflurane
- Reversal Agents- Neostigmine, Atropine, Glycopyrrolate, Naloxone, Flumazenil (Diazepam)
- Local Anaesthetics-Xylocaine, Bupivacaine – Topical, EMLA– Ointment.

UNIT IV– Emergency Drugs-

- Adrenaline: Mode of administration, dilution, dosage, effects, bicarbonate, calcium, ephedrine, xylocard,
- Other ionotroped: dopamine, dobutamine.
- Cardiovascular drugs-Antihypertensives, Antiarrhythmics, Beta - Blockers, Ca – Channel blockers, Vasodilators – (nigroglycerin& sodium nitroprusside) Nitrates, sorbitrates, digoxin.
- Respiratory system-(Bronchodilators, respiratory stimulants), Renal system-(Diuretics, furosemide, mannitol)
- Obstetrics-(Oxytocin, methergin)

UNIT V- Miscellaneous

- IV fluids- various preparations NaCl, RL, haemaceal, hetastarch heparin.
- NSAID- Ibuprofen, ketrolac, paracetamol, diclofenac.

PRACTICAL

1. SPOTTERS
2. CHARTS
3. ANAESTHETIC INDUCTION AGENTS
4. INHALATION AGENTS: Identification of vaporizers,How to mount on machine ,filling system
5. Introduction to drugs dilution
6. Preparation for infusion pumps
- 7.Introduction to different routes of drug administration and formulations

CODE – ATOT – 303

BASIC ANAESTHETIC TECHNIQUES

THEORY

HISTORY OF ANAESTHESIA

- First successful clinical demonstration:
- Pre - historic (ether) era
- Inhalational anaesthetic era
- Regional anaesthetic era

- Intravenous anaesthetic era
- Modern anaesthetic era
- Minimum standard of anaesthesia
- Who should give anaesthesia?

PRE-OP PREPARATION:

Pre anaesthetic assessment~ History – , past history - disease / Surgery / and personal history - Smoking / alcohol General physical assessment, systemic examination – CVS, RS, CNS

INVESTIGATIONS

Routine - Haematological - their significance

- Urine
- E.C.G.
- Chest X - ray

Special:

- Endocrine, hormonal assays
- Echocardiography
- Angiography
- Liver function test
- Renal function test
- Others

Case acceptance: ASA grading - I, II, III, IV. V

PRE - ANAESTHETIC ORDERS:

Patient - Informed consent

- Npo
- Premedication
- Advantages, drugs used
- Special instructions
- If any

PRACTICAL

- Orientation to OT premises

- Introduction to basic equipments and observation for following.
- Machine - Checking the machine
- O₂, N₂O: how to check, mount cylinders on machine
- Suction apparatus
- Laryngoscopes, ET tubes, airways
- Things for IV accessibility
- Introduction of OT table and attachments
- Other monitoring systems

Drugs - Emergency drugs
 - Anaesthetic drugs

INTRAOPERATIVE MANAGEMENT (THEORY + PRACTICAL)

- Confirm the identification of the patient
- Monitoring - minimum
- Noninvasive & Invasive monitoring
- Induction - drugs used
- Endotracheal intubation
- Maintenance of anaesthesia
- Positioning of the patient
- Blood / fluid & electrolyte balance
- Reversal from anaesthesia - drugs used
- Transferring the patient
- Recovery room – set up and things needed

POST OPERATIVE COMPLICATIONS & MANAGEMENT(THEORY+PRACTICAL)

THEORY:

- Recovery and Delayed recovery
- Hypoxia and Oxygen Therapy
- Airway obstruction
- PONV
- Hypo/Hypertension, bradycardia /tachycardia
- Shivering, sweating

- Sore throat
- Hypoglycemia, convulsions
- Early warning signs

PRACTICAL:

- Oxygen therapy devices
- Management of obstructed airway: Jawthrust, Trippl maneuver
- BSL monitoring :glucometer use
- Use of Warming devices

INTRODUCTION TO REGIONAL ANAESTHESIA TECHNIQUES:

THEORY:

Spinal, epidural, Caudal, Peripheral nerve blocks

PRACTICAL:

- Introduction to spinal, epidural needles
- Positioning of patient for spinal, epidural
- How to prepare trays for spinal, epidural, nerve blocks
- Introduction to USG machine, Sono needles for blocks

