DPU

Dr. D. Y. PATIL VIDYAPEETH, PUNE (Deemed to be University)

Syllabus for II – MBBS (Para - Clinical Subjects)

2014 - 15 (Amended / Revised upto July 2019)



(Deemed to be University)

(Re-accredited by NAAC with a CGPA of 3.62 on a four point scale at 'A' Grade) (An ISO 9001 : 2015 Certified University)

Dr. A. N. Suryakar Registra

> Ref. No. : DPU/ \$75-V11 / 2019 Date : 11/09/2019

NOTIFICATION

Whereas in pursuance of the following decisions taken by the Board of Management, it is hereby notified to all concerned that the "Syllabus for II-M.B.B.S. (Para-Clinical Subjects) - 2014-15" is revised upto July 2019 and hereby published.

- Updation in UG syllabus of Microbiology vide Resolution No. BM-04(i)-15, dated 31st March, 2015.
- Adoption of "Double Evaluation System" for UG Answer Papers vide Resolution No. BM-07-15 dated 31st March, 2015.
- Structure of Integrated Teaching for II MBBS vide Resolution No. BM-26(iii)-15, dated 29th December, 2015.
- Introduction of Bioethical aspects in various chapters of all subjects vide Resolution No. BM-26(xi)-15, dated 29th December, 2015.
- Inclusion of certain topics in the Microbiology syllabus of IInd MBBS vide Resolution No. BM-17(iv)-16, dated 22nd September, 2016.
- Inclusion of practical classes in Pharmacology Syllabus of IInd MBBS vide Resolution No. BM-17(v)-16, dated 22nd September, 2016.
- Change in existing Internship Training Programme in Community Medicine Posting vide Resolution No. BM-05(i)-17, dated 7th April, 2017.
- Graduate Attributes, Programme Outcomes (POs), Course Outcomes (Cos) and gap analysis for all courses of UG and PG Programmes for Para-Clinical and Surgical Subjects vide Resolution No. BM-10(vii)-19 dated, 12th April, 2019.
- Interdisciplinary subjects of M.B.B.S, M.D./M.S. and Super-specialty (D.M./M.Ch.) Programs under the Faculty of Medicine vide Resolution No. BM-10(viii) dated 12th April, 2019.

The Syllabus for II-M.B.B.S. (Para-Clinical Subjects) - 2014-15" is revised upto July 2019 will be useful to all the concerned. This will come into force with immediate effect.

PIMPRI

PUNE-18

(Dr. A. N. Suryakar) Registrar

- 1. PS to Chancellor for kind information of Hon'ble Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
- 2. PS to Vice Chancellor for kind information of Hon'ble Vice Chancellor, Dr. D. Y. Patil Vidyapeeth, Pune.
- The Dean, Dr. D. Y. Patil Medical College Hospital & Research Centre, Pimpri, Pune
 The Controller of Examinations, Dr. D. Y. Patil Vidyapeeth, Pune.
 Director (IQAC), Dr. D. Y. Patil Vidyapeeth, Pune.

- 6. Web Master for uploading on Website.

REGULATIONS AND SYLLABUS FOR M.B.B.S. DEGREE COURSE

1. SHORT TITLE AND COMMENCEMENT

These regulations may be called "The Regulations for the Bachelor of Medicine and Bachelor of Surgery Degree Course of Dr. D. Y. Patil Vidyapeeth, Pune (Deemed to be University)

These regulations shall come into force from the academic year 1997 - 1998 and amendments notified by MCI from time to time.

2. ELIGIBILITY FOR ADMISSION TO M.B.B.S

DEGREE COURSE QUALIFICATION FOR ADMISSION:

No candidate shall be allowed to be admitted to the first year Bachelor of Medicine and Bachelor of Surgery (MBBS) Course until:

He/She has completed the age of 17 years on or before 31st December of the year of admission to the MBBS course.

He / She has passed qualifying examination as under :-

(a) The higher secondary examination or the Indian School Certificate Examination which is equivalent to 10+2 Higher Secondary Examination after a period of 12 years study, the last two years of study comprising of **Physics, Chemistry, Biology** / **Bio-technology** and Mathematics or any other elective subjects with English at a level not less than core course of English as prescribed by the National Council of Educational Research and Training after the introduction of the 10+2+3 years educational structure as recommended by the National Committee of education;

Note: Where the course content is not as prescribed for 10+2 education structure of the National Committee, the candidates will have to undergo a period of one year pre-professional training before admission to the Medical colleges; Or

(b) The intermediate examination in science of an Indian University / Board or other recognised examining body with **Physics**, **Chemistry and Biology** / **Bio-technology** which shall include a practical test in these subjects and also English as a compulsory subject;

- (c) The pre-professional/pre-medical examination with Physics, Chemistry and Biology/Bio-technology, after passing either the higher secondary school examination, or the pre-university or an equivalent Examination. The pre-professional/pre-medical examination shall include a practical test in **Physics, Chemistry and Biology** / **Bio-technology** and also English as a compulsory subject; Or
- (d) The first year of the three years degree course of a recognized university, with Physics, Chemistry and Biology including a practical test in these subjects provided the examination is a "University Examination" and candidate has passed 10+2 with English at a level not less than a core course;
 Or
- (e) B.Sc examination of an Indian University, provided that he/she has passed the B.Sc examination with not less than two of the following subjects Physics, Chemistry, Biology (Botany, Zoology) and further that he/she has passed the earlier qualifying examination with the following subjects Physics, Chemistry, Biology and English.

 Or
- (f) Any other examination which, in scope and standard is found to be equivalent to the intermediate science examination of an Indian University/Board, taking **Physics**, **Chemistry and Biology/Biotechnology** including practical test in each of these subjects and English.

3. PROCEDURE FOR SELECTION TO MBBS COURSE

- 1] There shall be a uniform entrance examination to all medical educational institutions at the undergraduate level namely 'National Eligibility-cum-Entrance Test for admission to MBBS course in each academic year and shall be conducted under overall supervision of the Ministry of Health & Family Welfare, Government of India.
- 2] The "designated authority" to conduct the 'National Eligibility-Cum-Entrance Test' shall be the Central Board of Secondary Education or any other body/organization so designated by the Ministry of Health & Family Welfare, Government of India, in consultation with the Medical Council of India.

