



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

**FACULTY OF AYURVED  
AGADA TANTRA EVUM VIDHIVAIDYAKA  
New Syllabus**



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

**FACULTY OF AYURVED**

**Pune- Satara Road, Pune-411043.**

**AGADA TANTRA EVUM VIDHIVAIDYAKA**

*Accredited with 'A+' Grade (2017) by NAAC.*

*'A' Grade University status by MHRD, Govt. of India*

*Accredited (2004) & Reaccredited (2011) with 'A' Grade by NAAC.*

**Post- Graduate (M.D./M.S./Diploma in Ayurved)**

**Syllabus/ Curriculum**

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## **Preface**

Ayurveda is accepted worldwide as one of the oldest traditional systems of medicine. The ancient insight in this traditional system of medicine is still not profoundly discovered. Ayurveda signifies as "the life-science " where ayur means "life" and veda means "science" in Sanskrit. Ayurveda is the upaveda i.e. "auxiliary knowledge of Atharvaveda in Vedic tradition with its prime origin from Atharva-Veda and a supplement of the Rig-Veda. Lord Dhanvantari is worshipped as the God of Ayurveda. The goal of this traditional medicine system is to prevent illness, disease cure and preserve life. Being originated in India Ayurveda extends its wings in various parts of the world. In ancient days Ayurveda was taught in Gurukula system, which is now evolved in to post graduate courses from Institutions.

The Indian Medical Council was set up in 1971 by the Indian government to establish maintenance of standards for undergraduate and postgraduate education. It establishes suitable qualifications in Indian medicine and recognizes various forms of traditional practice including Ayurveda.

Ayurvedic practitioners also work in rural areas, providing health care to the million people in India alone. They therefore represent a major force for primary health care, and their training and placement are important to the government of India. Being a scientific medicine, Ayurveda has both preventive and curative aspects. The preventive component emphasizes the need for a strict code of personal and social hygiene, the details of which depend upon individual, climatic, and environmental needs.

The Bachelor of Ayurvedic Medicine and Surgery, MD/MS in various discipline of

Ayurveda started with the intention to encourage integrated teaching and de-emphasize compartmentalization of disciplines so as to achieve horizontal and vertical integration in different phases which helps to support National Health Services.

Looking into the health services provided to the public, understanding the need of practitioners of Ayurvedic system of medicine, as per the guidelines of apex body National Council of Indian system of Medicine (formerly CCIM) and suggestions provided by the faculty of various Specialties, stake holders and strategy of University this governance is framed

based on following aims and objectives -

### **Aims and objectives-**

The aims of the post-graduate degree courses shall be to provide orientation of specialties and super-specialties of Ayurveda, and to produce experts and specialists who can be competent and efficient teachers, physicians, surgeons, gynaecologists and obstetricians (Stri Roga and Prasuti Tantragraha), pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

## **Faculty of Ayurved, Bharati Vidyapeeth (Deemed to be University), Pune**

### **Vision-**

To be a world class university for social transformation through dynamic education

### **Mission-**

- To ensure the good health and longevity of mankind.
- To carve a niche for our college in the world of Ayurved education
- To provide
  - Borderless access to Ayurved education
  - Quality Ayurved education
- To promote
  - Quality research in diverse areas of health care system.
  - Extensive use of ICT for teaching, learning and governance.
  - To develop national and international networks with industry and other academic and research institutions.

## **Program Outcomes For Post Graduate Courses in Ayurved-**

- PG degree holder should be expert and specialist of his/ her branch who can be competent and efficient teacher, physician, surgeon, gynaecologist and obstetrician (Stri Roga and Prasuti Tantragrahya), pharmaceutical expert, researcher and profound scholar in various fields of specialization of Ayurved.
- Should be having knowledge of Concept of Good clinical practices in Ayurved and modern medicine

### **Course specific outcomes**

#### **M. S – Ayurved Dhanvantari in**

##### **1. PRASUTI TANTRA & STREEROGA [OBSTETRICS AND GYNECOLOGY]**

- To be able to manage normal and complicated Pre-natal, Intra partum and Post natal cases by integrative approach
- To be able to manage all types of gynecological disorders at every epoch of womanhood.
- To be able to perform all kinds of Ayurvedic procedures and surgical procedures related to Stree roga and Prasutitantra
- To have knowledge of medico legal aspects of obstetrics and gynecology.

#### **M. S – Ayurved Dhanvantari in**

##### **2. SHALAKYA TANTRA [NETRA, SHIRO, NASA, KARNA, KANTHA, MUKHA]**

- To be able to manage all cases of E.N.T. and ophthalmology by integrative approach.
- To be able to perform all kinds of Ayurvedic procedures and surgical procedures related to Shalakyatantra
- To have knowledge of medico legal aspects of Shalakyatantra

#### **M. S – Ayurved Dhanvantari in**

##### **3. SHALYA TANTRA [GENERAL SURGERY]**

- To be able to manage all surgical cases by integrative approach
- To be able to perform all kinds of Ayurvedic procedures and general surgical procedures
- To have adequate knowledge of Anushashtra – Ksharkarma and prayoga, Agnikarma [thermo therapy], Raktamokshan [bloodletting ] or Asthisandhi evam marma vigyan [ orthopedic] or Sangyahan [Anesthesiology] or Mootraroga [ Urology]
- To have knowledge of medico legal aspects of Shalyatantra

## **M.D.- Ayurved Vachaspati in**

### **1. AYURVED SAMHITA & SIDDHANT**

- to have profound knowledge of Charak Samhita, Sushrut Samhita & AshtangHridayam, Ayurvediya and Darshanika Siddhanta with commentaries
- to be able to interpret philosophical principles incorporated in Charak Samhita, Sushrut Samhita, Ashtanga Hridaya, Ashtang Samgraha.
- To able to understand Practical applicability of principles of samhita and a competent Ayurved physician
- Competency in fundamental research

## **M.D.- Ayurved Vachaspati in**

### **2. RACHANA SHAARIRA**

- Should have thorough knowledge and competency in Ayurved Sharira and Modern anatomy
- Having extensive knowledge and skill of dissecting human dead bodies and its demonstration.

## **M.D.- Ayurved Vachaspati in**

### **3. KRIYA SHARIR**

- Having profound knowledge of Ayurved Kriya Sharir: - - and Contribution of different Ayurveda Samhita in Kriya Sharir
- Ability to determine and demonstrate the Sharir – Manans Prakriti
- Should have knowledge of Modern Physiology and its applied aspects

## **M.D.- Ayurved Vachaspati in**

### **4. DRAVYAGUNA VIGYAN**

- Have a clear understanding of medicinal plants in context to Ayurved and modern Pharmacology and Pharmaceutics
- Have an accurate knowledge of identification, Authentication and standardization of raw and wet plant drugs.
- Ability of cultivation and plantation of medicinal plants
- Knowledge about Pharmacovigilance
- Ability to conduct the pre clinical and clinical trials of medicinal plants

## **M.D.- Ayurved Vachaspati in**

### **5. RASASHASTRA EVAM BHAISHJYA KALPNA**

- Have an accurate knowledge of identification, Authentication and standardization of minerals and metals along with plant drugs
- Possess detailed knowledge of manufacturing practices of various dosage forms of



Ayurved formulations as per GMP

- Ability to establish, run and manage pharmacy as per GMP and FDA guidelines
- Having knowledge of Drug and cosmetics related acts
- Ability to conduct the pre clinical and clinical trials on minerals and metals

**M.D.- Ayurved Vachaspati in**

### **6. AGADA TANTRA EVUM VIDHIVAIDYAKA**

- To be able to understand and interpret Ayurvedic and Contemporary Toxicology
- Having knowledge of Pharmacodynamics of different formulations used in Agadatantra and Clinical & Experimental toxicology
- Ability of Ayurvedic & Contemporary Management Of Poisoning
- Should have profound knowledge of Forensic Medicine and Medical Jurisprudence
- Ability to diagnose and manage substance abuse [ De- addiction]
- Have knowledge of Pharmacovigilance, community health problems due to poisons & pollution, Drug interactions & incompatibility etc.

**M.D.- Ayurved Vachaspati in**

### **7. SWASTHAVRITTA**

- Having knowledge of Concept of holistic health and Principles of dietetics according to Ayurveda
- Understanding the Concept of community health, prevention, Stages of intervention according to Ayurved Modern medicine
- Should have knowledge of Ayurved and Modern Concept of Epidemiology [Janapadodhwamsa]
- Possess knowledge of Therapeutic effect of Yogic practices and ability to demonstrate various yogasanas in various diseases
- Understanding the role of Ayurved for Immunization, Occupational Health, Geriatrics, Life Style disorders (Non Communicable diseases)

**M.D.- Ayurved Vachaspati in**

### **8. ROGA NIDANA**

- To understand the Concept and applied aspects of fundamental principles of Rognidan
- To have profound Knowledge of classical Samprapti of all diseases with interpretation of Nidana Panchaka including Upadrava, Arishta and Sadhyasadhyata and Chikitsa Sutra.
- Ability of Ayurvedic interpretation of commonly occurring diseases in contemporary medicine, all relevant findings of modern clinical examinations and various Laboratory and other Diagnostic reports

- Ability of establishment and management of standard clinical laboratory set up
- Have knowledge about Upasargajanya Vyadhi (Communicable diseases)

### **M.D.- Ayurved Vachaspati in**

#### **9. Panchakarma**

- To have thorough knowledge of Kayachikitsa, basic principles of Shodhana (BioPurification methods) and Raktamokshana, Physiotherapy & Disease-wise Panchakarma
- To be able to perform poorva, Pradhan & Pashchat karma of Panchakarma procedures [ five Purification therapies] of Ayurveda and manage its complications [ Updrava].
- To be able to prepare all the necessary bhaishjya kalpana for various panchakarma procedures

### **M.D.- Ayurved Vachaspati in**

#### **10. Kayachikitsa**

- To have thorough knowledge of Fundamentals of Kayachikitsa  
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- To be able to perform Rogi-Roga Pariksha in Ayurved and Modern perspectives with the help of modern diagnostic parameters.
- To be able to perform samanya and vishesh roga chikitsa including application of advances in Rasayana and Vajikarana therapies and emerging trends in Panchakarma in various disease management
- To have knowledge of Critical care medicine, Management of medical emergencies, ICU services, Field medical services
- To be able to participate in National Health Programmes and recognize prospective role of Ayurveda services and therapeutics in them.

### **M.D.- Ayurved Vachaspati in**

#### **11. KAUMARBHRITYA-BALA ROGA**

- Ability to interpret Ayurvedic genetics with Pathogenesis of Modern genetics and management of genetic disorders
- To have thorough knowledge of Neonatal Care and management of all types of neonatal diseases
- To diagnose and manage the Paediatric Disorders
- Ability to develop and manage paediatric ward with Fundamentals of Hospital management

## **Eligibility**

Passing marks for eligibility in admission to ASU&H- PG courses should be as per the ASU&H- PG regulations and should be followed strictly., -

- A person possessing the degree of Ayurvedacharya (Bachelor of Ayurveda Medicine and Surgery) or provisional degree certificate recognized as per the provisions of IMCC 1970/NCISM 2020 act and possess permanent or provisional registration certificate issued by the CCIM/NCISM/state board and must have completed a satisfactorily one year compulsory rotating internship as per the NCISM notification.
- In order to be eligible for admission to post graduate courses it shall be necessary for a candidate to obtain minimum of marks at 50<sup>th</sup> percentile in the All India AYUSH Post Graduate Entrance Test ( AIAPGET) .
- Candidates belonging to the scheduled castes, Scheduled Tribes and other Backward Classes the minimum marks shall be at 40<sup>th</sup> percentile.

## **Medium of instruction**

The medium of instruction for the programme shall be Sanskrit or Hindi or English with use of Ayurvedic technical terms.

## **Duration of the Course Study**

**Total Duration of Course** – 3 Years from the Commencement of classes. The maximum duration for completion of the course shall not exceed beyond the period of six years from the date of admission to the course.

**Curriculum** - As approved by Bharati Vidyapeeth [Deemed to be University], Pune is in line with the directives of the Central Council for Indian Medicine.

## **Attendance and Progress**

The students shall have to attend a minimum of seventy-five per cent. of total lectures, practical's and clinical tutorials or classes to become eligible for appearing in the examination. A Web based centralized biometric attendance system shall be required for the attendance of post-graduate students and manual attendance at department level in which student is pursuing the post-graduate course.

The student shall have to attend the hospital and perform other duties as may be assigned to him during study. The student of clinical subject shall have to do resident duties in their respective departments and student of non-clinical subject shall have duties in their respective departments like Pharmacy or Herbal Garden or Laboratory during study. The student shall attend special lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

**Subjects taught, Number of lectures/ practical and demonstrations for various subjects [ MD/MS]**

❖ **Specialties in which post-graduate degree is allowed are as under: -**

Sr. No.	Name of speciality	Nearest terminology of modern subject	Department in which postgraduate degree can be conducted
<b>Pre-clinical speciality</b>			
1	Ayurveda Samhita evam Siddhant	Ayurveda Samhita and basic principles of Ayurveda	Samhita and basic principles of Ayurveda
2	Rachana Sharira	Anatomy	Rachana Sharira
3	Kriya Sharira	Physiology	Kriya Sharira
<b>Para-clinical speciality</b>			
4	Dravyaguna Vigyana	Materia Medica and Pharmacology	Dravyaguna
5	Rasa Shastra evam Bhaishajya Kalpana	Ayurveda Pharmaceuticals	Rasa Shastra evam Bhaishajya Kalpana
6	Roga Nidana evam Vikriti Vigyana	Diagnostic Procedure and Pathology	Roga Nidana evam Vikriti Vigyana
<b>Clinical speciality</b>			
7	Prasuti evam Stri Roga	Obstetrics and Gynecology	Prasuti evam Stri Roga
8	Kaumarabhritya –Bala Roga	Pediatrics	Kaumarabhritya– Bala Roga
9	Swasthavritta	Preventive Social Medicine	Swasthavritta and Yoga
10	Kayachikitsa	Medicine	Kayachikitsa
11	Shalya	Surgery	Shalya Tantra
12	Shalaky	Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry	Shalaky Tantra
13	Panchakarma	Panchakarma	Panchakarma
14	Agada Tantra	Toxicology and Forensic Medicine	Agada Tantra.