CODE – ATOT – 304

Applied microbiology related to Anesthesia Technology

THEORY

- Sterilization & decontamination
- Dry
- Filtration
- General Principles Asepsis
- •Wound Infection & Urinary Tract Infections
 - Blood stream Infections
 - Respiratory tract Infection
 - S.Typhi, Salmonel1a Paratyphoid 'A', Salmonella Typhimurium

- Catheter, IV associated Infections
- Hospital acquired infections & prevention of hospital acquired infections
 - Hepatitis C, HBV, HIV
- Hyper sensitivity reaction – Type I, II, III, IV
- Biomedical Waste Management

PRACTICAL

- Sterilization & decontamination
- Dry
- Filtration
- General Principles Asepsis
- Wound Infection & Urinary Tract Infections
 - Blood stream Infections
 - Respiratory tract Infection
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- Hospital acquired infections & prevention of hospital acquired infections
 - Hepatitis C, HBV, HIV
- Hyper sensitivity reaction – Type I, II, III, IV
- Biomedical Waste Management
- Steps of Hand washing
- How to wear gloves, gown
- Visit to CSSD
- Care of IV cannulas, Foleys catheter

CODE – ATOT/AEEC – 305

BIOSTATISTICS & RESEARCH METHODOLOGY

- INTRODUCTION: CONCEPTS, TYPES, SIGNIFICANCE, AND SCOPE OF STATISTICS, MEANING DATA, SAMPLE, PARAMETER, TYPE AND LEVEL OF DATA AND THEIR MEASUREMENT ORGANIZATION AND PRESENTATION OF DATA – TABULATION OF DATA, FREQUENCY DISTRIBUTION GRAPHICAL AND TABULAR PRESENTATION.

- MEASURES OF CENTRAL TENDENCY: MEAN, MEDIAN, MODE
- MEASURES OF VARIABILITY: RANGE, PERCENTILES, AVERAGE DEVIATION, QUARTILE DEVIATION, STANDARD DEVIATION.
- NORMAL DISTRIBUTION: PROBABILITY, CHARACTERISTICS AND APPLICATION OF NORMAL PROBABILITY CURVE, SAMPLING ERROR.
- MEASURES OF RELATIONSHIP: CORRELATION- NEED AND MEANING RANK ORDER CORRELATION, SCATTER DIAGRAM METHOD, PRODUCT MOMENT CORRELATION, SIMPLE LINEAR REGRESSION ANALYSIS AND PREDICTION.
- SIGNIFICANCE OF STATISTIC AND SIGNIFICANCE BETWEEN TWO STATICS (TESTING HYPOTHESIS)
- NON-PARAMETRIC TEST- CHI-SQUARE TEST , SIGN, MEDIAN TEST, MANN WHITNEY TEST. •PARAMETRIC TEST -'T' TEST, ANOVA, MANOVA, ANCOVA AND RELIABILITY TESTS

RESEARCH METHODOLOGY

1. STAGES OF RESEARCH PROCESS
2. DEVELOPING IDEAS AND DEFINING A RESEARCH QUESTION
3. LITERATURE REVIEW
4. ERRORS IN MEASUREMENT AND THEIR CONTROL,
5. RELIABILITY AND VALIDITY
6. EPIDEMIOLOGICAL MEASURES OF DISEASE FREQUENCY
7. RESEARCH DESIGN:
 - I. QUANTITATIVE (EPIDEMIOLOGICAL)
 - 1 A. EXPERIMENT (CLINICAL, FIELD, COMMUNITY)
 - 2 B. OBSERVATIONAL
 - 3 I. COHORT
 - 4 II. CASE CONTROL
 - 5 III. CROSS SECTIONAL STUDY

6 IV. ECOLOGICAL STUDY

II. QUALITATIVE RESEARCH METHOD (SOCIOLOGICAL)

- i. DEVELOPING INSTRUMENTS (DELPHI TECHNIQUE)
- ii. FOCUS GROUPS
- iii. IN DEPTH INTERVIEW
- iv. KEY INFORMANT INTERVIEW

8. ETHICAL ISSUES

9. CRITICAL APPRAISAL OF A RESEARCH REPORT

SEMESTER IV

CODE – ATOT – 401

PRINCIPLES OF ANAESTHESIA

THEORY

1. MEDICAL GAS SUPPLY

- Compressed gas cylinders
- Colour coding
- Cylinder valves; pin index.
- Gas piping system
- Recommendations for piping system
- Alarms & safety devices.