- 3] The language and manner of conducting the 'National Eligibility-Cum-Entrance Test' shall be determined by the "designated authority" in consultation with the Medical Council of India and the Ministry of Health and Family Welfare, Government of India.
- 4] In order to be eligible for admission to MBBS Course for a academic year, it shall be necessary for a candidate to obtain minimum of marks at 50th percentile in 'National Eligibility-cum-Entrance Test to MBBS course' held for the said academic year. However, in respect of candidates belonging to Scheduled Castes, Scheduled Tribes, Other Backward Classes, the minimum marks shall be at 40th percentile. In respect of candidates with benchmark disabilities specified under the Rights of Persons with Disabilities Act, 2016, in terms of Clause 4(3) above, the minimum marks shall be at 45th percentile. The percentile shall be determined on the basis of highest marks secured in the All-India common merit list for admission in 'National Eligibility-cum-Entrance Test for admission to MBBS course.

Provided when sufficient number of candidates in the respective categories fail to secure minimum marks as prescribed in National Eligibility-cum-Entrance Test held for any academic year for admission to MBBS Course, the Central Government in consultation with Medical Council of India may at its discretion lower the minimum marks required for admission to MBBS Course for candidates belonging to respective categories and marks so lowered by the Central Government shall be applicable for the said academic year only.

4. REGISTRATION/ Eligibility Certificate

A candidate admitted to the course shall register with this University by remitting the prescribed fees along with the prescribed application form for registration duly filled in, within the stipulated date.

5. DURATION OF THE COURSE

The period of certified study and training for the course of Degree of Bachelor of Medicine and Bachelor of Surgery shall extend over a period of four and half academic years and one year of Compulsory Rotatory Resident Internship before the award of the Degree.

6. CURRICULUM

The curriculum and the syllabus for the course shall be as prescribed from time to time by the appropriate bodies.

COMMENCEMENT OF THE COURSE

The first year MBBS Course shall begin on or before 1st August of every academic year.

7. TRAINING PERIOD AND TIME DISTRIBUTION

- (a) Every student shall undergo a period of certified study extending over four and half academic years divided into 9 semesters, (i.e. of 6 months each) from the date of commencement of study for the subjects comprising the medical curriculum to the date of completion of examination and followed by one year Compulsory Rotatory Residential Internship. Each semester will consist of approximately 120 teaching days of 8 hours duration including one hour for lunch.
- (b) The period of four and half years is divided into three phases as follows:
 - Phase I (two semesters) consisting of pre-clinical subjects (Anatomy, Physiology, Biochemistry and introduction to Community Medicine including Humanities). Sixty hours are allocated for introduction to Community Medicine including Humanities, and rest of the time shall be and again divided between Anatomy and Physiology (2/3) plus Biochemistry (1/3)combined.
 - Phase II (three semesters) consisting of para-clinical / clinical subjects.

During this phase teaching of para-clinical and clinical subjects shall be done concurrently.

The para-clinical subjects shall consist of Pathology, Pharmacology, Microbiology, Forensic Medicine including Toxicology and part of Community Medicine.

The clinical subjects shall consist of all those detailed below in Phase III.

Out of the allotted time for para-clinical teaching, approximately equal time be allotted to Pathology, Pharmacology, Microbiology and Forensic Medicine, Community Medicine combined (1/3 for Forensic Medicine and 2/3 for Community Medicine).

- Phase - III (four semesters) Continuation of study of clinical subjects for seven semesters after passing Phase -I

The clinical subjects to be taught during Phase II and III are Medicine and its allied specialities, Surgery and its allied specialities, Obstetrics and Gynaecology and Community Medicine.

The Medicine and its allied specialities training will include General Medicine, Paediatrics, Tuberculosis and Chest, Skin and Sexually Transmitted Diseases, Psychiatry, Radio-diagnosis, Infectious Diseases etc. The Surgery and its allied specialities training will include General Surgery, Orthopaedic Surgery including Physiotherapy and Rehabilitation, Ophthalmology, Oto-rhinolaryngology, Anaesthesia, Dentistry, Radio-therapy etc. The Obstetrics & Gynaecology training will include family medicine, family welfare planning etc.

- (c) The first 2 semesters (approximately 240 teaching days) shall be occupied in the Phase I (Pre-clinical) subjects and introduction to a broader understanding of the perspectives of medical education leading to delivery of health care. No student will be permitted to join the Phase II (Para clinical) group of subjects until he has passed in all the PhaseI.
- (d) After passing pre-clinical subjects, Phase II will be devoted to paraclinical and clinical subjects, along with clinical postings. During clinical phase (Phase III) pre-clinical and para-clinical teaching will be integrated into the teaching of clinical subjects where relevant.
- (e) Supplementary examination will be conducted as follows: Supplementary examination may be conducted within 3 months so that the students who pass can join the main batch and the failed students will have to appear in the subsequent year.

8. PHASE DISTRIBUTION AND TRAINING OFEXAMINATIONS:

6 Months	6 Months	6 Months	
1	2		I st Professional examination (during 2 nd semester)
3	4	5	II nd Professional examination (during 5 th semester)
6	7		III rd Professional Part I examination (during 7 th semester)
			III rd Professional Part II
8	9		(Final Professional) (during 9 th semester)

- (a) Passing in Ist Professional examination is compulsory before proceeding to Phase II training.
- (b) A student who fails in the IInd Professional examination, shall not be allowed to appear for IIIrd Professional Part I examination unless he/she passes all subjects of IInd Professional examination.
- (c) Passing in IIIrd Professional (Part I) is compulsory for being eligible for IIIrd Professional (Part II) examination.

During third to ninth semesters, clinical postings of three hours duration daily as specified is suggested for various departments, after introductory course in Clinical Methods in Medicine and Surgery of two weeks each for the whole class.

9. ACADEMICTERMS

First M.B.B.S

Part-I & Part II - 1st August to June 15th

10. CUT OFFDATES

As decided by the appropriate bodies from time to time.

11. EXAMINATIONDATE

There shall be two sessions of University examinations in an academic year, viz., June and December.

