



MAHATMA GANDHI UNIVERSITY
of
MEDICAL SCIENCES & TECHNOLOGY
JAIPUR

Syllabus

MD – FORENSIC MEDICINE

(3 Years Post Graduate Degree Course)

Notice

1. Amendment made by the Medical Council of India in Rules/Regulations of Post Graduate Medical Courses shall automatically apply to the Rules/Regulations of the Mahatma Gandhi University of Medical Sciences & Technology (MGUMST), Jaipur.
2. The University reserves the right to make changes in the syllabus/books/guidelines, fees-structure or any other information at any time without prior notice. The decision of the University shall be binding on all.
3. The Jurisdiction of all court cases shall be Jaipur Bench of Hon'ble Rajasthan High Court only.

RULES & REGULATIONS
MD FORENSIC MEDICINE (9140)
(3 Years Post Graduate degree course)

TITLE OF THE COURSE:

It shall be called Doctor of Medicine

ELIGIBILITY FOR ADMISSION:

No candidate of any category (including NRI quota) shall be eligible for admission to MD/MS courses, if he or she has not qualified NEET PG (MD/MS) conducted by National Board of Examinations or any other Authority appointed by the Government of India for the purpose.

(1) General Seats

- (a) Every student, selected for admission to postgraduate medical course shall possess recognized MBBS degree or equivalent qualification and should have obtained permanent Registration with the Medical Council of India, or any of the State Medical Councils or should obtain the same within one month from the date of his/her admission, failing which the admission of the candidate shall be cancelled;
- (b) Completed satisfactorily one year's rotatory internship or would be completing the same before the date announced by the University for that specific year as per MCI rules after passing 3rd professional MBBS Part II Examination satisfactorily.
- (c) In the case of a foreign national, the Medical Council of India may, on payment of the prescribed fee for registration, grant temporary registration for the duration of the postgraduate training restricted to the medical college/institution to which he/she is admitted for the time being exclusively for postgraduate studies; however temporary registration to such foreign national shall be subject to the condition that such person is duly registered as medical practitioner in his/her own country from which he has obtained his basic medical qualification and that his degree is recognized by the corresponding Medical Council or concerned authority.

(2) NRI Seats

- (a) Students from other countries should possess passport, visa and exchange permits valid for the period of their course of study in this Institution and should also observe the regulations of both central and state governments regarding residential permits and obtain no-objection certificate from the same.
- (b) The candidate should have a provisional "Student Visa". If he comes on any other visa and is selected for admission, he will have to first obtain a student visa from his country and then only he will be allowed to join the course. Therefore it is imperative to obtain provisional student visa before coming for Counseling.
- (c) This clause is applicable to NRI/Foreign Students only.

CRITERIA FOR SELECTION FOR ADMISSION:

(1) NRI Quota

15% of the total seats are earmarked for Foreign National / PIO / OCI/ NRI / Ward of NRI/NRI sponsored candidates who would be admitted on the basis of merit obtained in NEET PG or any other criteria laid down by Central Government/MCI.

(2) Remaining Seats (Other than NRI Quota Seats)

- (a) Admissions to the remaining 85% of the seats shall be made on the basis of the merit obtained at the NEET conducted by the National Board of Examinations or any other

- Authority appointed by the Government of India for the purpose.
- (b) The admission policy may be changed according to the law prevailing at the time of admission.

COUNSELING/INTERVIEW:

- (1) Candidates in order of merit will be called for Counseling/Interview and for verification of original documents and identity by personal appearance.
- (2) Counseling will be performed and the placement will be done on merit-cum-choice basis by the Admission Board appointed by the Government of Rajasthan.

RESERVATION:

Reservation shall be applicable as per policy of the State Government in terms of scheduled caste, scheduled tribe, back ward class, special back ward class, women and handicapped persons.

ELIGIBILITY AND ENROLMENT:

Every candidate who is admitted to MD/MS course in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself enrolled and registered with the Mahatma Gandhi University of Medical Sciences & Technology after paying the prescribed eligibility and enrolment fees.