2. ANAESTHESIA MACHINE

- Hanger and yoke system
- Cylinder pressure gauge
- Pressure regulator
- Flow meter assembly
- Vapourizers - types, hazards, maintenance, filling and draining, etc.

3. BREATHING SYSTEM

- General considerations: humidity & heat
- Common components - connectors, adaptors, reservoir bags.
- Capnography ; etc02
- Pulse oximetry
- Methods of humidification.
- Classification of breathing system
- Mapleson system - a b c d e f
- Jackson Rees system, Bain circuit
- Non rebreathing valves - ambu valves
- The circle system
- Components

- Soda lime, indicators

4. FACE MASKS & AIRWAY LARYNGOSCOPES

- Types, sizes
- Endotracheal tubes - Types, sizes.
- Cuff system
- Fixing, removing and inflating cuff, checking tube position complications

5. ANAESTHESIA VENTILATOR AND WORKING PRINCIPLES.

6. MONITORING :

- Applying basic monitors on patient
- Preparation for CVP/IBP lines, Foleys and Ryles Tube insertion
- Use of fluid and blanket warmers

- ECG
- SpO₂
- Temperature
- IBP
- CVP
- PA Pressure
- LA Pressure

DIFFICULT AIRWAY CART:

Introduction to instruments

Laryngoscopes with different blade sizes, LMAs, iGEL, Bougie, Ventilating bougie, Stubby Handle, Lightwand, Cricothyotomy set

- Preparation For Fiberoptic Bronchoscopic Intubation: Anaesthesia of upper airway, Nebulisation
- Introduction to Endoscopy/Laproscopy Trolley
- Identification : pneumatic compression devices
- How to give/technique for IM injection, IV line placement

PRACTICAL

1. MEDICAL GAS SUPPLY

- Compressed gas cylinders
- Colour coding
- Cylinder valves; pin index.
- Gas piping system
- Recommendations for piping system
- Alarms & safety devices.

2. ANAESTHESIA MACHINE

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- Introduction to Endoscopy/Laproscopy Trolley
- Identification : pneumatic compression devices
- How to give/technique for IM injection,IV line placement

CODE – ATOT – 402

EMERGENCY DRUGS

THEORY

- Adrenaline : Mode or administration, dilution, dosage,

- Effects, Isoprenaline
- Atropine, bicarbonate, calcium, ephedrine, xylocard,
- Inotropes : dopamine, dobutamine, amidaron
- Aminophylline, hydrocortisone, antihistaminics, potassium.
- Cardiovascular drugs
- Antihypertensives
- Antiarrhythmics
- Beta - Blockers
- Ca - Channel blockers.
- Vasodilators - nitroglycerin & sodium nitroprusside
- Respiratory system- Bronchodilators, respiratory stimulants Bronchiolytic agents
- Renal system - Diuretics, furosemide, mannitol
- Obstetrics - oxytocin, methergin
- Miscellaneous - Antibiotics, paracetamol, diclofenac- IV fluids, various preparations NaCl, Ringer lactate, haemostatic, heparin, protamine, insulin , analgesics, NSAID, ibuprofen, ketorolac,

PRACTICAL

Preparation of infusion for cardiac drugs

Pediatric drug dilutions

Bronchodilators: Nebuliser setup

CODE – ATOT – 403

Medical ethics

THEORY and PRACTICALS

- Definition
- Goal
- Scope
- Code of conduct
- Introduction .
- Basic principles of medical ethics – Confidentiality
- Malpractice and negligence Rational and irrational drug therapy
- Autonomy and informed consent Right of patients
- Care of the terminally ill
- Euthanasia
- Organ transplantation
- Medico legal aspects of medical records – Medicolegal case and type
Records and document related to MLC ownership of medical records
Confidentiality Privilege communication
- Release of medical information Unauthorized disclosure retention
of medical records other various aspects