12. WORKING DAYS IN AN ACADEMICYEAR

Each academic year shall consist of not less than 240 working days.

13. ATTENDANCE REQUIRED FOR ADMISSION TO EXAMINATION

- (a) No candidate shall be permitted to any one of the parts of MBBS Examinations unless he/she attended the course in the subject for the prescribed period and produces the necessary certificate of study, attendance and progress from the Head of the Institution.
- (b) A candidate is required to put in minimum 75% of attendance in a subject for appearing in the examination, inclusive of attendance in non-lectures teaching, i.e. seminars, group discussions, tutorials, demonstrations, practicals, Hospital (Tertiary, Secondary, Primary) postings and bed side clinics, etc.
- (c) A candidate lacking in the prescribed attendance and progress in any one subject in theory and practical / clinical in the first appearance shall not be permitted for admission to the university examination in that subject only.

14. MIGRATION/TRANSFER OF CANDIDATES

The Medical Council of India Regulations relating to Migration will be followed by the University as reproduced below:

- (1) Migration of students from one medical college to another medical college may be granted on any genuine ground subject to the availability of vacancy in the college where migration is sought and fulfilling the other requirements laid down in the Regulations. Migration would be restricted to 5% of the sanctioned intake of the college during the year. No migration will be permitted on any ground from one medical college to another located within the same city.
- (2) Migration of students from one College to another is permissible only if both the colleges are recognized by the Central Government under section 11(2) of the Indian Medical Council Act,1956 and further subject to the condition that it shall not result in increase in the sanctioned intake capacity for the academic year concerned in respect of the receiving medical college.
- (3) The applicant candidate shall be eligible to apply for migration only after qualifying in the first professional MBBS examination. Migration during clinical course of study shall not be allowed on any ground.
- (4) For the purpose of migration an applicant candidate shall first obtain "No Objection Certificate" from the college where he is studying for the present and the university to which that college is affiliated and also from the college to which the migration is sought and the university to it that college is affiliated. He / She shall submit his application for migration within a period of 1 month of passing (Declaration of result of the 1st Professional MBBS examination) along with the above cited four "No Objection Certificates" to: (a) the Director of Medical Education of the State, if migration is sought from one college to another within the same State **or** (b) the Medical Council of India, if the migration is sought from one college to another located outside the State.
- (5) A student who has joined another college on migration shall be eligible to appear in the IInd professional MBBS examination only after attaining the minimum attendance in that college in the subjects, lectures, seminars etc. required for appearing in the examination prescribed under Regulation 12 (1)

Note-1: The State Governments / Universities / Institutions may frame appropriate guidelines for grant of No Objection Certificate or migration, as the case may be, to the students subject to provisions of these regulations.

Note-2: Any request for migration not covered under the provisions of these Regulations shall be referred to the Medical Council of India for consideration on individual merits by the Director (Medical Education) of the State or the Head of Central Government Institution concerned. The decision taken by the Council on such requests shall be final.

Note-3: The College/Institutions shall send intimation to the Medical Council of India about the number of students admitted by them on migration within one month of their joining. It shall be open to the Council to undertake verification of the compliance of the provisions of the regulations governing migration by the Colleges at any point of time."

15. SUBMISSION OF LABORATORY RECORD NOTEBOOKS

At the time of practical/clinical examination, each candidate shall submit to the Examiners his/her laboratory notebooks duly certified by the Head of the Department as a bonafide record of work done by the candidate. The practical record shall be evaluated by the Head of the Department.

The candidate may be permitted by the Examiners to refer to the practical record book during the practical examination in the subject of Biochemistry only. No other material, handwritten, cyclostyled or printed guides is allowed for reference during the practical examinations.

In respect of failed candidates, the marks awarded for records at previous examinations will be carried over for the subsequent examination or the candidates shall have the option to improve his performance by submission of fresh records.

16. INTERNAL ASSESSMENT

- 1] A minimum of three written and practical examinations shall be conducted in each subject during an academic year and the average marks of three best performances shall be taken into consideration for the award of sessional marks.
- 2] Day to day records and logbook (including required skill certifications) should be given importance in internal assessment. Internal assessment should be based on skills and competencies. Students must have completed the required certifiable competencies and completed logbook appropriate for each phase of training to be eligible for appearing at the final university examination of that subject.
- 3] Learner must secure at least 50% marks of total marks (combined in theory / Practical, not less than 40% in theory and practical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing at the final university examination of the subject. Internal assessment marks will not be added to university examination and reflected as a separate head of passing at the summative examination.
- 4] The results of Internal Assessment should be displayed on notice board within 1-2 weeks of the test. Formulate remedial measures for students who are either not able to score qualifying marks or have missed some assessment due to any reason by forming committee under the Chairmanship of Dean, Dr. D. Y. Patil Medical College, Hospital and Research Center, Pune and three more members.

There shall be one additional examination after third internal assessment (Prelim) examination as per recommendation by institutional grievance committee before the submission of IA marks sheet to University.

17. CLASSIFICATION OF SUCCESSFULCANDIDATES

A successful candidate

- i. Who secures not less than 75% in the aggregate marks shall be declared to have secured, **FIRST CLASS WITH DISTINCTION'** provided he/she passes the whole examination in the FIRSTATTEMPT;
- ii. Who secures not less than 65% in the aggregate marks and completes the course within the stipulated course period shall be declared to have passed the examinations in the 'FIRSTCLASS';
- iii. Who secures above 50% marks and completes the course within the stipulated course period shall be declared to have **PASSED** the examinations

18. EXEMPTION FROM RE-EXAMINATION IN ASUBJECT

Where a candidate obtains pass marks in a subject (or) subjects but fails in other subject (s) he / she shall be exempted from reexamination in the subject (s) he / she has passed.