❖ **Nomenclature of post-graduate degree. -**

The nomenclature of post-graduate degree in respective specialties shall be as under: -

Sl.No.	Nomenclature of specialty or degree	Abbreviation
<b>Pre-clinical specialty</b>		
1	Ayurveda Vachaspati – Ayurveda Samhita Evum Siddhant	M.D. (Ayurveda)- Compendium and Basic Principles
2	Ayurveda Vachaspati – Rachana Sharira	M.D. (Ayurveda) - Anatomy
3	Ayurveda Vachaspati – Kriya Sharira	M.D. (Ayurveda) - Physiology
<b>Para-clinical specialty</b>		
4	Ayurveda Vachaspati – Dravyaguna Vigyana	M.D. (Ayurveda) - Materia Medica and Pharmacology
5	Ayurveda Vachaspati – Rasa Shastra evam Bhaishajya Kalpana	M.D. (Ayurveda) - Pharmaceuticals
6	Ayurveda Vachaspati – Roga Nidana evam Vikriti Vigyana	M.D. (Ayurveda)- Diagnostic procedure and Pathology
<b>Clinical specialty</b>		
7	Ayurveda Dhanvantari – Prasuti evam Stri Roga	M.S. (Ayurveda)- Obstetrics and Gynecology
8	Ayurveda Vachaspati – Kaumarabhritya –Bala Roga	M.D. (Ayurveda)- Pediatrics
9	Ayurveda Vachaspati – Swasthavritta	M.D. (Ayurveda)- Social and Preventive Medicine
10	Ayurveda Vachaspati – Kayachikitsa	M.D. (Ayurveda)- Medicine
11	Ayurveda Dhanvantari – Shalya	M.S. (Ayurveda)- Surgery
12	Ayurveda Dhanvantari – Shalakyia	M.S. (Ayurveda)- Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry
13	Ayurveda Vachaspati – Panchakarma	M.D. (Ayurveda)- Panchakarma
14	Ayurveda Vachaspati – Agada Tantra	M.D. (Ayurveda)- Toxicology and Forensic Medicine

## **Synopsis and Dissertation**

Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics and the same shall be followed by University Committee while approving the Dissertation title.

The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

If the student fails to submit the title of dissertation and synopsis within specified period, his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

- **Synopsis**

The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).

The University shall approve the synopsis not later than three months after submission of the synopsis.

A Board of Research Studies shall be constituted by the University to approve the title.

The University shall display the approved synopsis of dissertation on their website.

- **Dissertation**

Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

The dissertation shall consist of not less than forty thousand words.

The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.



## **Scheme of Examination**

The post-graduate degree course shall have two university examinations in the following manner, namely: -

1. The preliminary examination -
2. The final examination –

**1.The preliminary examination** – Conducted at the end of one academic year after admission.

**The subjects/ Number of Papers** for preliminary examination namely: -

**Paper I-** Research Methodology and Bio or Medical Statistics;

**Paper II-** Applied aspects regarding concerned subjects.

### **Rules-**

The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the specialty opted by him as under:-

- (a) Study of literature related to specialty,
- (b) Regular clinical training in the hospital for student of clinical subject,
- (c) Practical training of research work carried out in the department, for student of pre-clinical and paraclinical subject,
- (d) Participation in various seminars, symposia and discussions; and (e) progress of the work done on the topic of dissertation.

The assessment of the work done by the students of first year post-graduate course during the first year will be done before the preliminary examination.

Examination shall ordinarily be held in the month of June or July and November or December every year. For being declared successful in the examination, student shall have to pass all the subjects separately in preliminary examination. The student shall be required to obtain a minimum of fifty per cent and marks in practical and theory subjects separately to be announced as a pass. If a student fails in the preliminary examination, he shall have to pass before appearing in the final examination.

**2. The final examination** -Conducted on completion of three academic years after the admission to postgraduate course.

The final examination shall include dissertation, written papers and clinical or practical and oral examination.

**Number of Papers** -There shall be four theory papers in each specialty and one practical or clinical and viva-voce examination in the concerned specialty or group of sub-specialties selected by the student for special study.

The student shall publish or get accepted minimum one research paper on his research work in one journal and one paper presentation in regional level seminar.

The preliminary examination and final examination shall be held in written, practical, or clinical and oral examination. If the student fails in theory or practical in the final examination, he can appear in the subsequent examination without requiring submitting a fresh dissertation. The subsequent examination for failed candidates shall be conducted at every six-month interval; and the post-graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

M.D.-AYURVEDA

PRELIMINARY PAPER-I  
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

**PART-A**  
**RESEARCH METHODOLOGY**

- 1 Introduction to Research**
  - A. Definition of the term research
  - B. Definition of the term anusandhan
  - C. Need of research in the field of Ayurveda
  
- 2 General guidelines and steps in the research process**
  - A. Selection of the research problem
  - B. Literature review: different methods (including computer database) with their advantages and limitations
  - C. Defining research problem and formulation of hypothesis
  - D. Defining general and specific objectives
  - E. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
  - F. Sample design
  - G. Collection of the data
  - H. Analysis of data.
  - I. Generalization and interpretation, evaluation and assessment of hypothesis.
  - J. Ethical aspects related to human and animal experimentation.
  - K. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics.
  
- 3 Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.**
  
- 4. Scientific writing and publication skills.**
  - a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
  - b. Different types of referencing and bibliography.
  - c. Thesis/Dissertation: contents and structure
  - d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
  
- 5 Classical Methods of Research. Tadvidya sambhasha, vadmarga and tantrayukti**  
Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati  
Aushadhi-yog Parikshana Paddhati  
Swastha, Atura Pariksha Paddhati  
Dashvidha Parikshya Bhava  
Tadvidya sambhasha, vadmarga and tantrayukti

**6 Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.**

**7. Different fields of Research in Ayurveda**

- a. Fundamental research on concepts of Ayurveda
- b. Panchamahabhuta and tridosha.
- c. Concepts of rasa, guna, virya, vipak, prabhav and karma
- d. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshta.

**8. Literary Research-**

Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors, concepts and development of particular body of knowledge.

**9. Drug Research (Laboratory-based)-** Basic knowledge of the following:

**Drug sources:** plant, animal and mineral. Methods of drug identification.

**Quality control and standardization aspects:** Basic knowledge of Pharmacopoeial standards and parameters set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices(GMP) and Good Laboratory Practices (GLP).

**10. Safety aspects:** Protocols for assessing acute, sub-acute and chronic toxicity studies. Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

**11. Introduction to latest Trends in Drug Discovery and Drug Development**

- Brief information on the traditional drug discovery process
- Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell culture based assays, use of concepts of systems biology and network physiology
- Brief introduction to the process of Drug development

**12. Clinical research:**

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda

Basic knowledge of the following:-

- Observational and Interventional studies
- Descriptive & Analytical studies
- Longitudinal & Cross sectional studies
- Prospective & Retrospectives studies
- Cohort studies

Randomized Controlled Trials (RCT) & their types  
Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP)

Phases of Clinical studies: 0,1,2,3, and 4.

**Survey studies -**

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in-depth interview and Focus Group

Discussion.

**13.** Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

**14.** Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Database- Pub med, Medlar and Scopus. Accession of databases.

**15.** Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

**PART-B**

**40 marks**

**MEDICAL STATISTICS**

**Teaching hours: 80**

**1 Definition of Statistics :** Concepts, relevance and general applications of Biostatistics in Ayurveda

Collection, classification, presentation, analysis and interpretation of data  
(Definition, utility and methods)

**2 Scales of Measurements** - nominal, ordinal, interval and ratio scales.

**Types of variables** – Continuous, discrete, dependent and independent variables.

**Type of series** – Simple, Continuous and Discrete

**3 Measures of Central tendency** – Mean, Median and Mode.

**4 Variability:** Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation

**5 Probability:** Definitions, types and laws of probability,

**6 Normal distribution:** Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.

**7 Fundamentals of testing of hypotheses:**

Null and alternate hypotheses, type I and type 2 errors.

Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance

**8 Univariate analysis of categorical data:**

Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals

**9 Parametric tests:**

‘Z’ test, Student’s ‘t’ test: paired and unpaired, ‘F’ test, Analysis of variance (ANOVA) test, repeated measures analysis of variance

**10 Non parametric methods:**

Chi-square test, Fisher’s exact test, McNemar’s test, Wilcoxon test, Mann-Whitney U test, Kruskal – Wallis with relevant post hoc tests (Dunn)

**11 Correlation and regression analysis:**

Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson’s correlation co-efficient, Spearman’s rank correlation.  
Regression- simple and multiple.

**12 Sampling and Sample size computation for Ayurvedic research:**

Population and sample. Advantages of sampling, Random (Probability) and non random (Non- probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

**13 Vital statistics and Demography:**

computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

**14 Familiarization with the use of Statistical software like SPSS/Graph Pad**

**PRACTICAL**

**100 marks**

**I. RESEARCH METHODOLOGY**

**Teaching hours 120**

**PRACTICAL NAME**

**1 Pharmaceutical Chemistry**

Familiarization and demonstration of common lab instruments for carrying out analysis as per API

**2 Awareness of Chromatographic Techniques**

Demonstration or Video clips of following:

- Thin-layer chromatography (TLC).
- Column chromatography (CC).
- Flash chromatography (FC)
- High-performance thin-layer chromatography (HPTLC)
- High Performance (Pressure) Liquid Chromatography (HPLC)
- Gas Chromatography (GC, GLC)

**4 Pharmacognosy**

Familiarization and Demonstration of different techniques related to:-Drug administration techniques- oral and parenteral.

Blood collection by orbital plexuses puncturing.

Techniques of anesthesia and euthanasia.

Information about different types of laboratory animals used in experimental research  
Drug identification as per API including organoleptic evaluation

**5 Pharmacology and toxicology**

Familiarization and demonstration of techniques related to pharmacology and toxicology

**6 Biochemistry (Clinical)**

Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA-techniques, nephelometry.

Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and microalbumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.

**7 Clinical Pathology**

Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.

**8 Imaging Sciences**

Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.

**9 Clinical protocol development**

**II. MEDICAL STATISTICS**

**Practical hours:20**

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

**Distribution of marks (practical):**

1. Instrumental spotting test– 20 marks
2. Clinical protocol writing exercise on a given problem– 20 marks
3. Records:Research methodology -10 Mark
4. Medical statistics -10 marks
5. Viva- Voce -40 Marks

**REFERENCE BOOKS:-**

**Pharmacognosy:**

1. Aushotosh Kar “Pharmacognosy & Pharmacobiotechnology” New Age International Publisher. Latest Edition. New Delhi.
2. Drug Survey by Mayaram Uniyal
3. Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford
4. Kokate, CK., Purohit, AP, Gokhale, SB (2010). Pharmacognosy. Nirali Prakashan. Pune.
5. Kokate, CK., Khandelwal and Gokhale, SB (1996). Practical Pharmacognosy. Nirali Prakashan. Pune.
6. Trease G E and Evans W C, Pharmacognosy, Bailliere Tindall, Eastbourne, U K.

7. Tyler V C., Brady, L R., and Robers J E., Pharmacognosy, Lea and Febiger, Philadelphia.
8. Tyler VE Jr and Schwarting AE., Experimental Pharmacognosy, Burgess Pub. Co, Minneapolis, Minnesota.
9. Wallis- TE (2011)- reprint. Practical Pharmacognosy (Fourth Edition) Pharma Med Press, Hyderabad.
10. Wallis T E, Analytical Microscopy, J & A Churchill limited, London.
11. Wallis T E., Text Book of Pharmacognosy, J & A Churchill Limited, London.
12. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003). World Health Organization- Geneva.
13. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

**Pharmaceutical chemistry, quality control and drug standardization:**

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1 to 3. Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
2. Brain, KR and Turner, TD. (1975). The Practical Evaluation Phytopharmaceuticals. Wright Sciencetechnica, Bristol.
3. Galen Wood Ewing (1985). Instrumental Methods of Chemical Analysis. McGraw-Hill College ;Fifth edition
4. Harborne, JB (1973). Phytochemistry Methods. Chapman and Hall, International Edition, London.
5. HPTLC- Fingerprint atlas of Ayurvedic Single Plant Drugs mentioned in Ayurvedic Pharmacopoeia Vol- III and IV. CENTRAL COUNCIL FOR RESEARCH IN AYURVEDA AND SIDDHA. New Delhi.
6. Kapoor, RC (2010). Some observations on the metal based preparations in Indian System of Medicine. Indian Journal of Traditional Knowledge. 9(3): 562-575
7. Khopkar, S. M. Analytical Chemistry, New Age International Publishers , 3 rd edition
8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
9. Mahadik KR, Bothara K G. Principles of Chromatography by, 1st edition, Nirali Prakashan.
10. Qadry JS and Qadry S Z., Text book of Inorganic Pharmaceutical and Medicinal Chemistry, B. S.Shah Prakashan, Ahmedabad.
11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO- Geneva.
12. Rangari V.D., Pharmacognosy & Phytochemistry, Vol I, II, Career Publication,
13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)
15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt Rakesh (2008).Extraction Technologies for Medicinal and Aromatic Plants -INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

**Biochemistry and Laboratory techniques:**

1. Asokan P. (2003) Analytical Biochemistry, China publications,
2. Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.
3. David Frifelder. W. H. Freeman. (1982). Physical Biochemistry by; 2 edition