PRACTICALS

Specimens

OSPE charts

CODE – ATOT – 404

MEDICINE OUTLINES

THEORY

1. Disorder of haemopoiesis - Anaemias - iron deficiency anaemia,
2. Infectious diseases - Sepsis and septic shock, fever of unknown origin, infective endocarditis, infective of skin, muscle, soft tissue, infection control in hospital, diseases caused by bacteria, viruses, mycobacteria, fungi and protozoa and helminths, common secondary infection in HIV.
3. Diseases of CVS - congenital RHD - Rheumatic fever, CAD, Peripheral vascular diseases, arrhythmias.
4. Respiratory system – asthma, COPD, pneumonia, empyema.
5. Kidney & Urinary tract - acute renal failure, Glomerulonephritis, Haemodialysis, Transplant, Urinary tract infection
6. Liver and biliary tract disease - Viral hepatitis, alcoholism
7. Endocrinology and metabolism - Diabetes mellitus, Hyper - and hypothyroidism.

PRACTICAL

Respiratory system – asthma, COPD, pneumonia, empyema.

Kidney & Urinary tract - acute renal failure, Glomerulonephritis, Hemodialysis, Transplant, Urinary tract infection

Liver and biliary tract disease - Viral hepatitis, alcoholism

Endocrinology and metabolism

Diabetes mellitus,

Hyper - and hypothyroidism.

CODE – ATOT/AEEC 405

ORGANISATIONAL BEHAVIOUR

INTRODUCTION:

All organizations, be the business, educational or government, are social systems. They are run by people. The functioning of an organization depends upon how people work or behave in the organization. Human behavior in organizations is highly unpredictable. It is unpredictable because it arises from people's deep-seated needs and value systems. However, it can be partially understood in terms of the framework of behavioral science, management and other disciplines. There is no idealistic solution to organizational problems. All that can be done is to increase our understanding and skills so that human relations at work can be enhanced.

KEY ELEMENTS OF ORGANISATIONAL BEHAVIOUR:

There are four key elements in organizational behavior. There are people, structure, technology and the environment. Each of the four elements of organizational behavior will be considered briefly.

- People
- Structure
- Technology
- Environment

CHALLENGES AND OPPORTUNITIES FOR ORGANISATIONAL BEHAVIOUR

INTRODUCTION : There are many challenges and opportunities for managers to use Organizational Behavior concepts to enhance the overall effectiveness of individuals, groups and organization. The following are some of the critical issues confronting managers for which the knowledge of Organizational Behavior offers worthy solutions based on behavioral science and other interdisciplinary fields.

SIGNIFICANT PROBLEMS IN MANAGEMENT : The following are some of the significant problems:

- Improving People Skills
- Improving Quality and Productivity
- Managing Workforce Diversity
- Responding to Globalization
- Empowering People
- Coping with Temporariness
- Stimulating Innovation and Change
- Improving Ethical Behavior

i) **Improving People Skills**

ii) **Improving Quality and Productivity**

iii) **Responding to Globalization:**

- An Expatriate manager have to manage a workforce that is likely to have very different needs, aspirations and attitudes from the ones that they are used to manage in their home countries.
- Understanding the culture of local people and how it has shaped them and accordingly learn to adapt ones management style
- Coping with 'Temporariness
- Stimulating Innovation and Change
- Improving Ethical behavior
- Implications for Managers

SEMESTER V

CODE – ATOT – 501

Basics of surgery

THEORY

1. History of Surgery, role of the surgeon, importance of team work and anticipating the needs of surgeons; stresses that may arise during operative procedure
2. Surgical terminology, types of incision and indications for the use of particular incision;
3. Haemorrhage-signs and symptoms of internal and external; classification and management;
4. Identification of types of tourniquets reasons for use and duration of application, dangers of use;
5. Wounds, types, process of healing, treatment and complications; inflammation; wound infections-causes and treatment; incision and drainage of abscesses; importance of personal cleanliness and aseptic techniques;
6. Pre-operative and post-operative care of the surgical patient; Emergency procedures

PRACTICAL

Haemorrhage-signs and symptoms of internal and external; classification and management;

Identification of types of tourniquets reasons for use and duration of application, dangers of use;

Wounds, types, process of healing, treatment and complications; inflammation; wound infections-causes and treatment; incision and drainage of abscesses; importance of personal cleanliness and aseptic techniques;

Pre-operative and post-operative care of the surgical patient; Emergency procedures