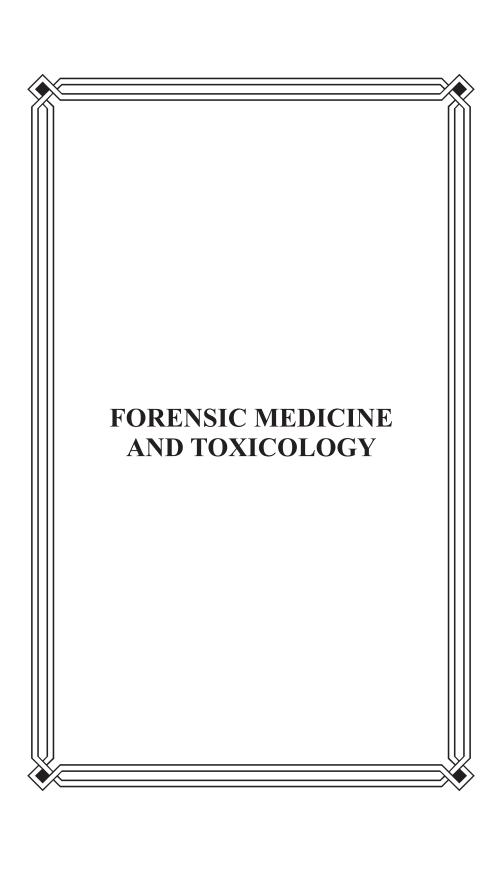
MAPPING OF PROGRAMME OUTCOMES [POs] AND COURSE OUTCOMES [COs] OF- II - MBBS PROGRAMMES

PROGRAMME OUTCOMES:

	Programme Name: MBBS		
	Programme Code: MB		
Sr.	By the end of the programme, the MBBS Graduate will have /be:		
No.			
PO 1	Knowledge and Skills		
PO 2	Planning and problem-solving abilities		
PO 3	Communication		
PO 4	Research Aptitude		
PO 5	Professionalism and Ethics		
PO 6	Leadership		
PO 7	Societal Responsibilities		
PO 8	Environment and Sustainability		
PO 9	Lifelong Learner		

Year II		
Course Code	Course Title	
MB201	Pathology	
MB202	Pharmacology and Therapeutics	
MB203	Microbiology	
MB204	Forensic Medicine and Toxicology	

	Forensic Medicine & Toxicology : (MB204)				
CO.	At the end of the course, the learner	Mapped			
No.	should be able to:	Programme			
		Outcomes			
204.1	Knowledge of court & Law enforcing	PO1,PO2,PO3,			
	agenesis, Knowledge of Natural	PO4,PO5,PO6,			
	&Unnatural Deaths, Certification of Deaths	PO7, PO8, PO9			
	& Organ Transplantation Act.				
204.2	Knowledge, observation, analysis,	PO1,PO2,PO3,			
	interpretation of Postmortem Findings in	PO4,PO5,PO6,			
	Various Types of Deaths And Writing of	PO7,PO9			
	Postmortem Reports.				
204.3	Judicious&effectivecommunicationwithLivi	PO1,PO2,PO3,			
	ngCases of medico-legal examination and	PO4,PO5,PO6,			
	Goodreport writing.	PO7,PO9			
204.4	Knowledge, Diagnosis and management of	PO1,PO2,PO3,			
	common Poisoning case and writing	PO4,PO5,PO6,			
	medico-legal report and Reporting.	PO7,PO9			
204.5	Knowledgeof various laws and regulation	PO1,PO2,PO3,			
	related to hospital service.	PO4,PO5,PO6,			
	Knowledge of medico-legal records related	PO7,PO9			
	to casualty and emergency medico-legal				
	cases.				
204.6	Acquire Integrated knowledge of Para-	PO1,PO2,PO3,			
	clinical and Clinical specialties related to	PO4,PO5,PO6,			
	Medico-legal issues.	PO9			
204.7	Knowledge of lawsin relation to medical	PO1,PO2,PO3,			
	Practice and develop attitude	PO4,PO5,			
	communication and professional skill to	PO6,PO7,PO9			
	handle ethical and medical negligence				
	issues.				



FORENSIC MEDICINE AND TOXICOLOGY

1. GOAL

The broad goal of teaching undergraduate students Forensic Medicine is to produce a physician who is well informed about Medico-legal responsibility during his/her practice of Medicine. He/She will also be capable of making observations and inferring conclusions by logical deductions to set enquiries on the right track in criminal matters and associated medico-legal problems. He/She acquires knowledge of law in relation to Medical practice, Medical negligence and respect for codes of Medical ethics.

2. EDUCATIONAL OBJECTIVES

A) KNOWLEDGE:

At the end of the course, the student shall be able to- identify the basic Medico-legal aspects of hospital and general practice

- Define the Medico-legal responsibilities of a general physician while rendering community service either in a rural primary health centre or an urban health centre
- Appreciate the physician's responsibilities in criminal matters and respect for the codes of Medical ethics
- Diagnose, manage and identify also legal aspect of common acute and chronic poisonings
- Describe the Medico-legal aspects &findings of post-mortem examination in cases of death due to common unnatural conditions & poisonings
- Detect occupational and environmental poisoning, prevention and epidemiology of common poisoning and their legal aspects particularly pertaining to Workmen's Compensation Act
- Describe the general principles of analytical toxicology
- Understand Clinical Forensic Medicine
- Understand issues in organ transplantation

B) SKILLS

At the end of the course, the student shall be able to

• Make observations and logical inferences in order to initiate enquiries in criminal matters and Medico-legal problems.

- To be able to carry on proper Medico-legal examination and documentation/ Reporting of Injury and Age
- To be able to conduct examination for sexual offences and intoxication
- To be able to preserve relevant ancillary materials for medico legal examination
- To be able to identify important post-mortem findings in common unnatural deaths and be able to distinguish between Natural and Un-natural deaths.
- To diagnose and treat common emergencies in acute and chronic poisoning
- To observe the principles of medical ethics in the practice of his profession

C) INTEGRATION:

Department shall provide an integrated approach towards allied disciplines like Pathology, Radiology, Forensic Sciences, Hospital Administration etc. to impart training regarding Medico-legal responsibilities of physicians at all levels of health care. Integration with relevant disciplines will provide scientific basis of clinical toxicology e.g. Medicine, Pharmacology etc.