4. David Sultan (2003). Text book of Radiology and Imaging, Vol-1, 7th Edition.
5. Deb, A.C., Fundamentals of Biochemistry, Books and Allied (P) Ltd, 2002.
6. Harold Varley. Practical Clinical Bio-chemistry
7. Kanai L. Mukherjee. Clinical Pathology: Medical Laboratory Technology Vol. I. Tata McGrawHill 1996, New Delhi.
8. Gradwohl, Clinical Laboratory-methods and diagnosis, Vol-I
9. Clinical Biochemistry -Sabitri Sanyal, Clinical Pathology, B.I. Churchill Livingstone (P) Ltd, New Delhi. 2000.
10. Satyanarayanan, U. Essentials of Biochemistry, Books and allied (P) Ltd. 2002
11. Zubay, G.L. Biochemistry, W.M.C. Brown Publishers, New York 1998.
12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

**Research methodology:**

1. Alley, Michael. The craft of scientific writing. Englewood Cliffs. N.N. Prentice 1987.
2. Ayurvediya Anusandhan Paddhati – P.V. Sharma
3. Altick and Fenstermaker. (2007). *The Art of Literary Research*. 4th ed. W. W. Norton. Castle, Gregory. *Blackwell Guide to Literary Theory*. Blackwells,
4. Bowling, A. (2002). *Research Methods in Health* (2nd ed). Buckingham: Open University Press.
5. Day R.A. How to write a scientific paper. Cambridge University Press.
6. Cooray P.G. Guide to scientific and technical writing.
7. Deepika Chawla and Neena Sondhi. (2011). *Research Methods- Concepts and cases*. New Delhi: Vikas Publishing House.
8. Greenhalgh, T. (2006) *How to Read a Paper: The Basics of Evidence-Based Medicine*. (3rd ed) Blackwell
9. Kothari- CR (2004). *Research Methodology- Methods and Techniques* (Second Revised Edition). New Age International Publishers- New Delhi.
10. Kumar, R. 2005. *Research Methodology: a Step-by-Step Guide for Beginners, 2nd ed*. Thousand Oaks, CA, London: Sage Publications.
11. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). *Research Methodology in the Medical and Biological sciences*. Academic Press is an imprint of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
12. Relevant portions of Ayurvedic Samhitas and other texts

**Drug research and development:**

1. RICK NG, (2009). *DRUGS- from discovery to approval*. John Wiley & Sons, Inc., Hoboken, New Jersey
2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061 110 3 (NLM Classification: WB925).
3. Jagdeesh, Sreekant Murthy, Gupta, YK and Amitabh Prakash Eds. *Biomedical Research (From Ideation to Publication)* (2010). Wolters Kluwer/ Lippincott Williams and Wilkins.
4. WHO Guidelines on Safety Monitoring of herbal medicines in pharmacovigilance systems. (2004). WHO- Geneva. ISBN 92 4 1592214.
5. Natural products isolation. (2006) 2nd ed. / edited by Satyajit D. Sarker, Zahid Latif, Alexander I. Gray. (Methods in biotechnology; 20). Includes bibliographical references and

index. Humana Press Inc. ISBN 1-58829-447-1 (acid-free paper) – ISBN 1-59259-955-9 (eISBN)

6. Gazette Extraordinary Part- II-Section 3 - Sub section (i) December 2008. Govt of India. AYUSH Guidelines on safety studies- Rule 170 of Drugs and Cosmetics Act.
7. OECD (2000) Guidance Document on Acute Oral Toxicity. Environmental Health and Safety Monograph Series on Testing and Assessment No 24.
8. OECD Guideline for the Testing of Chemicals – Repeated Dose 90-day Oral Toxicity Study in Rodents, 408, 1998. <http://browse.oecdbookshop.org/oecd/pdfs/free/9740801e.pdf> (latest version)
9. OECD Series on Principles of Good Laboratory Practice (GLP) and Compliance Monitoring, 1998. [http://www.oecd.org/document/63/0,2340,en\\_2649\\_34381\\_2346175\\_1\\_1\\_1\\_1,00.p hp](http://www.oecd.org/document/63/0,2340,en_2649_34381_2346175_1_1_1_1,00.p hp)
10. ICH Harmonised Tripartite Guideline (2000). Maintenance of the ICH Guideline on Non-clinical Safety Studies for the conduct of Human Clinical Trials for Pharmaceuticals M3 (R1).
11. Ghosh M.N.: Fundamentals of Experimental Pharmacology, *Scientific Book Agency, Bombay.*
12. Jaju B.P.: Pharmacological Practical Exercise Book, *Jaypee Brothers, New Delhi.*
13. Kulkarni S.K.: Hand Book of Experimental Pharmacology, *Vallabh Prakashan, New Delhi*
14. Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, *JIPMER, Pondicherry.*

#### **Biotechnology and Bio-informatics:**

1. Angela M. Meireles A (2009). Extracting Bioactive compounds for food products. Theory and applications. CRC- Press Taylor and Francis Group.
2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
3. Chikhale, N.J. and Virendra Gomase, Bioinformatics- Theory and Practice, Publisher: Himalaya Publication House, India; 1 edition (July, 2007) ISBN-13: 978-81-8318-831-9
4. Lesk, A.M. Introduction to Bioinformatics Oxford 2002.
5. Satyanarayana, U.: Biotechnology, Books and Allied (P) Ltd, Kolkata, 2005
6. Setubal J. C and J. Meidanis, Introduction to Computational Molecular Biology, PWS Publishing Company, 1997.
7. <http://www.iitb.ac.in/~crnts>.
8. <http://www.zygogen.com>.
9. <http://www.dsir.nic.in/reports/tifp/database/metallo.pdf>.
10. [www.consort-statement.org](http://www.consort-statement.org)
11. [www.strobe-statement.org](http://www.strobe-statement.org)
12. [www.icmr.nic.in](http://www.icmr.nic.in)

#### **Clinical Evaluation:**

1. CDSCO, Good Clinical Practices For Clinical Research in India, Schedule Y (Amended Version – 2005), <http://cdsco.nic.in/html/GCPI.php>
2. Ethical Guidelines for Biomedical Research on Human subjects. (2000). Indian Council of Medical Research- New Delhi.
3. Gallo P., Chuang-Stein C., Dragalin V., Gaydos B., Krams M., Pinheiro J. Adaptive Designs

in Clinical Drug Development—An Executive Summary of the PhRMA Working Group. *Journal of Biopharmaceutical Statistics*. 16: 275–283; 2006

4. Good Clinical Practices- (2001). Guidelines for Clinical Trial on Pharmaceutical Products in India. Central Drugs Standard Control Organization. Directorate General of Health Services. New Delhi. (<http://WWW.cdsc.nic.in.ich.org>)
5. Gupta, SK Ed. Basic Principles of Clinical Research and Methodology (2007). Jaypee Brothers-new Delhi
6. ICH Harmonised Tripartite Guidelines for Good Clinical Practices.(1997)- Quintiles- Published by Brookwood Medical Publications. Richmond, Surrey. United Kingdom.
7. NCI. *Clinical Trials Education Series*. <http://www.cancer.gov/clinicaltrials/learning/clinical-trials-education-series>, 2001.
8. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). Research Methodology in the Medical and Biological sciences. Academic Press is an imprint of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
9. William C. Scheffer Introduction to Clinical Researchs

#### Medical Statistics:

1. Armitage, P. and Berry, G. (1994) Statistical Methods in Medical Research (3rd ed). Blackwell Science.
2. Armitage P, Berry G, Matthews JNS: *Statistical Methods in Medical Research*. Fourth edition. Oxford, Blackwell Science Ltd; 2002
3. Bland, M. (2000) An Introduction to Medical Statistics (3rd ed). Oxford: Oxford University Press.
4. Bradford Hill – Basic Medical Statistics
5. Cambell, M.J. and Machin, D. (1993) Medical Statistics: A Common Sense Approach (2nd ed). Chester: Wiley.
6. Dwivedi S. N., Sundaram K. R and V. Sreenivas (2009). Medical Statistics - Principles & Methods-BI Publications Pvt. Ltd., New Delhi –1.
7. Gupta S.P. - Fundamentals of statistics, Sultan Chand. Delhi.
8. Indrayan. (2008). Basic Methods of Medical Research. AITBS Publishers- India
9. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers
10. Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers Medical Publishers
11. Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences. Jaypee Brothers Medical Publishers (P) Ltd. Bengaluru, New Delhi.
12. Rick J Turner and Todd A Durham (2008). Introduction to Statistics in Pharmaceutical Clinical trials. Published by the Pharmaceutical Press- An imprint of RPS Publishing, 1 Lambeth High Street, London SE1 7JN, UK
13. Symalan, K. (2006). Statistics in Medicine (First Edition) Trivandrum: Global Education Bureau.
14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

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**M.D.-AYURVEDA PRELIMINARY**  
**AGADTANTRA AVUM VIDHI VAIDYAKA (Toxicology & Forensic Medicine)**  
**PAPER-II**

**Theory 100 marks**

**PART-A 50 marks**

1. Introduction to Agadatantra, its sequential development, traditional and contemporary toxicology.
2. Examination of poisons as per contemporary and Ayurvedic methods.
3. Ancient and contemporary classification of Visha.
4. Knowledge about Sthavara visha, Jangama visha and Kritrima visha, their clinical and pathological manifestations and management.
5. Garavisha and Dushi visha, signs, symptoms and management with contemporary relevance.
6. Vishajanya Janapadodhvamsaniya Roga (community health problems due to poisons) - environmental pollution, water pollution, soil pollution, air pollution etc, their features and management according to ancient and contemporary concepts.
7. Concept of Viruddhahara with contemporary views.
8. Definition of Vyavahara Ayurveda.
9. Fundamentals of Vyavahara Ayurveda. Courts of law in India and legal procedures.
10. Chathurvinshati upakrama (24 management procedures).

**PART-B 50 marks**

1. Introduction to Forensic medicine.
2. Techniques of pathology, pharmacology, pharmacognosy and microbiology used in toxicology.
3. Death and its medico-legal aspects (Medical Thanatology), Medico-legal autopsy, Legal procedures in clinical forensic medicine.
4. Forensic Science Laboratory:- Structure and functions
5. Introduction to Medical Jurisprudence.
6. Laws related to medical profession. Ancient practice of medical jurisprudence in india.
7. Ancient and contemporary fundamentals of medical ethics.
8. Madya visha (Alcoholism).
9. Diagnosis and Management of food poisoning.
10. General and Emergency medical management of poisoning including preparation, administration and complications of antidotes, antivenoms, antisera.
11. Management of the toxic manifestations caused by the contact poisons (paduka, vastra, abhushana, mukhalepa- vishabadha etc).
12. Diagnosis and management of dermatological manifestations of Visha.
13. Death due to poisoning, duty of physician in poisoning and cases of suspected poisoning.
14. Post mortem findings in poisoning.

**PRACTICAL 100 marks**

Contents:

Clinical Postings

Case records – 20 cases (Postmortem/ poisoning/dermatological/medico legal cases)

**Distribution of marks (Practical)**

1. Case records (20 Cases) - 20 Marks
2. Bedside clinical case taking
3. Long Case - 20 Marks
4. Short Case - 10 Marks
5. Identification of specimens, models and equipments of jurisprudence importance. - 15 Marks
6. Spotting related to Visha, Upavisha and other poisonous drugs - 15 Marks
7. Viva-voce -20 marks

**REFERENCE BOOKS:**

1. Useful Portion of Charak-Sushrut-Vagbhata
2. Dravyaguna Vigyan - Acharya Yadavji
3. Aushadhigunadharm Shastra- Pt Visvanath Dvivedi
4. Kriyatmat Aushada parichaya Vigyan - Pt Visvanath Dvivedi
5. Ayurvedic Vyadhi Vigyan - Acharya Yadavji Trikamji
6. Madhavanidan with Madhukosha commentary
7. Sharangadhara Samhita
8. Yogaratnakara
9. Aushadigunadharm Shastra - PtGangadhara Shastri Gune
10. Rasendracintamani
11. Rasaratna samuchhaya
12. Vishavigyan - Dr. Krishna Kumar
13. Related matter of Kautilya Artha Shastra
14. Harmekhlatantra
15. Anupana manjari
16. Ayurvedprakash
17. System of clinical Medicine - Savil
18. Forensic Pharmacy -B.M. Mhithai
19. Hand book of Forensic Medicine and toxicology - Dr. P.V. Chadha
20. Viva Forensic Medicine and toxicology - L.C. Gupta
21. Forensic Medicine and Ethics- J.P. Narena
22. Modi's Medical Jurisprudence and Toxicology
23. The essentials of forensic medicine and toxicology -Dr.K.S. Narayan Reddy
24. Medical Laws and Ethics - Dr. H.S. Mehta
25. M.R.K. Krishnan's Handbook of Forensic Medicine
26. Text book of Medical Jurisprudence and Toxicology - Dr. C.K. Parikh

27. Atlas of Forensic Medicine - Dr. Tomio Watenbe
  28. Medico legal Post Mortems (Atlas) - Dr. Parikh and Others
  29. Textbook of Forensic Medicine and Toxicology - Dr.V.V. Pillay
  30. Textbook of Forensic Medicine and Toxicology - Dr. Karmakar
  31. Textbook of Forensic Medicine and Toxicology - Dr. Singhal
  32. Textbook of Forensic Medicine and Toxicology - Dr. Krishnan Vij
  33. Forensic Pathology - Dr. Bernard Knight
  34. Textbook of Forensic Medicine and Toxicology - Lyon's
  35. Pocket picture guide to Forensic Medicine - Gower's Medical Publication
  34. Forensic Medicine - Simpson Knight
  35. Taylor's Principles and Practical of Medical Jurisprudence - J and A Churchis
  36. Doctor and Law - Singhal
  37. Textbook of Toxicology - Singhal
  
  38. Medicine Harrison's Principal of Internal Medicine
  39. Agad Tantra - Dr.Shekhar Namboodri
  1. Modern Medical Toxicology - Dr. V.V.Pillay
  2. Critical care toxicology - Bruent Wallace
  3. Diagnosis and Management of common poisoning- Agarwal wali
  4. Colour Atlas of Forensic Medicine - Govindaiah
  5. Guidelines of poisons - W.H.O.
  6. Doctors patients relationships - Dr.Lavekar
  7. Bhavaprakasha.
  8. Vishavaidya Jyotsnika -- English translation By VPSV Ayurveda college, Kottakkal.
  9. Lakshnamritham.
  10. Toxicology, Ayurvedic perspective - VPSV Ayurveda college, Kottakal
  11. Text book of Agadatantra - Edited By Dr Huparikar, Dr. Joglekar
  12. Agadatantra ki Pathyapustaka- Edited By Dr Huparikar, Dr. Joglekar
  13. Vyavahar Ayurveda Vigyanam - Dr.Indramohan Jha (Sachchan)
  
  1. Forensic Medicine - Dr. B. Umadathan
  2. Visha Chikitsa- Dr. M. Balakrishnan Nair
  3. Park Text book of Preventive and Social Medicine. - K. Park
  4. Environmental Science and Biotechnology - Theory and Practice  
- A.G. Murukesan &C. Rajakumari
  5. Veterinary Toxicology - Dr. Satish K. Gargi
  6. Guide to Drinking Water Quality (3 Volumes) - WHO Publication
  7. A short Text Book of Medical Entomology - H.S. Bhatti, R. Sehgal,  
R.C. Mahajan.
- .....