-Application of tourniquet to patient, setting its pressures and care

-Knowledge of surgical asepsis, skin preparation, how to drape surgical site for invasive procedures

-Use of cautery, precautions to be taken, its application on patient

CODE – ATOT – 502

CSSD Procedures

THEORY

1. Waste disposal collection of used items from user area, reception protective clothing and disinfections sage guards,
2. use of disinfections sorting and classification of equipment for cleaning purposes, sharps, blunt lighted etc. contaminated high risk baby care - delicate instruments or hot care instruments,
3. cleaning process - use of detergents. Mechanical cleaning apparatus, cleaning instruments, cleaning jars, receivers bowls etc. trays, basins and similar hand ware utensils. Cleaning of catheters and tubings, cleaning glass ware, cleaning syringes and needles.
4. Materials used for wrapping and packing assembling pack contents. Types of packs prepared. Inclusion of trays andgalliparts in packs. Method of wrapping and making use of indications to show that a pack of container has been through a sterilization process date stamping.
5. General observations principles of sterlization. Moist heat sterlization. Dry heat sterlization. EO gas sterlization. H2O2 gas plasma vaposterlization.

PRACTICAL

1. Waste disposal collection of used items from user area, reception protective clothing and disinfections sage guards,
2. use of disinfections sorting and classification of equipment for cleaning purposes, sharps, blunt lighted etc. contaminated high risk baby care - delicate instruments or hot care instruments,
3. cleaning process - use of detergents. Mechanical cleaning apparatus, cleaning instruments, cleaning jars, receivers bowls etc. trays, basins and similar hand ware utensils. Cleaning of catheters and tubings, cleaning glass ware, cleaning syringes and needles.
4. Materials used for wrapping and packing assembling pack contents. Types of packs prepared. Inclusion of trays andgalliparts in packs.Method of wrapping and making use of indications to show that a pack of container has been through a sterilization process date stamping.

CODE – ATOT – 503

Anaesthesia for speciality Surgeries (I)

THEORY

NEURO ANESTHESIA

- Glasgow coma scale
- Premedication
- Checklist
- Induction of a patient
- Positioning in neuro surgery
- I.C.P.
- Air embolism
- Reversal of the patient

PRACTICAL:

- Special investigations:CT,MRI
- Specific equipment:Reinforced ETT,CVP,IBP line readiness
- Positioning: sitting,prone ,preparation for same
- Attachments of table for head fixation
- Care during Transfer to ICU

OBSTETRIC ANAESTHESIA

THEORY:

- Physiological changes and differences between a pregnant and a normal lady
 - Risks for anaesthesia.
 - Precautions to be taken
 - Check list
 - Regional vs general anaesthesia
 - Induction / maintenance and recovery .
 - Reversal and extubation
 - Emergencies - manual removal of placenta -A.P .H. -P.P.H. -Ruptures uterus -Ectopic Pregnancy
- Introduction to gynaecological procedures

PRACTICAL

Preparation for difficult airway
Labour analgesia preparation
Neonatal resuscitation,APGAR score
Use of oxytocic drugs

PAEDIATRIC ANAESTHESIA

THEORY:

- Differences in adult and pediatrics
- Premedication: Different routes of drug administration
- Induction
- Intubation - Securing the EIT
- Reversal & extubation – Problems
- Transferring / ICU management
- Pain management

PRACTICAL:

PEDIATRIC OT SETTING:

RBS mask, small ETTs, microcuff ETT

Miller blades

ETT size formula

Warming devices

Trays for caudal, epidurals

Small suction catheters, Feeding tubes

JET ventilation for Foreign Body bronchus

Transport trolley

ENT ANAESTHESIA

THEORY

- Anaesthesia for adenotonsillectomy
- Anaesthesia for mastoidectomy
- Bronchoscopy and oesophagoscopy, Foreign Body

PRACTICAL:

Special ETTS: microlaryngeal ETT, Laryngectomy tube, LASER ETT

Tracheostomy tube and care

Throat pack ready

Set up for DL scopy

LAPROSCOPY AND ANAESTHESIA

THEORY:

Various laproscopic surgeries

Effects of pneumoperitoneum

Anesthesia for laproscopic surgeries

Complications of laproscopy

PRACTICAL:

Setting laproscopy trolley, instruments for same

Use of CO2 cylinder

CARDIAC ANAESTHESIA :