The candidate shall have to submit an application to the MGUMST for the enrolment/eligibility along with the following original documents with the prescribed fees (upto November 30 of the year of admission without late fees and upto December 31 of the year of admission with late fees) –

- (a) MBBS pass Marks sheet/Degree certificate issued by the University (Ist MBBS to Final MBBS)
- (b) Certificate regarding the recognition of medical college by the Medical Council of India.
- (c) Completion of the Rotatory Internship certificate from a recognized college.
- (d) Migration certificate issued by the concerned University.
- (e) Date of Birth Certificate
- (f) Certificate regarding registration with Rajasthan Medical Council / Medical Council of India / Other State Medical Council.

REGISTRATION

Every candidate who is admitted to MD/MS course in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself registered with the Mahatma Gandhi University of Medical Sciences & Technology after paying the prescribed registration fees.

The candidate shall have to submit an application to the MGUMST for registration with the prescribed fees (upto November 30 of the year of admission without late fees upto December 31 of the year of admission with late fees).

DURATION OF COURSE:

The course shall be of 3 years duration from the date of commencement of academic session.

PERIOD OF TRAINING:

- (1) The period of training for obtaining Post graduate degrees (MD/MS) shall be three completed years including the period of examination.
- (2) It shall however be two years for candidates who have obtained the recognised PG Diploma in the subject.

MIGRATION:

No application for migration to other Medical Colleges will be entertained from the students already admitted to the MD/MS course at this Institute.

METHODS OF TRAINING FOR MD/MS:

Method of training for MD/MS courses shall be as laid down by the Medical Council of India.

ONLINE COURSE IN RESEARCH METHODS

- i. All postgraduate students shall complete an online course in Research Methods to be conducted by an Institute(s) that may be designated by the Medical Council of India by way of public notice, including on its website and by Circular to all Medical Colleges. The students shall have to register on the portal of the designated institution or any other institute as indicated in the public notice.
- ii. The students have to complete the course by the end of their 2nd semester.
- iii. The online certificate generated on successful completion of the course and examination thereafter, will be taken as proof of completion of this course
- iv. The successful completion of the online research methods course with proof of its completion shall be essential before the candidate is allowed to appear for the final examination of the respective postgraduate course.

This requirement will be applicable for all postgraduate students admitted from the academic year 2019-20 onwards

ATTENDANCE, PROGRESS AND CONDUCT:**(1) Attendance:**

- (a) 80% attendance in each course is compulsory. Any one failing to achieve this, shall not be allowed to appear in the University examination.
- (b) A candidate pursuing MD/MS course shall reside in the campus and work in the respective department of the institution for the full period as a full time student. No candidate is permitted to run a clinic/work in clinic/laboratory/ nursing home while studying postgraduate course. No candidate shall join any other course of study or appear for any other examination conducted by this university or any other university in India or abroad during the period of registration. Each year shall be taken as a unit for the purpose of calculating attendance.
- (c) Every candidate shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, CCR, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons. Candidates should not be absent continuously as the course is a full time one.

(2) Monitoring Progress of Studies- Work diary/Log Book:

- (a) Every candidate shall maintain a work diary in which his/her participation in the entire training program conducted by the department such as reviews, seminars, etc. has to be chronologically entered.
- (b) The work scrutinized and certified by the Head of the Department and Head of the Institution is to be presented in the University practical/clinical examination.

(3) Periodic tests:

There shall be periodic tests as prescribed by the Medical Council of India and/ or the Board of Management of the University, tests shall include written papers, practical/clinical and viva voce.

(4) Records:

Records and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University when called for.

THESIS:

- (1) Every candidate pursuing MD/MS degree course is required to carry out work on research project under the guidance of a recognized post graduate teacher. Then such a work shall be submitted in the form of a Thesis.
- (2) The Thesis is aimed to train a postgraduate student in research methods & techniques.
- (3) It includes identification of a problem, formulation of a hypothesis, designing of a study, getting acquainted with recent advances, review of literature, collection of data, critical analysis, comparison of results and drawing conclusions.
- (4) Every candidate shall submit to the Registrar of the University in the prescribed format a Plan of Thesis containing particulars of proposed Thesis work within six months of the date of commencement of the course on or before the dates notified by the University.
- (5) The Plan of Thesis shall be sent through proper channel.
- (6) Thesis topic and plan shall be approved by the Institutional Ethics Committee before sending the same to the University for registration.
- (7) Synopsis will be reviewed and the Thesis topic will be registered by the University.
- (8) No change in the thesis topic or guide shall be made without prior notice and permission from the University.
- (9) The Guide, Head of the Department and head of the institution shall certify the thesis. Three printed copies and one soft copy of the thesis thus prepared shall be submitted by the candidate to the Principal. While retaining the soft copy in his office, the Principal shall send the three printed copies of the thesis to the Registrar six months before MD/MS University Examinations. Examiners appointed by the University shall evaluate the thesis. Approval of Thesis at least by two examiners is an essential pre-condition for a candidate to appear in the University Examination.
- (10) Guide: The academic qualification and teaching experience required for recognition by this University as a guide for thesis work is as laid down by Medical Council of India/Mahatma Gandhi University of Medical Sciences & Technology, Jaipur.
- (11) Co-guide: A co-guide may be included provided the work requires substantial contribution from a sister department or from another institution recognized for teaching/training by Mahatma Gandhi University of Medical Sciences & Technology, Jaipur/Medical Council of India. The co-guide shall be a recognized postgraduate teacher.
- (12) Change of guide: In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the University.