**M.D. AYURVED- FINAL**

**AGADA TANTRA EVUM VIDHIVAIKYAKA**

**PAPER-I Agada Tantra (Ayurvedic and Contemporary Toxicology) 100 marks**

1. Agada Tantra, its sequential development during Veda kala, Samhitha kala, Samgraha kala and Adhunika kala.
2. Definition of Visha, properties of visha and its comparison with madya and oja, visha samprapti, visha prabhava, visha-vega, vegantara and visha karmukata (toxicodynamic and toxicokinetic study).
3. Descriptive and comparative study of Upavisha in unison with Contemporary Toxicology.
4. Examination of poisons as per Contemporary and Ayurvedic Methods.
5. Descriptive study of sthavara visha, definition, classifications, classical signs and symptoms of poisoning including vanaspatic (phyto poison), khanija (mineral) and compound sthavara visha.
6. Study of Jangama visha and their sources (Animal poisoning and Zoonotic Diseases). Descriptive study of snakes according to ancient and contemporary knowledge. Causes of snake bite and its types. Composition of snake venom and its pharmacological actions. Signs and symptoms of envenomation and its prognostic signs. Clinical features of Vrischika (scorpion), Luta (spider), Grihagadhika (Lizard), Mushaka (rats), Alarka (dogs), Makshika and Mashaka (mosquitoes) and their pathologic manifestations including their role in the manifestation of communicable diseases.  
Shanka visha and its management. Visha sankat and Visha Kanya.
7. Garavisha and Dushi visha, their varieties, signs, symptoms and management with contemporary relevance. Detailed study of Allergies including allergic manifestations in the eyes, nose, lungs and skin.
8. Detailed study of Madya visha and substances acting on the nervous system; substance abuse. (Diagnosis, Management and De-addiction)
9. Detailed study of the contemporary knowledge about vishajanya Janpadodhvansaniya roga (community health problems due to poisons - Environmental pollution, water pollution, soil pollution, air pollution, Industrial pollutions etc. their features and management according to ancient and recent concepts.
10. Concept of Virudha aahara, Aahara visha and Satmyasatmyata in contemporary and Ayurvedic views.
- 10. Conceptual study:- Drug interactions and incompatibility, Pharmacovigilance**

**PAPER- II Visha Chikitsa Vigyan (Management Of Poisoning) 100 marks**

1. Fundamental Principles for treatment of poisoning
2. General and specific treatment of different types of Sthavara visha.

3. General and specific treatment of different types of Jangama visha (animal poisons, insect poisons, snake bites and other zoonotic diseases).
  4. Emergency medical management of poisoning including preparation, administration and complications of antivenoms/antisera.
  5. Chaturvimsati upakrama (24 management procedures).
  6. Management of Garavisha and Dushivisha. Treatment of Allergies including allergic manifestations in the eyes, nose, lungs and skin.
  7. Diagnosis and Management of Drug Induced Toxicity
  8. Management of the toxic manifestations caused by the contact poisons (paduka, vasthra, abharana, mukhalepa- vishabadha etc).
  9. Management of food poisoning.
  10. Death due to poisoning, Duty of physician in poisoning, in cases of suspected poisoning. Post mortem findings in poisoning.
  11. Extra -corporeal techniques (dialysis etc) for removal of poisons.
- PG Final Year Syllabus-23

**PAPER –III Vyavahara Ayurveda Evam Vidhi Vaidyaka 100 marks**

1. Definition of Vyavahara Ayurveda, its evolution in ancient and contemporary periods.
2. Personal identity and its medico-legal aspects
3. Death and its medico-legal aspects (Medical Thanatology)
4. Asphyxial deaths and its medico-legal importance.
5. Death due to starvation, heat and cold, lightning and electricity. Suspended Animation.
6. Medico-legal autopsy.
7. Injuries due to explosions, chemical and nuclear warfare.
8. Medico-legal aspects of injuries and wounds.
9. Impotence and sterility-Its medico-legal aspects. Regulations of Artificial Insemination. Medico –legal aspects of surrogate motherhood.
10. Sexual offences and perversions.
11. Medico-legal aspects of virginity, pregnancy, delivery, abortion, infanticide and legitimacy with related acts.
12. Indian Penal Code, Criminal procedure code and study of related acts like Indian Evidence Act, Pre Natal Diagnostic Test Act, Nursing Home Act, Human Organ Transplantation Act, Drugs and Cosmetic Act 1940, Narcotic drugs and Psychotropic substances Act 1985, Pharmacy Act 1948, Drugs and Magical Remedies (Objectionable Advertisements) Act 1954, Medicinal and Toilet Preparations Act 1955 and Anatomy Act etc. Any related act enacted by the government from time to time.
13. Courts and Legal procedures.
14. Forensic Science Laboratory
15. Medico legal aspects of mental illness
16. Duties and privileges of physician.
17. Structure of Central Council of Indian Medicine, its jurisdiction and functions. Code



and Conducts as per the CCIM, Rules and Regulations there under.

18. Respective State Council of Indian Medicine, its structure, power, voluntary duties.
19. Doctor - patient relationship.
20. Rights and privileges of patients; Euthanasia.
21. Professional secrecy and privileged communication.
22. Professional negligence and malpractice
23. Indemnity Insurance scheme.
24. Consumer Protection Act related to medical practice.
25. Ethics as in classics. Types of physicians and methods of identification, Pranabhisara and Rogabhisara Physicians, qualities of physician, responsibilities of Physicians, Chaturvidha vaidya vriti, duties of physicians towards patients, Vaidya sadvritam, Apujya Vaidya who is accepting fees, relationship with females.

**PAPER – IV Aushadha Yoga Vigyan 100 marks**

1. Study of process for sodhana, marana and samskarana of poisonous drugs.
  2. Pharmaco-dynamics of different formulations used in Agadatantra
  3. Study of pharmacology and usage of antidotes as per the Ayurvedic and contemporary science.
  4. Fundamentals of pharmaceutics according to Ayurvedic and contemporary point of view.
  5. Chemical, analytical, laboratory examination of poisons and suspicious substance.
  6. Introduction of different instruments /equipments used in the examination of poisons.
  7. Introduction to Clinical toxicology
  8. Introduction to Experimental toxicology
- PG Final Year Syllabus-24
9. Introduction to Toxicology - genomics
  10. Survey and study of the traditional and folklore vishachikista sampradaya.

**Content of Practical/Demonstration**

1. Identification of specimens models and equipments of toxicological and jurisprudence importance.
2. Practical training in postmortem examination (10 cases)
3. Regular clinical postings in the Agadatantra OPD / IPD
4. Medico-legal cases (20 cases)
5. Chemical Identification of various acids, alkalies, alcohols – Hydrochloric acid, Nitric acid, Sulphuric acid, Ascorbic acid, Sodium Hydroxide and Potassium Hydroxide
6. Detection of minerals Copper, Mercury, Lead, Arsenic and their compounds.
7. Physical and Chemical analysis of Dattura, Karaveera, Vatsanabha, Jayapala, Arka and Bhallataka with Microscopy, powder microscopy, TLC, solvent extraction, detection of Phenol, tannins etc. (10 studies)
8. Detection of human blood, hair, semen and other biological secretions of Forensic importance.
9. Herbarium of 15 sthavara vishas and 10 agadas.

10. Preparation of two Agada yogas

Clinical Postings

1. Modern medical hospitals – 2 weeks  
(For emergency management of poisoning)
2. Postmortem postings - 2 weeks
3. Court postings - 1 week

Visit to

1. Forensic Laboratory
2. Anti snake venom serum manufacturing Unit.

Pattern of practical examination

1. Post mortem / Medico-legal case record and clinical record - 10 Marks
2. Identification of specimens models and equipments of jurisprudence importance. - 20 Marks
3. Spotting related to Visha, Upavisha and others poisonous drugs - 20 Marks
4. Thesis presentation - 25 Marks
5. Viva-voce - 25 Marks

Total 100 Marks

**Reference Books:-**

1. Useful Portion of Charak-Sushrut-Vagbhata
  2. Dravyaguna Vigyan - Acharya Yadavji
  3. Aushadhigunadharm Shastra - Pt Visvanath Dvivedi
  4. Kriyatmat Aushada parichaya Vigyan - Pt Visvanath Dvivedi
  5. Ayurvedic Vyadhi Vigyan - Acharya Yadavji Trikamji
  6. Madhavanidan with Madhukosha commentary
  7. Sharangadhara Samhita
  8. Yogaratnakara
  9. Aushadigunadharm Shastra -PtGangadharaShastri Gune
  10. Rasendracintamani
  11. Rasaratna samuchhaya
  12. Vishavigyan - Dr. Krishna Kumar
  13. Related matter of Kautilya Artha Shastra
  14. Harmekhlatantra
  15. Anupana manjari
- PG Final Year Syllabus-25
16. Ayurvedprakash
  17. System of clinical Medicine - Savil
  18. Forensic Pharmacy - B.M. Mhithai
  19. Hand book of Forensic Medicine and toxicology - Dr. P.V. Chadha
  20. Viva Forensic Medicine and toxicology - L.C. Gupta
  21. Forensic Medicine and Ethics - J.P. Narena
  22. Modi's Medical Jurispudence and Toxicology
  23. The essentials of forensic medicine and toxicology - Dr.K.S. Narayan Reddy
  24. Medical Laws and Ethics - Dr. H.S. Mehta
  25. M.R.K. Krishnan's Handbook of Forensic Medicine

26. Text book of Medical Jurisprudence and Toxicology - Dr. C.K. Parikh
  27. Atlas of Forensic Medicine - Dr. Tomio Watenbe
  28. Medico legal Post Mortems (Atlas) - Dr. Parikh and Others
  29. Textbook of Forensic Medicine and Toxicology - Dr.V.V. Pillay
  30. Textbook of Forensic Medicine and Toxicology - Dr. Karmakar
  31. Textbook of Forensic Medicine and Toxicology - Dr. Singhal
  32. Textbook of Forensic Medicine and Toxicology - Dr. Krishnan Vij
  33. Forensic Pathology - Dr. Bernard Knight
  34. Textbook of Forensic Medicine and Toxicology - Lyon's
  35. Pocket picture guide to Forensic Medicine - Gower's Medical Publication
  36. Forensic Medicine - Simpson Knight
  37. Taylor's Principles and Practical of Medical Jurisprudence - J and A Churchis
  38. Doctor and law - Singhal
  39. Textbook of Toxicology -Singhal
  40. Medicine Harrison's Principal of Internal Medicine
  41. Agad Tantra - Dr. Shekhar Namboodri
  42. Modern Medical Toxicology - Dr. V.V.Pillay
  43. Critical care toxicology - Bruent Wallace
  44. Diagnosis and Management of common poisoning - Agarwal wali
  45. Colour Atlas of Forensic Medicine - Govindaiah
  46. Guidelines of poisons - W.H.O.
  47. Doctors patients relationships - Dr.Lavekar
  48. Bhavaprakasha.
  49. Vishavaidya Jyotsnika -- English translation By VPSV Ayurveda college, Kottakkal.
  50. Lakshnamritham.
  51. Toxicology, Ayurvedic perspective - VPSV Ayurveda college, Kottakkal
  52. Text book of Agadatantra - Edited By Dr Huparikar, Dr. Joglekar
  53. Agadatantra ki Pathyapustaka - Edited By Dr Huparikar, Dr. Joglekar
  54. Vyavahar Ayurveda Vigyanam - Dr.Indramohan Jha (Sachchan)
  55. Forensic Medicine - Dr. B. Umadathan
  56. Visha Chikitsa - Dr. M. Balakrishnan Nair
  57. Park Text book of Preventive and Social Medicine. - K. Park
  58. Environmental Science and Biotechnology - Theory and Practice - A.G. Murukesan & C. Rajakumari
  59. Veterinary Toxicology - Dr. Satish K. Gargi
  60. Guide to Drinking Water Quality (3 Volumes) - WHO Publication
  61. A short Text Book of Medical Entomology - H.S. Bhatti, R. Sehgal, R.C. Mahajan.
- .....