(THEORY + PRACTICAL)

- NYHA classification

- Arrhythmias
- Angina
- Dyspnoea
- Special investigations echo cardiography, angiography
- Premedication
- Setting up of monitoring system
- Monitoring - invasive and non - invasive
- Getting ready for the case
- Induction of cardiac patient, precautions to be taken
- Cardiopulmonary bypass
- Weaning of CPB
- Transferring the patient to ICU.
- Care to be taken
- I.C.U management.
- Chest tube management

CODE – ATOT – 504

Anaesthesia for speciality Surgeries (II)

ANAESTHESIA OUTSIDE THE O.R. (THEORY + PRACTICAL)

- Situations
- Cath Lab

- Radiology
- E.C.T.
- Short comings.

DAY CARE ANAESTHESIA

- Special features
- Set up
- Advantages
- Disadvantages
- Complications
- Future

PRACTICAL:

Rotation to outside OR,related preparation
Monitored anesthesia care/conscious sedation
Confirmation of NBM
Presence of relative/attendant while discharge

GERIATRIC ANAESTHESIA

THEORY:

- Physiological changes
- Diseases of aging
- Nervous system
- Geriatric pharmacodynamics / pharmacokinetics
- Postoperative nervous system dysfunction

PRACTICAL:

- Care while giving position in old patient
- Care of bones,joints,pressure areas
- Prepration for difficult spine
- Hearing problems and problem in cooperation
- Difficult,fragile veins

- Care for hypothermia

ANAESTHESIA FOR TRAUMA & SHOCK

THEORY:

- Types of shock and management
- Preopinvestigation , assessment
- Circulatory management
- Management of anaesthesia
- Rapid sequence induction
- Other problems

PRACTICAL:

- Assessment of hypovolemia
- Head to toe examination of trauma patient
- See for CCT,PCT
- Primary ABCD care

THORACIC ANAESTHESIA

THEORY:

- Pulmonary function tests bed side Vitallograph
- Premedication
- Check list
- Induction.
 - Intubation
 - Double lumen tubes
 - monitoring
 - Pain management
 - Extubation
 - ICU management

PRACTICAL:

- Preparation and optimization

- Nebulization,chest physiotherapy,spirometry
- Trolley ready for DLT
- Fiberoptic bronchoscope trolley for DLT confirmation

POSTOPERATIVE PROBLEMS

THEORY

- Nausea & Vomiting
- Sore throat
- Laryngeal granuloma

Neurological complications.

- Awareness
- Vascular complications.
- Trauma to teeth
- Headache
- Backache
- Ocular complications
- Auditory complications

MAJOR CATASTROPHES

THEORY

- Mortality
- Causes of death
- Cerebral damage
- Prevention.

CODE – ATOT /AECC 505

MEDICAL BIOETHICS,HUMAN RIGHTS AND PROFESSIONAL VALUES

The aim of this course is to provide, through a series of workshops, an understanding of medical ethics and how it is applied in clinical practice.

At the end of the course the student should be able to:

- 1) Describe and discuss the principal strands of ethical thought
- 2) Systematically apply them to ethical dilemmas in clinical practice and how they might best be dealt with

The student should gain an understanding of and be able to demonstrate in practice

- 1) Utilitarianism
- 2) Deontology
- 3) The Principles approach to medical ethics and how they are applied
- 4) Autonomy
- 5) Informed consent
- 6) Confidentiality
- 7) Human Rights as applied to medicine

Introduction to Medical Ethics

What is Ethics? What does it do and how does it work?

Ethics is an understanding of the nature of conflicts arising from moral imperatives

and how best we may deal with them. Specifically it deals with conflicts in potential outcome (consequences of actions) or with duties and obligations.

Ethics does NOT decide what is morally right or wrong; rather it considers how we should act best in the light of our duties and obligations as moral agents. Clinicians have specific duties of care to their patients

and to society. It is generally held that clinicians should always act in the best interest of their patients; but

sometimes there is a conflict between obligations to a patient and those perceived to be owed to the community or to other patients. It may not always be the case that what the clinician believes is in the best interest of the

patient is what the patient wishes or will consent to. Central to modern medical ethics is a respect for patient autonomy and the fundamental principle of informed consent.

Medical Ethics is a practical subject as well as a branch of moral philosophy.