2. DURATION OF TEACHING

Semesters	3
Teaching Days	360
Teaching hours	100

3. SYLLABUS:

LEARNING METHODS:

Lectures, tutorials, practical demonstrations, group discussions and seminars. Distribution of teaching hours. Didactic lectures should not exceed one third of the time schedule, two third schedules should include Practicals, Demonstrations, Group discussions, Seminars and Tutorials.

Learning process should include living experiences and other case studies to initiate enquiries in criminal matters and Medico-legal problems.

A) Theory: Lectures	40 hours
(including Tutorials, Seminars & Allied)	20 hours
Total =	60 hours

,	Total =	40 hours
(Including demonstrations)		15 hours
B) Practicals		25 hours

This period of training is minimum suggested. Adjustments, whenever required, depending on availability of time, may be made.

CONTENTS & DIVISION:

1. PART – 1 FORENSIC MEDICINE:

A) INTRODUCTION

- i. Definition, Scope Relevant to Subject
- ii. History of Forensic Medicine
- iii. Need, Scope, Importance and probative value of Medical evidence in Crime Investigation

B) FORENSIC IDENTITY:

- i. Introduction, definition, types, corpus delicti
- ii. Data useful for Identification of Living and Dead
- iii. Age estimation and its medico-legal Importance
- iv. Sex determination and it's medico-legal importance
- v. Other methods of establishing identity: Dactylography, Tattoo marks, Deformities, Scars
- vi. Identification of decomposed, Mutilated bodies and skeletal remains
- vii. Medico legal aspect of DNA fingerprinting a brief introduction
- viii. Various trace materials having value for evidence in crime

C) THANATOLOGY:

- i. Definition and concept of death, Brainstem Death in relation to Organ Transplantation
- ii. Causes of sudden Natural deaths
- iii. Changes after death, Cooling, Hypostasis, Changes in eye, Muscle changes, Putrefaction, Adipocere, Mummification, Estimation of time since death
- iv. Presumption of death and survivorship, disposal and preservation of dead bodies

D) MEDICO-LEGAL AUTOPSY

 Autopsy: Objectives, Facilities, Rules and Basic techniques, Proforma for reporting medico-legal autopsy ii. Exhumation, examination of mutilated remains, Obscure autopsy and post-mortem artifacts

E) TRAUMA

- i. Definition and classification of injuries:
- ii. Blunt force Trauma: Abrasions, Contusions & Lacerations
- iii. Sharp force Trauma: Incised, Stab and Chop wounds
- iv. Physical methods of Torture and their identification
- v. Firearm injuries and Explosive injuries and Basics of Firearms
 - a) PM examination of Firearm injury deaths.
 - b) Removal and collection of Bullets, Pellets etc.
- vi. Complications and causes of death due to injury.
- vii. Medico legal aspects of Trauma in General and reporting of cases of Hurts and relevant IPCs
- viii.Regional injuries: Head injury, mechanism, Injury to Scalp, Skull, Brain and Spinal Injuries
- ix. Intracranial Haemorrhage, changes in Brain
- x. Road Traffic Accidents
- xi. Thermal injuries: Injuries due to heat and cold, Frostbite, Burns, Scalds and Bride burning
- xii. Injuries due to Electricity, Lightening
- xiii.Non-Accidental Domestic Violence
- xiv. Starvation deaths

F) MEDICO-LEGAL ASPECTS OF SEX, MARRIAGE AND INFANT DEATH

- Explanation and ML Importance of Terminologies: Impotence, Sterility, Virginity, Pregnancy, Delivery, Paternity, Legitimacy, Assisted Reproductive Technique Medico Legal Aspects and PNDT Act,
- ii. Sexual Offences and Sexual perversions:
- iii. Examination of Rape and Sodomy cases.

iv. Abortions, Medical Termination of pregnancy, Criminal abortions and relevant IPC sections.

v. Infant death:

- a) Explanation of Terminologies Viability Live Births, Deadborn, Stillborn
- b) Determination of age of Foetus and Infant with special reference to 3, 5, 7 & 9 months of I.U.Age
- c) Infanticides: Autopsy to confirm Livebirth, period of survival, causes of deaths
- d) Battered Baby Syndrome and Sudden Infant Death Syndrome.

G) ASPHYXIAL DEATHS

- i. Introduction, Pathophysiology, General Signs-Symptoms Asphyxia
- ii. Hanging: Definition, Types and Causes of death, PM Finding, MLI
- iii. Strangulation, Suffocation and Traumatic Asphyxia: Definition, Types and causes of death, PM Finding, MLI
- iv. Drowning Definition, Types, Mechanisms and Causes of death, MLI, PM Finding, Diatom Test.

H) FORENSIC PSYCHIATRY

- Basic concepts of Forensic Psychiatry in respect of Civil and Criminal responsibility
- ii. Examination, Certification, restraint and admission to Mental Hospital
- iii. Mental Health Act 1987: Principles and Objectives

2. PART - 2 TOXICOLOGY

A) GENERAL PRINCIPLES:

- i. Introduction to Toxicology
- ii. Epidemiology of poisoning
- iii. General consideration and Laws in relation to poisons / Narcotic drugs and Psychotropic substances Act, Duties and Responsibilities of attending Physician.
- iv. Basics of Environmental and Industrial Toxicology in relation to Health & Ecology;
- v. Common poisons and their classification, Identification of common poisons, Routes of Administration, Actions of poisons and factors modifying them, Diagnosis of poisoning (Clinical and Confirmatory), Treatment / Management of cases of acute and chronic poisoning.
- vi. Analytical Toxicology (Principles: Bedside & Common Lab. Tests), Collection, Preservation and Dispatch of Viscera to FSL
- vii. Regulatory Toxicology for prevention of Hazards to Health and Ecology.