ELIGIBILITY TO APPEAR FOR UNIVERSITY EXAMINATION:

The following requirements shall be fulfilled by every candidate to become eligible to appear for the final examination:

- (1) Attendance: Every candidate shall have fulfilled the requirement of 80% attendance prescribed by the University during each academic year of the postgraduate course. (as per MCI rules)
- (2) Progress and Conduct: Every candidate shall have participated in seminars, journal review meetings, symposia, conferences, case presentations, clinics and didactic lectures during each year as designed by the department.
- (3) Work diary and Logbook: Every candidate shall maintain a work diary for recording his/her participation in the training program conducted in the department. The work diary

and logbook shall be verified and certified by the Department Head and Head of the Institution.

- (4) Every student would be required to present one poster presentation, to read one paper at a National/State Conference and to have one research paper which should be published/accepted for publication/ sent for publication to an indexed journal during the period of his/her post graduate studies so as to make him/her eligible to appear at the Post Graduate Degree Examination.
- (5) Every student would be required to appear in and qualify the Pre-University Post graduate degree Mock examination. Post graduate students who fail to appear in or do not qualify the Pre-University Post graduate degree Mock examination shall not be permitted to appear in the final examination of the University.

The certification of satisfactory progress by the Head of the Department/ Institution shall be based on (1), (2), (3), (4) and (5) criteria mentioned above.

ASSESSMENT:

- (1) The progress of work of the candidates shall be assessed periodically by the respective guides and report submitted to the Head of the Institution through the Head of the Department at the end of every six months. The assessment report may also be conveyed in writing to the candidate who may also be advised of his/her shortcomings, if any.
- (2) In case the report indicate that a candidate is incapable of continuing to do the work of the desired standard and complete it within the prescribed period, the Head of the Institution may recommend cancellation of his/her registration at any time to the University.
- (3) Formative Assessment:
 - (a) General Principles
 - i. The assessment is valid, objective, constructive and reliable.
 - ii. It covers cognitive, psychomotor and affective domains.
 - iii. Formative, continuing and summative (final) assessment is also conducted.
 - iv. Thesis is also assessed separately.
 - (b) Internal Assessment
 - i. The internal assessment is continuous as well as periodical. The former is based on the feedback from the senior residents and the consultants concerned. Assessment is held periodically.
 - ii. Internal assessment will not count towards pass/fail at the end of the program, but will provide feedback to the candidate.
 - iii. The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student.
 - iv. Marks should be allotted out of 100 as under
 - 1) Personal Attributes - 20 marks
 - a. Behavior and Emotional Stability: Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
 - b. Motivation and Initiative: Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
 - c. Honesty and Integrity: Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.
 - 2) Clinical Work - 20 marks
 - a. Availability: Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.

- b Diligence: Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management.
 - c Academic Ability: Intelligent, shows sound knowledge and skills, participates adequately in academic activities and performs well in oral presentation and departmental tests.
 - d Clinical Performance: Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.
- 3) Academic Activities - 20 marks
Performance during presentation at Journal club/ Seminar/Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.
- 4) End of term theory examination - 20 marks
End of term theory examination conducted at end of 1st, 2nd year and after 2 years 9 months.
- 5) End of term practical examination - 20 marks
- a. End of term practical/oral examinations after 2 years 9 months.
 - b. Marks for personal attributes and clinical work should be given annually by all the consultants under whom the resident was posted during the year. Average of the three years should be put as the final marks out of 20.
 - c. Marks for academic activity should be given by the all consultants who have attended the session presented by the resident.
 - d. The Internal assessment should be presented to the Board of examiners for due consideration at the time of Final Examinations.
 - e. Yearly (end of 1st, 2nd & 3rd year) theory and practical examination will be conducted by internal examiners and each candidate will enter details of theory paper, cases allotted (2 long & 2 short) and viva.
 - f. Log book to be brought at the time of final practical examination.