**Bharati Vidyapeeth**  
**Deemed to be University, Pune**  
**Faculty of Ayurved**  
**Programme- MD Ayurved in Agadtantra**

**Addition in syllabus of Agadtantra**

- Forensic science laboratory major divisions of forensic lab services.
- Newer techniques and recent advances - polygraphy, narcoanalysis, DNA profiling. Laws, Acts, Rules and Regulations Clinical Establishments Act , State AYUSH registration board rules and regulations. Medicare Service Persons and Medicare Service Institutions (Prevention of violence and damage or loss to property). Drugs and Cosmetics Act and Rules – Schedules related to poison. The Occupational Safety, Health and Working Conditions Code, 2020 Employees State Insurance Act, 1948. Rights of Person with Disability Act, 2016.
- Vaidya sadvritta : Duties and Responsibilities of medical practitioner ,Vaidya sadvritta, medical ethics and code of conduct, Charaka oath and Hippocratic oath. NCISM - constitution, objectives, and functions. Duties, rights, and privileges of a registered medical practitioner.



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

**FACULTY OF AYURVED  
AGADA TANTRA EVUM VIDHIVAIIDYAKA  
Old Syllabus**



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

**FACULTY OF AYURVED**

**Pune- Satara Road, Pune-411043.**

**AGADA TANTRA EVUM VIDHIVAIIDYAKA**

*Accredited with 'A+' Grade (2017) by NAAC.*

*'A' Grade University status by MHRD, Govt. of India*

*Accredited (2004) & Reaccredited (2011) with 'A' Grade by NAAC.*

**Post- Graduate (M.D./M.S./Diploma in Ayurved)**

**Syllabus/ Curriculum**

## Contents

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## **Preface**

Ayurveda is accepted worldwide as one of the oldest traditional systems of medicine. The ancient insight in this traditional system of medicine is still not profoundly discovered. Ayurveda signifies as "the life-science " where ayur means "life" and veda means "science" in Sanskrit. Ayurveda is the upaveda i.e. "auxiliary knowledge of Atharvaveda in Vedic tradition with its prime origin from Atharva-Veda and a supplement of the Rig-Veda. Lord Dhanvantari is worshipped as the God of Ayurveda. The goal of this traditional medicine system is to prevent illness, disease cure and preserve life. Being originated in India Ayurveda extends its wings in various parts of the world. In ancient days Ayurveda was taught in Gurukula system, which is now evolved in to post graduate courses from Institutions.

The Indian Medical Council was set up in 1971 by the Indian government to establish maintenance of standards for undergraduate and postgraduate education. It establishes suitable qualifications in Indian medicine and recognizes various forms of traditional practice including Ayurveda.

Ayurvedic practitioners also work in rural areas, providing health care to the million people in India alone. They therefore represent a major force for primary health care, and their training and placement are important to the government of India. Being a scientific medicine, Ayurveda has both preventive and curative aspects. The preventive component emphasizes the need for a strict code of personal and social hygiene, the details of which depend upon individual, climatic, and environmental needs.

The Bachelor of Ayurvedic Medicine and Surgery, MD/MS in various discipline of



Ayurveda started with the intention to encourage integrated teaching and de-emphasize compartmentalization of disciplines so as to achieve horizontal and vertical integration in different phases which helps to support National Health Services.

Looking into the health services provided to the public, understanding the need of practitioners of Ayurvedic system of medicine, as per the guidelines of apex body National Council of Indian system of Medicine (formerly CCIM) and suggestions provided by the faculty of various Specialties, stake holders and strategy of University this governance is framed

based on following aims and objectives -

### **Aims and objectives-**

The aims of the post-graduate degree courses shall be to provide orientation of specialties and super-specialties of Ayurveda, and to produce experts and specialists who can be competent and efficient teachers, physicians, surgeons, gynaecologists and obstetricians (Stri Roga and Prasuti Tantragraha), pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

## **Faculty of Ayurved, Bharati Vidyapeeth (Deemed to be University), Pune**

### **Vision-**

To be a world class university for social transformation through dynamic education

### **Mission-**

- To ensure the good health and longevity of mankind.
- To carve a niche for our college in the world of Ayurved education
- To provide
  - Borderless access to Ayurved education
  - Quality Ayurved education
- To promote
  - Quality research in diverse areas of health care system.
  - Extensive use of ICT for teaching, learning and governance.
  - To develop national and international networks with industry and other academic and research institutions.

## **Program Outcomes For Post Graduate Courses in Ayurved-**

- PG degree holder should be expert and specialist of his/ her branch who can be competent and efficient teacher, physician, surgeon, gynaecologist and obstetrician (Stri Roga and Prasuti Tantragrahya), pharmaceutical expert, researcher and profound scholar in various fields of specialization of Ayurved.
- Should be having knowledge of Concept of Good clinical practices in Ayurved and modern medicine

### **Course specific outcomes**

#### **M. S – Ayurved Dhanvantari in**

##### **1. PRASUTI TANTRA & STREEROGA [OBSTETRICS AND GYNECOLOGY]**

- To be able to manage normal and complicated Pre-natal, Intra partum and Post natal cases by integrative approach
- To be able to manage all types of gynecological disorders at every epoch of womanhood.
- To be able to perform all kinds of Ayurvedic procedures and surgical procedures related to Stree roga and Prasutitantra
- To have knowledge of medico legal aspects of obstetrics and gynecology.

#### **M. S – Ayurved Dhanvantari in**

##### **2. SHALAKYA TANTRA [NETRA, SHIRO, NASA, KARNA, KANTHA, MUKHA]**

- To be able to manage all cases of E.N.T. and ophthalmology by integrative approach.
- To be able to perform all kinds of Ayurvedic procedures and surgical procedures related to Shalakyatantra
- To have knowledge of medico legal aspects of Shalakyatantra

#### **M. S – Ayurved Dhanvantari in**

##### **3. SHALYA TANTRA [GENERAL SURGERY]**

- To be able to manage all surgical cases by integrative approach
- To be able to perform all kinds of Ayurvedic procedures and general surgical procedures
- To have adequate knowledge of Anushashtra – Ksharkarma and prayoga, Agnikarma [thermo therapy], Raktamokshan [bloodletting] or Asthisandhi evam marma vighyan [orthopedic] or Sangyahan [Anesthesiology] or Mootraroga [Urology]
- To have knowledge of medico legal aspects of Shalyatantra

## **M.D.- Ayurved Vachaspati in**

### **1. AYURVED SAMHITA & SIDDHANT**

- to have profound knowledge of Charak Samhita, Sushrut Samhita & AshtangHridayam, Ayurvediya and Darshanika Siddhanta with commentaries
- to be able to interpret philosophical principles incorporated in Charak Samhita, Sushrut Samhita, Ashtanga Hridya, Ashtang Samgraha.
- To able to understand Practical applicability of principles of samhita and a competent Ayurved physician
- Competency in fundamental research

## **M.D.- Ayurved Vachaspati in**

### **2. RACHANA SHAARIRA**

- Should have thorough knowledge and competency in Ayurved Sharira and Modern anatomy
- Having extensive knowledge and skill of dissecting human dead bodies and its demonstration.

## **M.D.- Ayurved Vachaspati in**

### **3. KRIYA SHARIR**

- Having profound knowledge of Ayurved Kriya Sharir: - - and Contribution of different Ayurveda Samhita in Kriya Sharir
- Ability to determine and demonstrate the Sharir – Manans Prakriti
- Should have knowledge of Modern Physiology and its applied aspects

## **M.D.- Ayurved Vachaspati in**

### **4. DRAVYAGUNA VIGYAN**

- Have a clear understanding of medicinal plants in context to Ayurved and modern Pharmacology and Pharmaceutics
- Have an accurate knowledge of identification, Authentication and standardization of raw and wet plant drugs.
- Ability of cultivation and plantation of medicinal plants
- Knowledge about Pharmacovigilance
- Ability to conduct the pre clinical and clinical trials of medicinal plants

## **M.D.- Ayurved Vachaspati in**

### **5. RASASHASTRA EVAM BHAISHJYA KALPNA**

- Have an accurate knowledge of identification, Authentication and standardization of minerals and metals along with plant drugs
- Possess detailed knowledge of manufacturing practices of various dosage forms of

Ayurved formulations as per GMP

- Ability to establish, run and manage pharmacy as per GMP and FDA guidelines
- Having knowledge of Drug and cosmetics related acts
- Ability to conduct the pre clinical and clinical trials on minerals and metals

**M.D.- Ayurved Vachaspati in**

### **6. AGADA TANTRA EVUM VIDHIVAIDYAKA**

- To be able to understand and interpret Ayurvedic and Contemporary Toxicology
- Having knowledge of Pharmacodynamics of different formulations used in Agadatantra and Clinical & Experimental toxicology
- Ability of Ayurvedic & Contemporary Management Of Poisoning
- Should have profound knowledge of Forensic Medicine and Medical Jurisprudence
- Ability to diagnose and manage substance abuse [ De- addiction]
- Have knowledge of Pharmacovigilance, community health problems due to poisons & pollution, Drug interactions & incompatibility etc.

**M.D.- Ayurved Vachaspati in**

### **7. SWASTHAVRITTA**

- Having knowledge of Concept of holistic health and Principles of dietetics according to Ayurveda
- Understanding the Concept of community health, prevention, Stages of intervention according to Ayurved Modern medicine
- Should have knowledge of Ayurved and Modern Concept of Epidemiology [Janapadodhwamsa]
- Possess knowledge of Therapeutic effect of Yogic practices and ability to demonstrate various yogasanas in various diseases
- Understanding the role of Ayurved for Immunization, Occupational Health, Geriatrics, Life Style disorders (Non Communicable diseases)

**M.D.- Ayurved Vachaspati in**

### **8. ROGA NIDANA**

- To understand the Concept and applied aspects of fundamental principles of Rognidan
- To have profound Knowledge of classical Samprapti of all diseases with interpretation of Nidana Panchaka including Upadrava, Arishta and Sadhyasadhyata and Chikitsa Sutra.
- Ability of Ayurvedic interpretation of commonly occurring diseases in contemporary medicine, all relevant findings of modern clinical examinations and various Laboratory and other Diagnostic reports

- Ability of establishment and management of standard clinical laboratory set up
- Have knowledge about Upasargajanya Vyadhi (Communicable diseases)

### **M.D.- Ayurved Vachaspati in**

#### **9. Panchakarma**

- To have thorough knowledge of Kayachikitsa, basic principles of Shodhana (BioPurification methods) and Raktamokshana, Physiotherapy & Disease-wise Panchakarma
- To be able to perform poorva, Pradhan & Pashchat karma of Panchakarma procedures [ five Purification therapies] of Ayurveda and manage its complications [ Updrava].
- To be able to prepare all the necessary bhaishjya kalpana for various panchakarma procedures

### **M.D.- Ayurved Vachaspati in**

#### **10. Kayachikitsa**

- To have thorough knowledge of Fundamentals of Kayachikitsa  
BVDUCOA\_ Programme outcomes Page 7
- To be able to perform Rogi-Roga Pariksha in Ayurved and Modern perspectives with the help of modern diagnostic parameters.
- To be able to perform samanya and vishesh roga chikitsa including application of advances in Rasayana and Vajikarana therapies and emerging trends in Panchakarma in various disease management
- To have knowledge of Critical care medicine, Management of medical emergencies, ICU services, Field medical services
- To be able to participate in National Health Programmes and recognize prospective role of Ayurveda services and therapeutics in them.

### **M.D.- Ayurved Vachaspati in**

#### **11. KAUMARBHRITYA-BALA ROGA**

- Ability to interpret Ayurvedic genetics with Pathogenesis of Modern genetics and management of genetic disorders
- To have thorough knowledge of Neonatal Care and management of all types of neonatal diseases
- To diagnose and manage the Paediatric Disorders
- Ability to develop and manage paediatric ward with Fundamentals of Hospital management

## **Eligibility**

Passing marks for eligibility in admission to ASU&H- PG courses should be as per the ASU&H- PG regulations and should be followed strictly., -

- A person possessing the degree of Ayurvedacharya (Bachelor of Ayurveda Medicine and Surgery) or provisional degree certificate recognized as per the provisions of IMCC 1970/NCISM 2020 act and possess permanent or provisional registration certificate issued by the CCIM/NCISM/state board and must have completed a satisfactorily one year compulsory rotating internship as per the NCISM notification.
- In order to be eligible for admission to post graduate courses it shall be necessary for a candidate to obtain minimum of marks at 50<sup>th</sup> percentile in the All India AYUSH Post Graduate Entrance Test ( AIAPGET) .
- Candidates belonging to the scheduled castes, Scheduled Tribes and other Backward Classes the minimum marks shall be at 40<sup>th</sup> percentile.

## **Medium of instruction**

The medium of instruction for the programme shall be Sanskrit or Hindi or English with use of Ayurvedic technical terms.

## **Duration of the Course Study**

**Total Duration of Course** – 3 Years from the Commencement of classes. The maximum duration for completion of the course shall not exceed beyond the period of six years from the date of admission to the course.

**Curriculum** - As approved by Bharati Vidyapeeth [Deemed to be University], Pune is in line with the directives of the Central Council for Indian Medicine.

## **Attendance and Progress**

The students shall have to attend a minimum of seventy-five per cent. of total lectures, practical's and clinical tutorials or classes to become eligible for appearing in the examination. A Web based centralized biometric attendance system shall be required for the attendance of post-graduate students and manual attendance at department level in which student is pursuing the post-graduate course.

The student shall have to attend the hospital and perform other duties as may be assigned to him during study. The student of clinical subject shall have to do resident duties in their respective departments and student of non-clinical subject shall have duties in their respective departments like Pharmacy or Herbal Garden or Laboratory during study. The student shall attend special lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.