B) CORROSIVE & IRRITANT POISONS:

- i. Inorganic Corrosives- Sulphuric, Nitric & Hydrochloric Acid
- ii. Organic Corrosives- Phenol, Oxalic Acid
- iii. In-organic Non-Metallic Irritants- Phosphorus, Halogens
- iv. Inorganic Metallic Irritants- Arsenic, Lead, Mercury, Copper
- v. Organic Vegetable Irritants- Abrus, Castor, Croton, Calotropis, Semicarpus, Ergot.
- vi. Organic Animal Irritants Snake Bite, Scorpion & other common insect bites diagnosis and Management; Medico-legal Aspects
- vii. Mechanical Irritants- diagnosis and treatment & Medico-legal Aspects

C) NEUROTOXIC:

- i. Ineberiates- Ethyl Alcohol, Methyl Alcohol
- ii. Somniferous and Sedative Hypnotics Opium and Derivatives, Barbiturates
- iii. Deliriants- Dhathura, Cannabis, Cocaine.
- iv. Insecticides/ Pesticides/ Agrochemical- Organo-phosphorus Compounds. Organo-chlorides, Carbamates, Pyrethriods, Aluminium phosphide.
- v. Spinal Poisons-Strychnine
- vi. Peripheral Poisons- Curare

D) ASPHYXIANTS (GASES)-

Carbon monoxide, Carbon Dioxide, Cyanogens and Cyanides

E) CARDIAC POISONS-

Oleanders, Aconite, Tobacco

F) OTHER POISONS:

- i. Domestic/ Household Poisons- Kerosene, Detergents, Disinfectants, Cosmetics, Rodenticide mothballs etc.
- ii. Therapeutic Drug Toxicity/ poisoning by Medicines- Salicylates, Paracetamol, Newer derivatives of sedatives
- iii. Food Poisoning- Bacterial, Viral, Mushrooms, Chemical etc.
- iv. Drugs of dependence and Drug Abuse.

3. PART – 3

MEDICAL JURISPRUDENCE:

(A) LEGAL AND ETHICAL ASPECTS OF PRACTICE OF MEDICINE

- i. The Indian Medical Council and State Medical Council: Formation, Functions
- ii. Rights, Privileges and Duties of Registered Medical Practitioners
- iii. Infamous conduct, Professional secrecy and privileged communications
- iv. Medical Ethics and prohibition of Torture & care of Torture Victims
- v. Consent Its relevance in Medical Practice
- vi. Medical Negligence and contributory negligence, Precautionary measures and defences for Medical Practitioners against legal actions, Medical/Doctors indemnity insurance, Consumer Protection Act relevant to medical practice
- vii. Euthanasia Current views and dilemmas, Different codes of Medical Ethics and Ethics in Research
- viii. Common medico-legal problems in Hospital practice

4. PART – 4

LEGAL PROCEDURES IN MEDICO-LEGAL CASES:

- i. Medico-Legal Investigations of death in suspicious circumstances, different Inquest, type of offences
- ii. Types of Criminal courts and their powers, punishments prescribed by law, kinds of witnesses, Evidence, Documentary Medical evidence, Dying declaration and Dying deposition
- iii. The Trial of criminal cases, Rules and Conventions to be followed by Medical Witness at Medical evidence, subpoena, conduct money
- iv. Relevant Sections from the Indian Evidence Act, Indian Penal code and Criminal Procedure code.

5. PART - 5 INTEGRATED TEACHING FOR II MBBS -

Sr. No.	Broad topic	Department	Lecture topics	Duration
1	PNEUMONIA	Microbiology	Lab diagnosis of	1 Hour
			Pneumonia	
		Pathology	Pathology of Pneumonia	1 Hour
		Medicine	Clinical features and	1 Hour
			Radiology	
		Pharmacology	Treatment	1 Hour
		Community	Epidemiology and	1 Hour
		Medicine	prevention	
		F.M.T	Medico Legal Aspect of	1 Hour
			Pneumonia	
2	HIV	Microbiology	Virology of HIV	1 Hour
			Diagnosis of HIV	1 Hour
		Pathology	Pathogenesis of HIV	1 Hour
			Infection	
		Medicine	Clinical features and	1 Hour
			Opportunistic infections	
			in HIV	
		Pharmacology	Treatment of HIV	1 Hour
		Community	Epidemiology of HIV	1 Hour
		Medicine	Prevention of HIV	1 Hour
			NACO activities	1 Hour
		F.M.T.	Medico legal aspect of	1 Hour
			HIV	
		Medicine	Clinical features	1 Hour
		Pharmacology	Treatment	1 Hour

6. PART - 6 BIOETHICS TOPICS (2+2 HOURS)

Sr.	Topic	Department	Hrs.
No.			
1.	Ethics of human sexuality, gender reassignment	FMT	1
2.	Organ donation	FMT	1

- 7. Research methodology (10 sessions in II MBBS)8. Communication skill (5 sessions in II MBBS)
- 9. Language sessions (5 sessions in II MBBS)

PRACTICALS (Including Demonstrations)

- Practicals will be conducted in the laboratories.
- Objective will be to assess proficiency in skills, conduct of experiment, interpretation of data and logical conclusion.
- Emphasis should be on candidate's capacity in making observations and logical inferences in order to initiate enquiries in criminal matters and medico-legal problems.

CONTENTS:

PART - 1 FORENSIC MEDICINE

REPORT ON:

- 1. Estimation/Certification of Age
- 2. Recording of fingerprints
- 3. Examination/Certification of the Injured [Prescribed Forms]
- 4. Examination of the Causative Agents in cases of Injuries (e.g. Weapons, Instruments)
 - a) Hard and blunt weapons
 - b) Sharp cutting, sharp pointed & Sharp Heavy cutting weapons
 - c) Firearm weapons
- 5. Sexual offences:
 - a) Examination/Certification of Victim
 - b) Examination/Certification of Accused
- 6. Examination of Foetus to opine about age
- 7. Examination of Bones for Medico-legal purpose to determine age, sex, stature, cause of death, time since death
 - a) Skull and Mandible
 - b) Pelvis
 - c) Femur, Humerus

STUDY OF:

- 8. Medical certification of cause of Death as per Birth and Death registration Act [Prescribed Forms]
- 9. Studies of Skia-grams for estimation of age, bony injury, foreign body, and pregnancy

- 10. Photograph of different events of Medico-legal importance and postmortem changes
- 11. Study of Various museum specimens of medico-legal significance
- 12. Study of Various slides of medico-legal significance
- 13. Demonstration of Instruments:
 - a) Used in treatment of acute poisoning cases
 - b) Used for causing abortions
 - c) Used for conducting autopsy (Dissection Set)