APPOINTMENT OF EXAMINERS:

Appointment of paper setters, thesis evaluators, answer books evaluators and practical & viva voce examiners shall be made as per regulations of the Medical Council of India.

SCHEME OF EXAMINATION:

Scheme of examination in respect of all the subjects of MD/MS shall be as under :

- (1) The examination for MD/MS shall be held at the end of three Academic Years.
- (2) Examinations shall be organized on the basis of marking system.
- (3) The period of training for obtaining MD/MS degrees shall be three completed years including the period of examination.
- (4) The University shall conduct not more than two examinations in a year for any subject with an interval of not less than 4 months and not more than 6 months between the two examinations.
- (5) The examinations shall consist of:
 - (a) Thesis :
 - i. Thesis shall be submitted at least six months before the main Theory examinations.
 - ii. The thesis shall be examined by a minimum of three examiners – one Internal and

two External examiners who shall not be the examiners for Theory and Clinical/Practical.

- iii. In departments where besides the two earmarked practical/clinical examiners no one else is a qualified P.G. teacher, in that case the Thesis shall be sent to the third external examiner who shall actually be in place of the internal examiner.
- iv. Only on the acceptance of the thesis by any two examiners, the candidate shall be eligible to appear for the final examination.
- v. A candidate whose thesis has been once approved by the examiners will not be required to submit the Thesis afresh, even if he/she fails in theory and/or practical of the examination of the same branch.
- vi. In case the Thesis submitted by a candidate is rejected, he/she should be required to submit a fresh Thesis.

(b) Theory papers:

- i. There shall be four theory papers.
- ii. Each theory paper examination shall be of three hours duration.
- iii. Each theory paper shall carry maximum 100 marks.
- iv. The question papers shall be set by the External Examiners.
- v. There will be a set pattern of question papers.

Every question paper shall contain three questions. All the questions shall be compulsory, having no choice.

Question No. 1 shall be of long answer type carrying 20 marks.

Question No. 2 shall have two parts of 15 marks each. Each part will be required to be answered in detail.

Question No. 3 shall be of five short notes carrying 10 marks each.

- vi. The answer books of theory paper examination shall be evaluated by two External and two internal examiners. Out of the four paper setters, the two paper setters will be given answer books pertaining to their papers and the answer books of the remaining two papers will be evaluated by two Internal Examiners. It will be decided by the President as to which paper is to be assigned to which Internal Examiner for evaluation.
- vii. A candidate will be required to pass theory and practical examinations separately in terms of the governing provisions pertaining to the scheme of examination in the post graduate regulations. The examinee should obtain minimum 40% marks in each theory paper and not less than 50% marks cumulatively in all the four papers for degree examination to be cleared as “passed” at the said Degree examination.

(c) Clinical/ Practical & Oral examinations:

- i. Clinical/Practical and Oral Examination of 400 marks will be conducted by at least four examiners, out of which two (50%) shall be External Examiners.
- ii. A candidate will be required to secure at least 50% (viz. 200/400) marks in the Practical including clinical and viva voce examinations.

(6) If a candidate fails in one or more theory paper(s) or practical, he/she shall have to reappear in the whole examination i.e. in all theory papers as well as practical.

GRACE MARKS

No grace marks will be provided in MD/MS examinations.

REVALUATION / SCRUTINY:

No Revaluation shall be permitted in the MD/MS examinations. However, the student can apply for scrutiny of the answer books as per University Rules.

GUIDELINES FOR COMPETENCY BASED POSTGRADUATE TRAINING PROGRAMME FOR MD IN FORENSIC MEDICINE (9140)

Preamble:

The purpose of PG education is to create specialists who would provide high quality health care and advance the cause of science through research & training.