**Subjects taught, Number of lectures/ practical and demonstrations for various subjects [ MD/MS]**

❖ **Specialties in which post-graduate degree is allowed are as under: -**

Sr. No.	Name of speciality	Nearest terminology of modern subject	Department in which postgraduate degree can be conducted
<b>Pre-clinical speciality</b>			
1	Ayurveda Samhita evam Siddhant	Ayurveda Samhita and basic principles of Ayurveda	Samhita and basic principles of Ayurveda
2	Rachana Sharira	Anatomy	Rachana Sharira
3	Kriya Sharira	Physiology	Kriya Sharira
<b>Para-clinical speciality</b>			
4	Dravyaguna Vigyana	Materia Medica and Pharmacology	Dravyaguna
5	Rasa Shastra evam Bhaishajya Kalpana	Ayurveda Pharmaceuticals	Rasa Shastra evam Bhaishajya Kalpana
6	Roga Nidana evam Vikriti Vigyana	Diagnostic Procedure and Pathology	Roga Nidana evam Vikriti Vigyana
<b>Clinical speciality</b>			
7	Prasuti evam Stri Roga	Obstetrics and Gynecology	Prasuti evam Stri Roga
8	Kaumarabhritya –Bala Roga	Pediatrics	Kaumarabhritya– Bala Roga
9	Swasthavritta	Preventive Social Medicine	Swasthavritta and Yoga
10	Kayachikitsa	Medicine	Kayachikitsa
11	Shalya	Surgery	Shalya Tantra
12	Shalaky	Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry	Shalaky Tantra
13	Panchakarma	Panchakarma	Panchakarma
14	Agada Tantra	Toxicology and Forensic Medicine	Agada Tantra.

❖ **Nomenclature of post-graduate degree. -**

The nomenclature of post-graduate degree in respective specialties shall be as under: -

Sl.No.	Nomenclature of specialty or degree	Abbreviation
<b>Pre-clinical specialty</b>		
1	Ayurveda Vachaspati – Ayurveda Samhita Evum Siddhant	M.D. (Ayurveda)- Compendium and Basic Principles
2	Ayurveda Vachaspati – Rachana Sharira	M.D. (Ayurveda) - Anatomy
3	Ayurveda Vachaspati – Kriya Sharira	M.D. (Ayurveda) - Physiology
<b>Para-clinical specialty</b>		
4	Ayurveda Vachaspati – Dravyaguna Vigyana	M.D. (Ayurveda) - Materia Medica and Pharmacology
5	Ayurveda Vachaspati – Rasa Shastra evam Bhaishajya Kalpana	M.D. (Ayurveda) - Pharmaceuticals
6	Ayurveda Vachaspati – Roga Nidana evam Vikriti Vigyana	M.D. (Ayurveda)- Diagnostic procedure and Pathology
<b>Clinical specialty</b>		
7	Ayurveda Dhanvantari – Prasuti evam Stri Roga	M.S. (Ayurveda)- Obstetrics and Gynecology
8	Ayurveda Vachaspati – Kaumarabhritya –Bala Roga	M.D. (Ayurveda)- Pediatrics
9	Ayurveda Vachaspati – Swasthavritta	M.D. (Ayurveda)- Social and Preventive Medicine
10	Ayurveda Vachaspati – Kayachikitsa	M.D. (Ayurveda)- Medicine
11	Ayurveda Dhanvantari – Shalya	M.S. (Ayurveda)- Surgery
12	Ayurveda Dhanvantari – Shalakyia	M.S. (Ayurveda)- Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry
13	Ayurveda Vachaspati – Panchakarma	M.D. (Ayurveda)- Panchakarma
14	Ayurveda Vachaspati – Agada Tantra	M.D. (Ayurveda)- Toxicology and Forensic Medicine

## **Synopsis and Dissertation**

Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics and the same shall be followed by University Committee while approving the Dissertation title.

The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

If the student fails to submit the title of dissertation and synopsis within specified period, his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

- **Synopsis**

The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).

The University shall approve the synopsis not later than three months after submission of the synopsis.

A Board of Research Studies shall be constituted by the University to approve the title.

The University shall display the approved synopsis of dissertation on their website.

- **Dissertation**

Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

The dissertation shall consist of not less than forty thousand words.

The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

## **Scheme of Examination**

The post-graduate degree course shall have two university examinations in the following manner, namely: -

1. The preliminary examination -
2. The final examination –

**1. The preliminary examination** – Conducted at the end of one academic year after admission.

**The subjects/ Number of Papers** for preliminary examination namely: -

**Paper I-** Research Methodology and Bio or Medical Statistics;

**Paper II-** Applied aspects regarding concerned subjects.

### **Rules-**

The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the specialty opted by him as under:-

- (a) Study of literature related to specialty,
- (b) Regular clinical training in the hospital for student of clinical subject,
- (c) Practical training of research work carried out in the department, for student of pre-clinical and paraclinical subject,
- (d) Participation in various seminars, symposia and discussions; and (e) progress of the work done on the topic of dissertation.

The assessment of the work done by the students of first year post-graduate course during the first year will be done before the preliminary examination.

Examination shall ordinarily be held in the month of June or July and November or December every year. For being declared successful in the examination, student shall have to pass all the subjects separately in preliminary examination. The student shall be required to obtain a minimum of fifty per cent and marks in practical and theory subjects separately to be announced as a pass. If a student fails in the preliminary examination, he shall have to pass before appearing in the final examination.

**2. The final examination** -Conducted on completion of three academic years after the admission to postgraduate course.

The final examination shall include dissertation, written papers and clinical or practical and oral examination.

**Number of Papers** -There shall be four theory papers in each specialty and one practical or clinical and viva-voce examination in the concerned specialty or group of sub-specialties selected by the student for special study.

The student shall publish or get accepted minimum one research paper on his research work in one journal and one paper presentation in regional level seminar.

The preliminary examination and final examination shall be held in written, practical, or clinical and oral examination. If the student fails in theory or practical in the final examination, he can appear in the subsequent examination without requiring submitting a fresh dissertation. The subsequent examination for failed candidates shall be conducted at every six-month interval; and the post-graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

M.D.-AYURVEDA

PRELIMINARY PAPER-I  
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

**PART-A**  
**RESEARCH METHODOLOGY**

- 1 Introduction to Research**
  - A. Definition of the term research
  - B. Definition of the term anusandhan
  - C. Need of research in the field of Ayurveda
  
- 2 General guidelines and steps in the research process**
  - A. Selection of the research problem
  - B. Literature review: different methods (including computer database) with their advantages and limitations
  - C. Defining research problem and formulation of hypothesis
  - D. Defining general and specific objectives
  - E. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
  - F. Sample design
  - G. Collection of the data
  - H. Analysis of data.
  - I. Generalization and interpretation, evaluation and assessment of hypothesis.
  - J. Ethical aspects related to human and animal experimentation.
  - K. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics.
  
- 3 Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.**
  
- 4. Scientific writing and publication skills.**
  - a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
  - b. Different types of referencing and bibliography.
  - c. Thesis/Dissertation: contents and structure
  - d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
  
- 5 Classical Methods of Research. Tadvidya sambhasha, vadmarga and tantrayukti**  
Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati  
Aushadhi-yog Parikshana Paddhati  
Swastha, Atura Pariksha Paddhati  
Dashvidha Parikshya Bhava  
Tadvidya sambhasha, vadmarga and tantrayukti

**6 Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.**

**7. Different fields of Research in Ayurveda**

- a. Fundamental research on concepts of Ayurveda
- b. Panchamahabhuta and tridosha.
- c. Concepts of rasa, guna, virya, vipak, prabhav and karma
- d. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshta.

**8. Literary Research-**

Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors, concepts and development of particular body of knowledge.

**9. Drug Research (Laboratory-based)-** Basic knowledge of the following:

**Drug sources:** plant, animal and mineral. Methods of drug identification.

**Quality control and standardization aspects:** Basic knowledge of Pharmacopoeial standards and parameters set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices(GMP) and Good Laboratory Practices (GLP).

**10. Safety aspects:** Protocols for assessing acute, sub-acute and chronic toxicity studies. Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

**11. Introduction to latest Trends in Drug Discovery and Drug Development**

- Brief information on the traditional drug discovery process
- Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell culture based assays, use of concepts of systems biology and network physiology
- Brief introduction to the process of Drug development

**12. Clinical research:**

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda

Basic knowledge of the following:-

- Observational and Interventional studies
- Descriptive & Analytical studies
- Longitudinal & Cross sectional studies
- Prospective & Retrospectives studies
- Cohort studies



Randomized Controlled Trials (RCT) & their types  
Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP)

Phases of Clinical studies: 0,1,2,3, and 4.

**Survey studies -**

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in-depth interview and Focus Group

Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Database- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

**PART-B**

**40 marks**

**MEDICAL STATISTICS**

**Teaching hours: 80**

1 **Definition of Statistics :** Concepts, relevance and general applications of Biostatistics in Ayurveda

Collection, classification, presentation, analysis and interpretation of data  
(Definition, utility and methods)

2 **Scales of Measurements** - nominal, ordinal, interval and ratio scales.

**Types of variables** – Continuous, discrete, dependent and independent variables.

**Type of series** – Simple, Continuous and Discrete

3 **Measures of Central tendency** – Mean, Median and Mode.

4 **Variability:** Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation

5 **Probability:** Definitions, types and laws of probability,

6 **Normal distribution:** Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.

7 **Fundamentals of testing of hypotheses:**

Null and alternate hypotheses, type I and type 2 errors.

Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance

8 **Univariate analysis of categorical data:**

Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals

9 **Parametric tests:**

'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance

10 **Non parametric methods:**

Chi-square test, Fisher's exact test, McNemar's test, Wilcoxon test, Mann-Whitney U test, Kruskal – Wallis with relevant post hoc tests (Dunn)

11 **Correlation and regression analysis:**

Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.  
Regression- simple and multiple.

12 **Sampling and Sample size computation for Ayurvedic research:**

Population and sample. Advantages of sampling, Random (Probability) and non random (Non- probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

13 **Vital statistics and Demography:**

computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

14 **Familiarization with the use of Statistical software like SPSS/Graph Pad**

**PRACTICAL**

**100 marks**

**I. RESEARCH METHODOLOGY**

**Teaching hours 120**

**PRACTICAL NAME**

**1 Pharmaceutical Chemistry**

Familiarization and demonstration of common lab instruments for carrying out analysis as per API

**2 Awareness of Chromatographic Techniques**

Demonstration or Video clips of following:

- Thin-layer chromatography (TLC).
- Column chromatography (CC).
- Flash chromatography (FC)
- High-performance thin-layer chromatography (HPTLC)
- High Performance (Pressure) Liquid Chromatography (HPLC)
- Gas Chromatography (GC, GLC)

**4 Pharmacognosy**

Familiarization and Demonstration of different techniques related to:-Drug administration techniques- oral and parenteral.

Blood collection by orbital plexuses puncturing.

Techniques of anesthesia and euthanasia.

Information about different types of laboratory animals used in experimental research  
Drug identification as per API including organoleptic evaluation

**5 Pharmacology and toxicology**

Familiarization and demonstration of techniques related to pharmacology and toxicology

**6 Biochemistry (Clinical)**

Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA-techniques, nephelometry.

Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and microalbumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.

**7 Clinical Pathology**

Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.

**8 Imaging Sciences**

Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.

**9 Clinical protocol development**

**II. MEDICAL STATISTICS**

**Practical hours:20**

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

**Distribution of marks (practical):**

1. Instrumental spotting test– 20 marks
2. Clinical protocol writing exercise on a given problem– 20 marks
3. Records:Research methodology -10 Mark
4. Medical statistics -10 marks
5. Viva- Voce -40 Marks

**REFERENCE BOOKS:-**

**Pharmacognosy:**

1. Aushotosh Kar “Pharmacognosy & Pharmacobiotechnology” New Age International Publisher. Latest Edition. New Delhi.
2. Drug Survey by Mayaram Uniyal
3. Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford
4. Kokate, CK., Purohit, AP, Gokhale, SB (2010). Pharmacognosy. Nirali Prakashan. Pune.
5. Kokate, CK., Khandelwal and Gokhale, SB (1996). Practical Pharmacognosy. Nirali Prakashan. Pune.
6. Trease G E and Evans W C, Pharmacognosy, Bailliere Tindall, Eastbourne, U K.

7. Tyler V C., Brady, L R., and Robers J E., Pharmacognosy, Lea and Febiger, Philadelphia.
8. Tyler VE Jr and Schwarting AE., Experimental Pharmacognosy, Burgess Pub. Co, Minneapolis, Minnesota.
9. Wallis- TE (2011)- reprint. Practical Pharmacognosy (Fourth Edition) Pharma Med Press, Hyderabad.
10. Wallis T E, Analytical Microscopy, J & A Churchill limited, London.
11. Wallis T E., Text Book of Pharmacognosy, J & A Churchill Limited, London.
12. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003). World Health Organization- Geneva.
13. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

**Pharmaceutical chemistry, quality control and drug standardization:**

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1 to 3. Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
2. Brain, KR and Turner, TD. (1975). The Practical Evaluation Phytopharmaceuticals. Wright Sciencetechnica, Bristol.
3. Galen Wood Ewing (1985). Instrumental Methods of Chemical Analysis. McGraw-Hill College ;Fifth edition
4. Harborne, JB (1973). Phytochemistry Methods. Chapman and Hall, International Edition, London.
5. HPTLC- Fingerprint atlas of Ayurvedic Single Plant Drugs mentioned in Ayurvedic Pharmacopoeia Vol- III and IV. CENTRAL COUNCIL FOR RESEARCH IN AYURVEDA AND SIDDHA. New Delhi.
6. Kapoor, RC (2010). Some observations on the metal based preparations in Indian System of Medicine. Indian Journal of Traditional Knowledge. 9(3): 562-575
7. Khopkar, S. M. Analytical Chemistry, New Age International Publishers , 3 rd edition
8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
9. Mahadik KR, Bothara K G. Principles of Chromatography by, 1st edition, Nirali Prakashan.
10. Qadry JS and Qadry S Z., Text book of Inorganic Pharmaceutical and Medicinal Chemistry, B. S.Shah Prakashan, Ahmedabad.
11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO- Geneva.
12. Rangari V.D., Pharmacognosy & Phytochemistry, Vol I, II, Career Publication,
13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)
15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt Rakesh (2008).Extraction Technologies for Medicinal and Aromatic Plants -INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