Ethics is an integral part of good medical practice. It is an essential branch of medicine.

Ethics deals with the choices we make and our actions in relation to those choices. It deals with choices made by both clinicians and patients and the duties and obligations of clinicians to their patients. Medical ethics also deals with the choices made by society, the distribution of resources and access to health care and the dilemmas arising from them.

Ethics deals with choices. Where there are no choices there is no need for ethics. There are almost always choices to consider and there is almost always a need for ethics. Any choice we make involves ethics, although sometimes we may not realise or consider it. How we live involves choices affecting ourselves and others with both the potential for benefit and for harm (consequences)

How we feed ourselves, clothe ourselves, keep ourselves warm, travel to work etc. All these choices have consequences for others.

Ethics is also about duties and obligations: to whom we have duties, how extensive they are, how best they may be discharged and how we deal with conflicting duties and obligations.

Patients have duties and obligations too, which is why we should respect them as moral agents. Parents have duties of care to their children; and sometimes a clinician's duty to a child patient may conflict with those of the parents, and this needs an ethical approach to resolve.

Ethical practice involves a systematic approach to decision making and actions, considering the interests of all affected by the decision. patient, they should consider not only whether they should do so but also how they should do so in the best interest of their patient.

HUMAN VALUES AND PROFESSIONAL ETHICS

Unit-I: Introduction to Value Education

1. Value Education, Definition, Concept and Need for Value Education
2. The Content and Process of Value Education
3. Self-Exploration as a means of Value Education
4. Happiness and Prosperity as parts of Value Education

Unit-II: Harmony in the Human Being

1. Human Being is more than just the Body
2. Harmony of the Self (Ātman) with the Body

3. Understanding Myself as Co-existence of the Self and the Body
4. Understanding Needs of the Self and the Needs of the Body

Unit-III: Harmony in the Family and Society and Harmony in the Nature

1. Family as a basic unit of Human Interaction and Values in Relationships
2. The Basics for respect and today's Crisis : Affection, Care, Guidance, Reverence, Glory, Gratitude and Love
3. Comprehensive Human Goal : The Five dimensions of Human Endeavour

Unit-IV: Social Ethics

1. The Basics for Ethical Human conduct
2. Defects in Ethical Human Conduct
3. Holistic Alternative and Universal order
4. Universal Human Order and Ethical Conduct

Unit-V: Professional Ethics

1. Value Based Life and Profession
2. Professional Ethics and Right Understanding
3. Competence in Professional Ethics
4. Issues in Professional Ethics – The Current scenario
5. Vision for Holistic Technologies, Production System and Management Models

SEMESTER VI

CODE – ATOT – 601

Basic Intensive Care

THEORY

1. INFECTIOUS DISEASES IN I.C.U.
 - Antibiotics in I.C.D.
 - Oxygen therapy
 - Mechanical ventilation
2. ACID - BASE DISORDERS,how to draw ABG sample
3. CARDIOVASCULAR FAILURE (THEORY)
 - Inotropic support
 - Vasodilator drugs.
4. RENAL FAILURE & LIVER FAILURE (THEORY)
5. HEAD INJURY (THEORY)
6. PRINCIPLES OF TRANSFUSION THERAPY (THEORY)
 - Whole blood, erythrocyte products
 - Plasma components
 - Platelets concentrate
 - Massive transfusion, acute transfusion reactions.
- 7.MONITORING AND DIAGNOSTIC PROCEDURES IN I.C.U

PRACTICAL

- Central Venous access.
- ECG monitoring.
- Invasive hemodynamic monitoring

2. GENERAL CARE OF PATIENT IN I.C.U.

- Eye
- Bladder Skin
- Care of mechanically ventilated patient
- Tracheostomy, humidification
- Vascular lines - arterial, venous line
- Radiography
- Physiotherapy - chest physiotherapy

3. FLUID BALANCE AND PARENTERAL NUTRITION(THEORY)

4. INFECTIOUS DISEASES IN I.C.U.

- Antibiotics in I.C.U.
- Oxygen therapy
- Mechanical ventilation

5. ACID - BASE DISORDERS,how to draw ABG sample

6. CARDIOVASCULAR FAILURE (THEORY)

- Inotropic support
- Vasodilator drugs.