PART - 2 FORENSIC TOXICOLOGY

- 1. Examination/Certification of Alcoholic [Prescribed Forms 'A' & 'B']
- 2. Study of Common poisons:

[Sulphuric Acid, Nitric Acid, Hydrochloric Acid, Carbolic Acid and Oxalic Acid, Phosphorous, Lead, Arsenic, Mercury, Copper, Glass powder, Castor, Croton, Calatropis Abrus Precatorius (Ratti), Dhatura, Cannabis Indica, Opium, Aconite, Yellow Oleander, Strychnine, Snakes, Scorpion, Alcohol, Methyl Alcohol, Kerosene, Organo-phosphorus compounds, Organ-chlorocompounds, Carbamates (Carbaryl)] and other commonly used poisons, antidotes and preservatives

PART - 3 MEDICAL JURISPRUDENCE

Study of Medical Certificates [Prescribed Forms]

- a. Sickness Certificate
- b. Fitness Certificate
- c. Certificate of Physical fitness

PART - 4 LEGAL PROCEDURES IN MEDICO-LEGAL CASES

Orientation of various formats of specified forms:

Consent to surgery Anesthesia and other Medical services, Request for sterilization, Consent to access to hospital records, Authorization for Autopsy, Dead body Challan used for sending a dead body for postmortem examination, Request for the second inquest by Magistrate on the dead body, Provisional post-mortem certificate, Post-mortem form, Pictorial Post-mortem form, Form for the Final cause of death, Forms for dispatch of exhibits other than the viscera to chemical analyzer, Forms for dispatch of Viscera for Histo-pathological Examination, Form for dispatch of viscera to chemical analyzer, Forensic Science Laboratory report form, Summons to witness.

Each student shall attend and record as a clerk -

- a. As many as possible cases / items of medico-legal importance
- b. 10 cases of medico-legal autopsies

The Journal should be scrutinized by the teacher concerned and presented during the university examination.

Efforts be made so that each student will attend the court at least 2 cases when Medical Evidence is being recorded.

BOOKS RECOMMENDED

- 1. Modi's Textbook of Medical Jurisprudence and Toxicology
- 2. The Essentials of Forensic Medicine and Toxicology by K.S. Narayan Reddy
- 3. Textbook of Forensic Medicine J. B. Mukherjii VOL 1 and 2
- 4. Principles of Forensic Medicine A. Nandy
- 5. Bernard Knight et. All: Cox's Medical Jurisprudence and Toxicology
- 6. Krishnan Handbook of Forensic Medicine, V.V. Pillay
- 7. Textbook of Forensic Medicine and Toxicology Krishna Viz
- 8. Textbook of Forensic Medicine and Toxicology R. Basu

REFERENCE BOOKS:

- 1. Russell S. Fisher and Charles S.Petty: Forensic Pathology
- 2. Keith Simpson: Forensic Medicine
- 3. Jurgen Ludwig: Current Methods of autopsy practice.
- 4. Gradwohl Legal Medicine
- 5. A Doctors Guide to Court Simpson
- 6. Polson C.J.: The essentials of Forensic Medicine
- 7. Adelson, L.: The Pathology of Homicide.
- 8. Atlas of Legal Medicine (Tomro Watonbe)
- 9. Sptiz, W.U. and Fisher, R.S.: Medico-legal Investigation of Death.
- 10. A Handbook of Legal Pathology (Director of Publicity)

- 11. Taylor's Principles and Practice of Medical Jurisprudence. Edited by A.Keith Mant, Churchill Livingstone.
- 12. Ratanlal & Dhirajlal, The Indian Penal Code; Justice Hidayatullah and V.R. Manohar
- 13. Ratanlal & Dhirajlal, The Code of Criminal procedure; Justice Hidayatullah & S.P. Sathe
- 14. Ratanlal & Dhirajlal, The Law of Evidence; Justice Hidayatullah and V.R. Manohar
- 15. Medical Law & Ethic in India H.S. Mehta
- 16. Bernard Knight: Forensic Pathology
- 17. Code of medical ethics: Medical Council of India, approved by Central Government, U/S 33 (m) of IMC Act, 1956 (Oct 1970)
- 18. Krogman, W.M.: The human skeleton in legal medicine.
- 19. FE Camps, JM Cameren, David Lanham: Practical Forensic Medicine.

10. EVALUATION

METHODS

Theory, Practical & Viva voce.

Passing: A candidate must obtain minimum 50% marks in aggregate with a minimum of 50% marks in Theory + Viva Voce and minimum 50% marks in Practicals.

PATTERN OF THEORY EXAMINATION AND DURATION

(A) First & Second Terminal Examination (Internal Assessment)

Nature of Question Paper

- i) Duration- 2 hrs (one paper of 2 hrs or 120 minutes)
- ii) The paper will have 3 sections

Suggested pattern and marking for paper of 40 marks-

Section	Pattern of Question	Total No. of Question	Marks per	Total Marks
	3.6.1.1.1.01.1	1.0	Question	00
A	Multiple Choice	16	1/2	08
	Questions (MCQ)	(all compulsory)		
В	Short Answer	4	02	08
	Questions (SAQ)	(out of 05)		
	Short Structured	1	08	08
	Question (SSQ)	(compulsory)		
C	Short Answer	4	02	08
	Questions (SAQ)	(out of 05)		
	Short Structured	1	08	08
	Question (SSQ)	(compulsory)		
			Total	40
				marks

(B) Third Terminal/Preliminary (Internal Assessment)

Nature of Question Paper -

- i) Duration- 2 hrs (one paper of 2 hrs or 120 minutes)
- ii) The paper will have 2 sections

Suggested pattern and marking for each paper of 40 marks-

Sect ions	Nature of Questions	Total No. of Questions	Mark(s) per Question	Total Mark s
A	One Line Answer Questions (OLAQ)	8 (Out of 10)	1	08
	Short Structured Questions (SSQ)	2 (Out of 3)	7	14
В	Short Answer Questions (SAQ)	6 (out of 8)	03	18
			Total:	40

PATTERN OF PRACTICAL EXAMINATION AND DURATION

1. FIRST TERMINAL EXAMINATION (Internal Assessment)

PRACTICAL:

Will be of 25 marks and the distribution of marks will be as follows:

1: Viva (oral)	10 Marks
2: Practical	15 Marks

The Distribution is recommended as follows:

Time: 1 Hour (15 Marks)

1) Structured Question Stations (2 marks each × 5 Nos)	10 Marks
2) Certificate (5 marks each × 1 Nos)	05 Marks
Total =	15 Marks

NOTE:

1. Structured Question Stations includes:	
Bones, Weapons, X rays, Specimens, Photographs, etc.	
2 Certificates includes: Death/Sickness/Fitness/Physical fitness	
Report of examination of Age/Alcoholic/Injury/Sexual offences: Victim	
& Accused	

VIVA VOCE (10 Marks)

One table- 10 marks {Adequate Time to be given}	
Table 1: Syllabus covering Forensic Medicine, Legal Procedures	

2. SECOND TERMINAL EXAMINATION (Internal Assessment) PRACTICAL:

Will be of 40 marks and the distribution of marks will be as follows:

1: Viva (oral)	10 Marks
2: Practical	30 Marks

The Distribution recommended as follows:

Time: 1 Hour (30 Marks)

1) Structured Question Stations (2 marks each × 10 Nos)		20 Marks
2) Certificates (5 marks each × 2 Nos)	10 Marks	
	Total =	30 Marks

NOTE

- 1. Structured Question Stations includes: Bones, Weapons, X rays, Specimens, Photographs, etc.
- 2. Certificates includes:
 - I: Medical Certificate: Death/Sickness/Fitness/Physical Fitness.
 - II: Medico-legal Report/Certificate: Report of examination of Age/Alcoholic/Injury/Sexual offences: Victim & Accused

VIVA VOCE (10 Marks)

One table- 10 marks {Adequate Time to be given}	
Table 1: Syllabus covering Forensic Medicine, Legal Procedures,	
Forensic Toxicology	

3. THIRD TERMINAL/ PRELIMINARY EXAMINATION (Internal Assessment)

PRACTICAL:

Will be of 40 marks and the distribution of marks will be as follows:

1: Viva (oral)	10 Marks
2: Practical	30 Marks

The Distribution recommended as follows:

Time: 1 Hour (30 Marks)

1) Structured Question Stations (1.5 marks each × 10 Nos) 15 Marks		
2) Certificates (5 marks each × 2 Nos)	10 Marks	
3) Toxicology Spots (1 mark each x 5 Nos)	05 Marks	
	Total = 30 Marks	

NOTE:

- 1. Structured Question Stations includes: Bones, Weapons, Specimens, X rays, Photographs, etc.
- 2. Certificates includes:
 - I: Medical Certificate: Death/Sickness/Fitness/Physical Fitness.
 - II: Medico-legal Report/Certificate: Report of examination of Age/Alcoholic/Injury/Sexual offences: Victim & Accused
- 3. Toxicology Spots includes: Articles & Medicines used for treatment of Patient, Poisons

VIVA VOCE (10 Marks)

Two tables- 5 marks each {Adequate Time to be given}	
Table 1: Syllabus covering Forensic Medicine,	
Table 2: Syllabus covering Forensic Toxicology, Medical Jurisprudence,	
Legal Procedures & Forensic Psychiatry	

PATTERN OF MID TERM EXAMINATIONS AND DURATION

(A) First Mid Term Examination (Internal Assessment)

Nature of Exam: Theory Question Paper

Duration: 30 minutes (one paper of 30 minutes)

Pattern of Question	Total No. of Question	Marks per Question	Total Marks
Multiple Choice Questions (MCQ)	30 (all compulsory)	1/2	15

(B) Second Mid Term Examination (Internal Assessment)

Nature of Exam: Viva Voce either on Theory or Practicals: 15 Marks

Duration: Adequate Time to be given

(C) Third Mid Term Examination (Internal Assessment)

Nature of Exam: Viva Voce either on Theory or Practicals: 15 Marks

Duration: Adequate Time to be given

PATTERN OF INTERNAL ASSESMENT IIIrd SEMESTER:

Ist Term End Exam:	
Theory: One Paper	Practicals including Viva
40	25

IVth SEMESTER:

II nd Mid Term Exam:	15 Marks
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II nd Term End Exam:	
Theory: One Paper	Practicals including Viva
40	40

Vth SEMESTER:

III rd Mid Term Exam:	15 Marks
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III rd Term End/ Prelin	I rd Term End/ Preliminary Exam		
Theory: One Paper	Practicals including Viva		
40	40		

Note: Best 2 (out of 3) Mid-term exam marks will be added to Theory marks.

Theory: A:

Marks secured in Theory of all 3 Term End Examinations &2 Best Mid-term Examinations will be converted to out of 10 marks.

Practicals: B: Marks secured in Practical of all 3 Term End Examinations will be converted to out of 7 marks.

Journal: C: Day to day Practical Work and Record will be evaluated for 3 marks.

Total Internal Assessment Marks:

10 (Theory) + 7 (Practical) + 3 (Journal) = 20 (Total)

Minimum Qualifying Internal Assessment Marks for University Examination: 7

UNIVERSITY PATTERN OF EXAMINATION (Theory Examination)

Time Allowed: - 2.00 Hours

				Marks	Total
Paper I	SECTION	Question 1	One Sentence	8X1=08	22
	A		Answer		
			Questions		
			(8 Out of 10)		
		Question 2	Long Answer	7X2=14	
			Questions		
			(2 Out of 3)		
	SECTION	Question 3	Short Answer	6X3=18	18
	В		Questions		
			(6 Out of 8)		
				Total =	40

HEADS OF PASSING IN UNIVERSITY EXAMINATION

Theory + Viva Voce (40+10)	Practicals	Internal Assessment (Theory 10 + Practical 7 +
, ,		Journal 3)
50	30	20

Passing: A candidate must obtain minimum 50% marks in aggregate with a minimum of 50% marks in Theory + Viva Voce and minimum 50% marks in Practicals.

INTERNAL ASSESSMENT CALCULATION

Fraction should be rounded to nearest whole figure e.g. if less than ½ it should be brought to previous round figure. If it is ½ or more it should be taken to next round figure.