**Biochemistry and Laboratory techniques:**

1. Asokan P. (2003) Analytical Biochemistry, China publications,
2. Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.
3. David Frifelder. W. H. Freeman. (1982). Physical Biochemistry by; 2 edition

4. David Sultan (2003). Text book of Radiology and Imaging, Vol-1, 7th Edition.
5. Deb, A.C., Fundamentals of Biochemistry, Books and Allied (P) Ltd, 2002.
6. Harold Varley. Practical Clinical Bio-chemistry
7. Kanai L. Mukherjee. Clinical Pathology: Medical Laboratory Technology Vol. I. Tata McGrawHill 1996, New Delhi.
8. Gradwohl, Clinical Laboratory-methods and diagnosis, Vol-I
9. Clinical Biochemistry -Sabitri Sanyal, Clinical Pathology, B.I. Churchill Livingstone (P) Ltd, New Delhi. 2000.
10. Satyanarayanan, U. Essentials of Biochemistry, Books and allied (P) Ltd. 2002
11. Zubay, G.L. Biochemistry, W.M.C. Brown Publishers, New York 1998.
12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

**Research methodology:**

1. Alley, Michael. The craft of scientific writing. Englewood Cliffs. N.N. Prentice 1987.
2. Ayurvediya Anusandhan Paddhati – P.V. Sharma
3. Altick and Fenstermaker. (2007). *The Art of Literary Research*. 4th ed. W. W. Norton. Castle, Gregory. *Blackwell Guide to Literary Theory*. Blackwells,
4. Bowling, A. (2002). *Research Methods in Health* (2nd ed). Buckingham: Open University Press.
5. Day R.A. How to write a scientific paper. Cambridge University Press.
6. Cooray P.G. Guide to scientific and technical writing.
7. Deepika Chawla and Neena Sondhi. (2011). *Research Methods- Concepts and cases*. New Delhi: Vikas Publishing House.
8. Greenhalgh, T. (2006) *How to Read a Paper: The Basics of Evidence-Based Medicine*. (3rd ed) Blackwell
9. Kothari- CR (2004). *Research Methodology- Methods and Techniques* (Second Revised Edition). New Age International Publishers- New Delhi.
10. Kumar, R. 2005. *Research Methodology: a Step-by-Step Guide for Beginners, 2nd ed*. Thousand Oaks, CA, London: Sage Publications.
11. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). *Research Methodology in the Medical and Biological sciences*. Academic Press is an imprint of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
12. Relevant portions of Ayurvedic Samhitas and other texts

**Drug research and development:**

1. RICK NG, (2009). *DRUGS- from discovery to approval*. John Wiley & Sons, Inc., Hoboken, New Jersey
2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061 110 3 (NLM Classification: WB925).
3. Jagdeesh, Sreekant Murthy, Gupta, YK and Amitabh Prakash Eds. *Biomedical Research (From Ideation to Publication)* (2010). Wolters Kluwer/ Lippincott Williams and Wilkins.
4. WHO Guidelines on Safety Monitoring of herbal medicines in pharmacovigilance systems. (2004). WHO- Geneva. ISBN 92 4 1592214.
5. Natural products isolation. (2006) 2nd ed. / edited by Satyajit D. Sarker, Zahid Latif, Alexander I. Gray. (Methods in biotechnology; 20). Includes bibliographical references and

index. Humana Press Inc. ISBN 1-58829-447-1 (acid-free paper) – ISBN 1-59259-955-9 (eISBN)

6. Gazette Extraordinary Part- II-Section 3 - Sub section (i) December 2008. Govt of India. AYUSH Guidelines on safety studies- Rule 170 of Drugs and Cosmetics Act.
7. OECD (2000) Guidance Document on Acute Oral Toxicity. Environmental Health and Safety Monograph Series on Testing and Assessment No 24.
8. OECD Guideline for the Testing of Chemicals – Repeated Dose 90-day Oral Toxicity Study in Rodents, 408, 1998. <http://browse.oecdbookshop.org/oecd/pdfs/free/9740801e.pdf> (latest version)
9. OECD Series on Principles of Good Laboratory Practice (GLP) and Compliance Monitoring, 1998. [http://www.oecd.org/document/63/0,2340,en\\_2649\\_34381\\_2346175\\_1\\_1\\_1\\_1,00.p hp](http://www.oecd.org/document/63/0,2340,en_2649_34381_2346175_1_1_1_1,00.p hp)
10. ICH Harmonised Tripartite Guideline (2000). Maintenance of the ICH Guideline on Non-clinical Safety Studies for the conduct of Human Clinical Trials for Pharmaceuticals M3 (R1).
11. Ghosh M.N.: Fundamentals of Experimental Pharmacology, *Scientific Book Agency, Bombay.*
12. *Bombay.*
13. Jaju B.P.: Pharmacological Practical Exercise Book, *Jaypee Brothers, New Delhi.*
14. Kulkarni S.K.: Hand Book of Experimental Pharmacology, *Vallabh Prakashan, New Delhi*
15. Ravindran R.: X-Pharm (Software), *Indian Journal of Pharmacology, JIPMER, Pondicherry.*

#### **Biotechnology and Bio-informatics:**

1. Angela M. Meireles A (2009). Extracting Bioactive compounds for food products. Theory and applications. CRC- Press Taylor and Francis Group.
2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
3. Chikhale, N.J. and Virendra Gomase, Bioinformatics- Theory and Practice, Publisher: Himalaya Publication House, India; 1 edition (July, 2007) ISBN-13: 978-81-8318-831-9
4. Lesk, A.M. Introduction to Bioinformatics Oxford 2002.
5. Satyanarayana, U.: Biotechnology, Books and Allied (P) Ltd, Kolkata, 2005
6. Setubal J. C and J. Meidanis, Introduction to Computational Molecular Biology, PWS Publishing Company, 1997.
7. <http://www.iitb.ac.in/~crnts>.
8. <http://www.zygogen.com>.
9. <http://www.dsir.nic.in/reports/tifp/database/metallo.pdf>.
10. [www.consort-statement.org](http://www.consort-statement.org)
11. [www.strobe-statement.org](http://www.strobe-statement.org)
12. [www.icmr.nic.in](http://www.icmr.nic.in)

#### **Clinical Evaluation:**

1. CDSCO, Good Clinical Practices For Clinical Research in India, Schedule Y (Amended Version – 2005), <http://cdsco.nic.in/html/GCPI.php>
2. Ethical Guidelines for Biomedical Research on Human subjects. (2000). Indian Council of Medical Research- New Delhi.
3. Gallo P., Chuang-Stein C., Dragalin V., Gaydos B., Krams M., Pinheiro J. Adaptive Designs

in Clinical Drug Development—An Executive Summary of the PhRMA Working Group. *Journal of Biopharmaceutical Statistics*. 16: 275–283; 2006

4. Good Clinical Practices- (2001). Guidelines for Clinical Trial on Pharmaceutical Products in India. Central Drugs Standard Control Organization. Directorate General of Health Services. New Delhi. (<http://WWW.cdsc.nic.in.ich.org>)
5. Gupta, SK Ed. Basic Principles of Clinical Research and Methodology (2007). Jaypee Brothers-new Delhi
6. ICH Harmonised Tripartite Guidelines for Good Clinical Practices.(1997)- Quintiles- Published by Brookwood Medical Publications. Richmond, Surrey. United Kingdom.
7. NCI. *Clinical Trials Education Series*. <http://www.cancer.gov/clinicaltrials/learning/clinical-trials-education-series>, 2001.
8. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). Research Methodology in the Medical and Biological sciences. Academic Press is an imprint of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
9. William C. Scheffer Introduction to Clinical Researchs

#### Medical Statistics:

1. Armitage, P. and Berry, G. (1994) Statistical Methods in Medical Research (3rd ed). Blackwell Science.
2. Armitage P, Berry G, Matthews JNS: *Statistical Methods in Medical Research*. Fourth edition. Oxford, Blackwell Science Ltd; 2002
3. Bland, M. (2000) An Introduction to Medical Statistics (3rd ed). Oxford: Oxford University Press.
4. Bradford Hill – Basic Medical Statistics
5. Cambell, M.J. and Machin, D. (1993) Medical Statistics: A Common Sense Approach (2nd ed). Chester: Wiley.
6. Dwivedi S. N., Sundaram K. R and V. Sreenivas (2009). Medical Statistics - Principles & Methods-BI Publications Pvt. Ltd., New Delhi –1.
7. Gupta S.P. - Fundamentals of statistics, Sultan Chand. Delhi.
8. Indrayan. (2008). Basic Methods of Medical Research. AITBS Publishers- India
9. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers
10. Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers Medical Publishers
11. Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences. Jaypee Brothers Medical Publishers (P) Ltd. Bengaluru, New Delhi.
12. Rick J Turner and Todd A Durham (2008). Introduction to Statistics in Pharmaceutical Clinical trials. Published by the Pharmaceutical Press- An imprint of RPS Publishing, 1 Lambeth High Street, London SE1 7JN, UK
13. Symalan, K. (2006). Statistics in Medicine (First Edition) Trivandrum: Global Education Bureau.
14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

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**M.D.-AYURVEDA PRELIMINARY**  
**AGADATANTRA AVUM VIDHI VAIDYAKA (Toxicology & Forensic Medicine)**  
**PAPER-II**

**Theory 100 marks**

**PART-A 50 marks**

1. Introduction to Agadatantra, its sequential development, traditional and contemporary toxicology.
2. Examination of poisons as per contemporary and Ayurvedic methods.
3. Ancient and contemporary classification of Visha.
4. Knowledge about Sthavara visha, Jangama visha and Kritrima visha, their clinical and pathological manifestations and management.
5. Garavisha and Dushi visha, signs, symptoms and management with contemporary relevance.
6. Vishajanya Janapadodhvamsaniya Roga (community health problems due to poisons) - environmental pollution, water pollution, soil pollution, air pollution etc, their features and management according to ancient and contemporary concepts.
7. Concept of Viruddhahara with contemporary views.
8. Definition of Vyavahara Ayurveda.
9. Fundamentals of Vyavahara Ayurveda. Courts of law in India and legal procedures.
10. Chathurvinshati upakrama (24 management procedures).

**PART-B 50 marks**

1. Introduction to Forensic medicine.
2. Techniques of pathology, pharmacology, pharmacognosy and microbiology used in toxicology.
3. Death and its medico-legal aspects (Medical Thanatology), Medico-legal autopsy, Legal procedures in clinical forensic medicine.
4. Forensic Science Laboratory:- Structure and functions
5. Introduction to Medical Jurisprudence.
6. Laws related to medical profession. Ancient practice of medical jurisprudence in india.
7. Ancient and contemporary fundamentals of medical ethics.
8. Madya visha (Alcoholism).
9. Diagnosis and Management of food poisoning.
10. General and Emergency medical management of poisoning including preparation, administration and complications of antidotes, antivenoms, antisera.
11. Management of the toxic manifestations caused by the contact poisons (paduka, vastra, abhushana, mukhalepa- vishabadha etc).
12. Diagnosis and management of dermatological manifestations of Visha.
13. Death due to poisoning, duty of physician in poisoning and cases of suspected poisoning.
14. Post mortem findings in poisoning.



**PRACTICAL 100 marks**

Contents:

Clinical Postings

Case records – 20 cases (Postmortem/ poisoning/dermatological/medico legal cases)

**Distribution of marks (Practical)**

1. Case records (20 Cases) - 20 Marks
2. Bedside clinical case taking
3. Long Case - 20 Marks
4. Short Case - 10 Marks
5. Identification of specimens, models and equipments of jurisprudence importance. - 15 Marks
6. Spotting related to Visha, Upavisha and other poisonous drugs - 15 Marks
7. Viva-voce -20 marks

**REFERENCE BOOKS:**

1. Useful Portion of Charak-Sushrut-Vagbhata
2. Dravyaguna Vigyan - Acharya Yadavji
3. Aushadhigunadharm Shastra- Pt Visvanath Dvivedi
4. Kriyatmat Aushada parichaya Vigyan - Pt Visvanath Dvivedi
5. Ayurvedic Vyadhi Vigyan - Acharya Yadavji Trikamji
6. Madhavanidan with Madhukosha commentary
7. Sharangadhara Samhita
8. Yogaratnakara
9. Aushadigunadharm Shastra - PtGangadhara Shastri Gune
10. Rasendracintamani
11. Rasaratna samuchhaya
12. Vishavigyan - Dr. Krishna Kumar
13. Related matter of Kautilya Artha Shastra
14. Harmekhlatantra
15. Anupana manjari
16. Ayurvedprakash
17. System of clinical Medicine - Savil
18. Forensic Pharmacy -B.M. Mhithai
19. Hand book of Forensic Medicine and toxicology - Dr. P.V. Chadha
20. Viva Forensic Medicine and toxicology - L.C. Gupta
21. Forensic Medicine and Ethics- J.P. Narena
22. Modi's Medical Jurisprudence and Toxicology
23. The essentials of forensic medicine and toxicology -Dr.K.S. Narayan Reddy
24. Medical Laws and Ethics - Dr. H.S. Mehta
25. M.R.K. Krishnan's Handbook of Forensic Medicine
26. Text book of Medical Jurisprudence and Toxicology - Dr. C.K. Parikh

27. Atlas of Forensic Medicine - Dr. Tomio Watenbe
  28. Medico legal Post Mortems (Atlas) - Dr. Parikh and Others
  29. Textbook of Forensic Medicine and Toxicology - Dr.V.V. Pillay
  30. Textbook of Forensic Medicine and Toxicology - Dr. Karmakar
  31. Textbook of Forensic Medicine and Toxicology - Dr. Singhal
  32. Textbook of Forensic Medicine and Toxicology - Dr. Krishnan Vij
  33. Forensic Pathology - Dr. Bernard Knight
  34. Textbook of Forensic Medicine and Toxicology - Lyon's
  35. Pocket picture guide to Forensic Medicine - Gower's Medical Publication
  34. Forensic Medicine - Simpson Knight
  35. Taylor's Principles and Practical of Medical Jurisprudence - J and A Churchis
  36. Doctor and Law - Singhal
  37. Textbook of Toxicology - Singhal
  
  38. Medicine Harrison's Principal of Internal Medicine
  39. Agad Tantra - Dr.Shekhar Namboodri
  1. Modern Medical Toxicology - Dr. V.V.Pillay
  2. Critical care toxicology - Bruent Wallace
  3. Diagnosis and Management of common poisoning- Agarwal wali
  4. Colour Atlas of Forensic Medicine - Govindaiah
  5. Guidelines of poisons - W.H.O.
  6. Doctors patients relationships - Dr.Lavekar
  7. Bhavaprakasha.
  8. Vishavaidya Jyotsnika -- English translation By VPSV Ayurveda college, Kottakkal.
  9. Lakshnamritham.
  10. Toxicology, Ayurvedic perspective - VPSV Ayurveda college, Kottakal
  11. Text book of Agadatantra - Edited By Dr Huparikar, Dr. Joglekar
  12. Agadatantra ki Pathyapustaka- Edited By Dr Huparikar, Dr. Joglekar
  13. Vyavahar Ayurveda Vigyanam - Dr.Indramohan Jha (Sachchan)
  
  1. Forensic Medicine - Dr. B. Umadathan
  2. Visha Chikitsa- Dr. M. Balakrishnan Nair
  3. Park Text book of Preventive and Social Medicine. - K. Park
  4. Environmental Science and Biotechnology - Theory and Practice  
- A.G. Murukesan &C. Rajakumari
  5. Veterinary Toxicology - Dr. Satish K. Gargi
  6. Guide to Drinking Water Quality (3 Volumes) - WHO Publication
  7. A short Text Book of Medical Entomology - H.S. Bhatti, R. Sehgal,  
R.C. Mahajan.
- .....