This programme is meant to standardize and strengthen Forensic Medicine teaching at the post graduate level throughout the country so that it will benefit the judiciary and the legal system of the country in providing justice which will ultimately benefit the community at large. It will also help in achieving uniformity in undergraduate teaching.

The purpose of this document is to provide teachers and learners illustrative guidelines to achieve defined outcomes through learning and assessment. This document was prepared by various subject-content specialists. The Reconciliation Board of Academic Committee has attempted to render uniformity without compromise to purpose and content of the document. Compromise in purity of syntax has been made in order to preserve the purpose and content. This has necessitated retention of “domains of learning” under the heading “competencies”.

SUBJECT SPECIFIC LEARNING OBJECTIVES

The **Goal** of MD Forensic Medicine is to train a doctor to become a competent medico-legal expert, teacher and researcher in the subject who:

1. is aware of medico legal aspects in various settings
2. *is aware of contemporary advances and developments* in the field of Forensic Medicine.
3. has *acquired the competencies* pertaining to the subject of Forensic Medicine that are required to be practiced at all levels of health system.
4. is oriented to the *principles of research methodology*.
5. has acquired *skills in educating* and imparting training to medical, paramedical and allied professionals.

A post graduate student, upon successfully qualifying in the M.D (Forensic Medicine) examination, should be able to:

1. Become an expert in Forensic Medicine.
2. Identify and define medico-legal problems as they emerge in the community and work to resolve such problems by planning, implementing, evaluating and modulating Medico- legal services.
3. Undertake medico-legal responsibilities and discharge medico-legal duties in required settings.
4. Keep abreast with all recent developments and emerging trends in Forensic Medicine, Medical Ethics and the law.
5. Deal with general principles and practical problems related to forensic, clinical, emergency, environmental, medico-legal and occupational aspects of toxicology.
7. Deal with medico-legal aspects of Psychiatry, mental health and drug addiction.
8. Impart education in Forensic Medicine and Toxicology to under-graduate and post-graduate students with the help of modern teaching aids.
9. Assess the students’ knowledge and skills in the subject of Forensic Medicine
10. Oriented to research methodology and conduct of research in the subject

SUBJECT SPECIFIC COMPETENCIES

By the end of the course, the student should have acquired knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as given below:

A. Cognitive domain

1. Describe the legal and medico-legal system in India.
2. Acquire knowledge on the philosophy and guiding principles of Forensic Medicine course.
3. Describe the programme goals and objectives of the Forensic Medicine course.
4. Acquire knowledge on conduct of medico-legal autopsy independently with required physical assistance, prepare report and derive inferences.
5. Outline the principles and objectives of postmortem examination.
6. Describe the formalities and procedures of medico-legal autopsies in accordance with existing conventions and the law.
7. Identify the role of anatomy, physiology, biochemistry, microbiology, pathology, blood bank, psychiatry, radiology, forensic science laboratory as well as other disciplines of medical science to logically arrive at a conclusion in medico-legal autopsies and examination of medico-legal cases.
8. Describe the principles of the techniques used in toxicological laboratory namely TLC (Thin Layer Chromatography), GLC (Gas Liquid Chromatography), AAS (Atomic Absorption Spectrophotometry), HPLC (High Performance Liquid Chromatography) and Breath Alcohol Analyzer.
9. Describe relevant legal/court procedures applicable to medico-legal/medical practice.
10. Describe the general forensic principles of ballistics, serology, analytical toxicology and photography.
11. Interpret, analyze and review medico-legal reports prepared by other medical officers at the time of need.
11. Describe role of DNA profile and its application in medico-legal practice.
12. Describe the law/s relating to poisons, drugs, cosmetics, narcotic drugs and psychotropic substances.
13. Describe the legal and ethical aspects of Forensic Procedures including Narco-analysis, Brain mapping and Polygraph etc.
14. Describe the medico-legal aspects of Psychiatry, addiction and mental health.

B. Affective domain

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the clinician or other colleagues to provide the best possible opinion.
2. Should be able to follow ethical principles in dealings with patients, police personnel, relatives and other health personnel and to respect their rights.
3. Follow medical etiquettes in dealing with each other.
4. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

C. Psychomotor domain

At the end of the course, the student should acquire following skills and be able to:

1. Perform medico-legal autopsy independently with required physical assistance, prepare report and derive inferences.
2. Perform medico-legal examination of users of alcohol, drugs and poisons and prepare report.