7. RENAL FAILURE & LIVER FAILURE (THEORY)

8. HEAD INJURY (THEORY)

9. PRINCIPLES OF TRANSFUSION THERAPY (THEORY)

- Whole blood, erythrocyte products
- Plasma components
- Platelets concentrate
- Massive transfusion, acute transfusion reactions.

CODE – ATOT – 602

Sterilization Procedures

THEORY

1. Waste disposal collection of used items from user area, reception protective clothing and disinfections sage guards, BioMedical wastes,
Color coding and management
2. use of disinfections sorting and classification of equipment for cleaning purposes, sharps, blunt lighted etc. contaminated high risk baby care delicate instruments or hot care instruments,
3. Cleaning process use of detergents. Mechanical cleaning apparatus, cleaning instruments,
Cleaning jars, receivers bowls etc. trays, basins and similar hand ware utensils.
Cleaning of catheters and tubings, cleaning glass ware, cleaning syringes and needles.
4. Materials used for wrapping and packing assembling pack contents. Types of packs prepared. Inclusion of trays and galliparts in packs. Method of wrapping and making use of indications to show that a pack of container has been through a sterilization process date stamping.
5. General observations principles of sterilization. Moist heat V. Nervous System. Dry heat Ssterilization. EO gas sterilization. H2O2 gas plasma capo sterilization.

PRACTICAL

1. Waste disposal collection of used items from user area, reception

protective clothing and disinfections sage guards, BioMedical wastes,
Color coding and management

2. use of disinfections sorting and classification of equipment for cleaning purposes, sharps, blunt lighted etc. contaminated high risk baby care delicate instruments or hot care instruments,

3. Cleaning process use of detergents. Mechanical cleaning apparatus, cleaning instruments, Cleaning jars, receivers bowls etc. trays, basins and similar hand ware utensils. Cleaning of catheters and tubings, cleaning glass ware, cleaning syringes and needles.

4. Materials used for wrapping and packing assembling pack contents. Types of packs prepared. Inclusion of trays and galliparts in packs. Method of wrapping and making use of indications to show that a pack of container has been through a sterilization process date stamping.

5. General observations principles of sterilization. Moist heat V. Nervous System. Dry heat Ssterilization. EO gas sterilization. H2O2 gas plasma capo sterilization.

CODE – ATOT – 603

BASIC LIFE SUPPORT

THEORY

- Airway Management:
- Anaphylaxis
- Approach to Shock
- Initial Management of Shock

- Approach to Syncope
- Approach to Restless Patient
- Approach to Pediatric Patients
- Safe transfer of patients to definitive care areas

(PRACTICAL):

- Airway Management:
- Anaphylaxis
- Approach to Shock
- Initial Management of Shock
- Approach to Syncope
- Approach to Restless Patient
- Approach to Pediatric Patients
- Safe transfer of patients to definitive care areas

How to do chest compression

Bag and mask ventilation

Airway maneuvers: jaw thrust

Setting defibrillator and its use

CODE – ATOT – 604

CLINICAL/THEATRE

THEORY

- Routine Maintenance of Equipments and Instruments
- Laying out of Instrument, trolleys
- Emphasis on Surgical Positions, Instruments required and the role of Theatre Assistant in various surgeries
- Preparation of patient, aseptic techniques and draping
- Various positions for surgeries: Lithotomy, prone, supine
- Special Instrument like Laproscope, Endoscope, Monitors, Carm
- Trouble shooting in OT
- Specimen labelling and handling

- Exposure to Critical Care Unit for Surgical patients
- I V fluids and Transfusion related matters
- Dressing, sutures, bandages and plasters
- Recovery room and nursing care
- PreOperative and postoperative management of patients
- Patient handling and Transportation to and from the Operation theatre
- Universal precautions for HIV Positives, HBsAg Positive
- Introduction to Operating room Ethics,
- Discipline, Lay out, Equipments Lights,
- OT table, suction, scrub station
- Electrical Devices – Electro cautery, Laser, Harmonic, Ligasure
- Power Surgical Instruments – Drills Saw, Reamer
- Common General Surgical Operations and Dressings

PRACTICAL

- Routine Maintenance of Equipments and Instruments
- Laying out of Instrument, trolleys
- Emphasis on Surgical Positions, Instruments required and the role of Theatre Assistant in various surgeries
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