**M.D. AYURVED- FINAL**

**AGADA TANTRA EVUM VIDHIVAIKYAKA**

**PAPER-I Agada Tantra (Ayurvedic and Contemporary Toxicology) 100 marks**

1. Agada Tantra, its sequential development during Veda kala, Samhitha kala, Samgraha kala and Adhunika kala.
2. Definition of Visha, properties of visha and its comparison with madya and oja, visha samprapti, visha prabhava, visha-vega, vegantara and visha karmukata (toxicodynamic and toxicokinetic study).
3. Descriptive and comparative study of Upavisha in unison with Contemporary Toxicology.
4. Examination of poisons as per Contemporary and Ayurvedic Methods.
5. Descriptive study of sthavara visha, definition, classifications, classical signs and symptoms of poisoning including vanaspatic (phyto poison), khanija (mineral) and compound sthavara visha.
6. Study of Jangama visha and their sources (Animal poisoning and Zoonotic Diseases). Descriptive study of snakes according to ancient and contemporary knowledge. Causes of snake bite and its types. Composition of snake venom and its pharmacological actions. Signs and symptoms of envenomation and its prognostic signs. Clinical features of Vrischika (scorpion), Luta (spider), Grihagodhika (Lizard), Mushaka (rats), Alarka (dogs), Makshika and Mashaka (mosquitoes) and their pathologic manifestations including their role in the manifestation of communicable diseases.  
Shanka visha and its management. Visha sankat and Visha Kanya.
7. Garavisha and Dushi visha, their varieties, signs, symptoms and management with contemporary relevance. Detailed study of Allergies including allergic manifestations in the eyes, nose, lungs and skin.
8. Detailed study of Madya visha and substances acting on the nervous system; substance abuse. (Diagnosis, Management and De-addiction)
9. Detailed study of the contemporary knowledge about vishajanya Janpadodhvansaniya roga (community health problems due to poisons - Environmental pollution, water pollution, soil pollution, air pollution, Industrial pollutions etc. their features and management according to ancient and recent concepts.
10. Concept of Virudha aahara, Aahara visha and Satmyasatmyata in contemporary and Ayurvedic views.
- 10. Conceptual study:- Drug interactions and incompatibility, Pharmacovigilance**

**PAPER- II Visha Chikitsa Vigyan (Management Of Poisoning) 100 marks**

1. Fundamental Principles for treatment of poisoning
2. General and specific treatment of different types of Sthavara visha.

3. General and specific treatment of different types of Jangama visha (animal poisons, insect poisons, snake bites and other zoonotic diseases).
  4. Emergency medical management of poisoning including preparation, administration and complications of antivenoms/antisera.
  5. Chaturvimsati upakrama (24 management procedures).
  6. Management of Garavisha and Dushivisha. Treatment of Allergies including allergic manifestations in the eyes, nose, lungs and skin.
  7. Diagnosis and Management of Drug Induced Toxicity
  8. Management of the toxic manifestations caused by the contact poisons (paduka, vasthra, abharana, mukhalepa- vishabadha etc).
  9. Management of food poisoning.
  10. Death due to poisoning, Duty of physician in poisoning, in cases of suspected poisoning. Post mortem findings in poisoning.
  11. Extra -corporeal techniques (dialysis etc) for removal of poisons.
- PG Final Year Syllabus-23

**PAPER –III Vyavahara Ayurveda Evam Vidhi Vaidyaka 100 marks**

1. Definition of Vyavahara Ayurveda, its evolution in ancient and contemporary periods.
2. Personal identity and its medico-legal aspects
3. Death and its medico-legal aspects (Medical Thanatology)
4. Asphyxial deaths and its medico-legal importance.
5. Death due to starvation, heat and cold, lightning and electricity. Suspended Animation.
6. Medico-legal autopsy.
7. Injuries due to explosions, chemical and nuclear warfare.
8. Medico-legal aspects of injuries and wounds.
9. Impotence and sterility-Its medico-legal aspects. Regulations of Artificial Insemination. Medico –legal aspects of surrogate motherhood.
10. Sexual offences and perversions.
11. Medico-legal aspects of virginity, pregnancy, delivery, abortion, infanticide and legitimacy with related acts.
12. Indian Penal Code, Criminal procedure code and study of related acts like Indian Evidence Act, Pre Natal Diagnostic Test Act, Nursing Home Act, Human Organ Transplantation Act, Drugs and Cosmetic Act 1940, Narcotic drugs and Psychotropic substances Act 1985, Pharmacy Act 1948, Drugs and Magical Remedies (Objectionable Advertisements) Act 1954, Medicinal and Toilet Preparations Act 1955 and Anatomy Act etc. Any related act enacted by the government from time to time.
13. Courts and Legal procedures.
14. Forensic Science Laboratory
15. Medico legal aspects of mental illness
16. Duties and privileges of physician.
17. Structure of Central Council of Indian Medicine, its jurisdiction and functions. Code

and Conducts as per the CCIM, Rules and Regulations there under.

18. Respective State Council of Indian Medicine, its structure, power, voluntary duties.
19. Doctor - patient relationship.
20. Rights and privileges of patients; Euthanasia.
21. Professional secrecy and privileged communication.
22. Professional negligence and malpractice
23. Indemnity Insurance scheme.
24. Consumer Protection Act related to medical practice.
25. Ethics as in classics. Types of physicians and methods of identification, Pranabhisara and Rogabhisara Physicians, qualities of physician, responsibilities of Physicians, Chaturvidha vaidya vriti, duties of physicians towards patients, Vaidya sadvritam, Apujya Vaidya who is accepting fees, relationship with females.

**PAPER – IV Aushadha Yoga Vigyan 100 marks**

1. Study of process for sodhana, marana and samskarana of poisonous drugs.
  2. Pharmaco-dynamics of different formulations used in Agadatantra
  3. Study of pharmacology and usage of antidotes as per the Ayurvedic and contemporary science.
  4. Fundamentals of pharmaceutics according to Ayurvedic and contemporary point of view.
  5. Chemical, analytical, laboratory examination of poisons and suspicious substance.
  6. Introduction of different instruments /equipments used in the examination of poisons.
  7. Introduction to Clinical toxicology
  8. Introduction to Experimental toxicology
- PG Final Year Syllabus-24
9. Introduction to Toxicology - genomics
  10. Survey and study of the traditional and folklore vishachikista sampradaya.

**Content of Practical/Demonstration**

1. Identification of specimens models and equipments of toxicological and jurisprudence importance.
2. Practical training in postmortem examination (10 cases)
3. Regular clinical postings in the Agadatantra OPD / IPD
4. Medico-legal cases (20 cases)
5. Chemical Identification of various acids, alkalies, alcohols – Hydrochloric acid, Nitric acid, Sulphuric acid, Ascorbic acid, Sodium Hydroxide and Potassium Hydroxide
6. Detection of minerals Copper, Mercury, Lead, Arsenic and their compounds.
7. Physical and Chemical analysis of Dattura, Karaveera, Vatsanabha, Jayapala, Arka and Bhallataka with Microscopy, powder microscopy, TLC, solvent extraction, detection of Phenol, tannins etc. (10 studies)
8. Detection of human blood, hair, semen and other biological secretions of Forensic importance.
9. Herbarium of 15 sthavara vishas and 10 agadas.

10. Preparation of two Agada yogas

Clinical Postings

1. Modern medical hospitals – 2 weeks  
(For emergency management of poisoning)
2. Postmortem postings - 2 weeks
3. Court postings - 1 week

Visit to

1. Forensic Laboratory
2. Anti snake venom serum manufacturing Unit.

Pattern of practical examination

1. Post mortem / Medico-legal case record and clinical record - 10 Marks
2. Identification of specimens models and equipments of jurisprudence importance. - 20 Marks
3. Spotting related to Visha, Upavisha and others poisonous drugs - 20 Marks
4. Thesis presentation - 25 Marks
5. Viva-voce - 25 Marks

Total 100 Marks

**Reference Books:-**

1. Useful Portion of Charak-Sushrut-Vagbhata
  2. Dravyaguna Vigyan - Acharya Yadavji
  3. Aushadhigunadharm Shastra - Pt Visvanath Dvivedi
  4. Kriyatmat Aushada parichaya Vigyan - Pt Visvanath Dvivedi
  5. Ayurvedic Vyadhi Vigyan - Acharya Yadavji Trikamji
  6. Madhavanidan with Madhukosha commentary
  7. Sharangadhara Samhita
  8. Yogaratnakara
  9. Aushadigunadharm Shastra -PtGangadharaShastri Gune
  10. Rasendracintamani
  11. Rasaratna samuchhaya
  12. Vishavigyan - Dr. Krishna Kumar
  13. Related matter of Kautilya Artha Shastra
  14. Harmekhlatantra
  15. Anupana manjari
- PG Final Year Syllabus-25
16. Ayurvedprakash
  17. System of clinical Medicine - Savil
  18. Forensic Pharmacy - B.M. Mhithai
  19. Hand book of Forensic Medicine and toxicology - Dr. P.V. Chadha
  20. Viva Forensic Medicine and toxicology - L.C. Gupta
  21. Forensic Medicine and Ethics - J.P. Narena
  22. Modi's Medical Jurispudence and Toxicology
  23. The essentials of forensic medicine and toxicology - Dr.K.S. Narayan Reddy
  24. Medical Laws and Ethics - Dr. H.S. Mehta
  25. M.R.K. Krishnan's Handbook of Forensic Medicine

26. Text book of Medical Jurisprudence and Toxicology - Dr. C.K. Parikh
  27. Atlas of Forensic Medicine - Dr. Tomio Watenbe
  28. Medico legal Post Mortems (Atlas) - Dr. Parikh and Others
  29. Textbook of Forensic Medicine and Toxicology - Dr.V.V. Pillay
  30. Textbook of Forensic Medicine and Toxicology - Dr. Karmakar
  31. Textbook of Forensic Medicine and Toxicology - Dr. Singhal
  32. Textbook of Forensic Medicine and Toxicology - Dr. Krishnan Vij
  33. Forensic Pathology - Dr. Bernard Knight
  34. Textbook of Forensic Medicine and Toxicology - Lyon's
  35. Pocket picture guide to Forensic Medicine - Gower's Medical Publication
  36. Forensic Medicine - Simpson Knight
  37. Taylor's Principles and Practical of Medical Jurisprudence - J and A Churchis
  38. Doctor and law - Singhal
  39. Textbook of Toxicology -Singhal
  40. Medicine Harrison's Principal of Internal Medicine
  41. Agad Tantra - Dr. Shekhar Namboodri
  42. Modern Medical Toxicology - Dr. V.V.Pillay
  43. Critical care toxicology - Bruent Wallace
  44. Diagnosis and Management of common poisoning - Agarwal wali
  45. Colour Atlas of Forensic Medicine - Govindaiah
  46. Guidelines of poisons - W.H.O.
  47. Doctors patients relationships - Dr.Lavekar
  48. Bhavaprakasha.
  49. Vishavaidya Jyotsnika -- English translation By VPSV Ayurveda college, Kottakkal.
  50. Lakshnamritham.
  51. Toxicology, Ayurvedic perspective - VPSV Ayurveda college, Kottakkal
  52. Text book of Agadatantra - Edited By Dr Huparikar, Dr. Joglekar
  53. Agadatantra ki Pathyapustaka - Edited By Dr Huparikar, Dr. Joglekar
  54. Vyavahar Ayurveda Vigyanam - Dr.Indramohan Jha (Sachchan)
  55. Forensic Medicine - Dr. B. Umadathan
  56. Visha Chikitsa - Dr. M. Balakrishnan Nair
  57. Park Text book of Preventive and Social Medicine. - K. Park
  58. Environmental Science and Biotechnology - Theory and Practice - A.G. Murukesan & C. Rajakumari
  59. Veterinary Toxicology - Dr. Satish K. Gargi
  60. Guide to Drinking Water Quality (3 Volumes) - WHO Publication
  61. A short Text Book of Medical Entomology - H.S. Bhatti, R. Sehgal, R.C. Mahajan.
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