3. Perform medico-legal examination in cases of sexual offences and prepare report.
4. Interpret histo-pathological, microbiological, radiological, chemical analysis, DNA profile and other investigative reports for medico-legal purposes.
5. Perform medico-legal examination of bones, clothing, wet specimens and weapons.
6. Depose as an expert witness in a court of Law on medico-legal matters.
7. Examine, identify, prepare reports and initiate management on medico-legal cases in emergency set up.
8. Identify and discharge all legal responsibilities in medico-legal matters.
9. Plan, organize and supervise medico-legal work in general/teaching/district hospitals and in any health care set up.
10. Collect, preserve and dispatch various samples and trace evidences to the concerned authorities in appropriate manner.
11. Help and Advise authorities on matters related to medical ethics and medico-legal issues.
12. Discharge duties in respect of forensic, clinical, emergency, environmental, medico-legal and occupational aspects of toxicology.
13. Plan, organize and manage toxicological laboratory services in any health care set up.
14. Provide information and consultation on all aspects of toxicology to professionals, industry, Government and the public at large.
15. Manage medico-legal responsibilities in mass disasters involving multiple deaths like fire, traffic accident, aircraft accident, rail accident and natural calamities.
16. Do interaction with allied departments by rendering services in advanced laboratory investigations and relevant expert opinion.
17. Participate in various workshops/seminars/journal clubs/demonstration in the allied departments, to acquire various skills for collaborative research.

Time frame to acquire knowledge & skills:

First year of PG programme:

1. Orientation Programme
2. Basic autopsy skills.
3. Orientation to the applied aspects of Anatomy, Physiology, Biochemistry
4. General principles of Forensic Medicine.
5. Introduction to Medical Toxicology.
6. Assisting in scheduling of teaching sessions.
7. Participation in undergraduate teaching.
8. Posting for autopsy work, clinical forensic medicine and toxicology.
9. Participation in departmental activities
10. Participation in seminar, CME, workshop etc.
11. Orientation to organization and functioning of toxicology/research laboratory.
12. Preparation of thesis protocol.
13. Being self-updated with recent advances in the subject

Second year of PG programme:

1. Conduct of autopsy examination without supervision in routine autopsy cases
2. Conduct of autopsy examination with supervision in expert opinion cases.
3. Conduct of theory and practical sessions for undergraduates
4. Thesis and other research work
5. Clinical forensic medicine work for practical experience in medico-legal procedures and on-the-job practical training in medico-legal aspects of emergency medicine, radiology and other clinical disciplines.
6. Orientation to the applied aspects of Microbiology, Pathology, Blood Bank, Psychiatry

as related to forensic sciences.

7. Posting for autopsy work, clinical forensic medicine and toxicology laboratory.
8. Attend court summons for cases conducted by themselves or where deputed to attend in cases where an expert is required to depose by Court of Law

Third year of PG programme:

1. Organize teaching sessions and thesis work.
2. Submission of thesis six months prior to examination.
3. Posting for autopsy work, clinical forensic medicine and toxicology laboratory to continue.
4. The PG trainee shall be required to conduct minimum of 100 autopsy cases and minimum of 100 clinical cases during the entire training period.
5. Attend Court summons for cases conducted by themselves or when deputed where an expert is required to depose by the Court of Law.
6. The PG trainee shall be required to attend or accompany an expert to attend a minimum of 20 court summons, of which at least 5 should pertain to clinical cases.

SYLLABUS

Course contents:

I. General Principles of Forensic Medicine and Toxicology

1. Identify the role of anatomy, physiology, biochemistry, microbiology, pathology, blood bank, psychiatry, radiology, forensic science laboratory as well as other disciplines of medical science to logically arrive at a conclusion in medico-legal autopsies and examination of medico-legal cases.
2. Describe the basic principles of techniques used in toxicological laboratory namely TLC, GLC, ASS, HPLC and Breath Alcohol Analyzer.
3. Execute the skills and knowledge expected at undergraduate level.

II. Basic Sciences and allied Subjects

1. **Anatomy:** Anatomy of parts and organs of the body which are important from the medico-legal aspect.
 - Describe surface and regional anatomy of head, neck, chest and abdomen.
 - Describe gross anatomy and blood supply of heart, brain, lungs, spleen, liver and kidneys.
 - Describe gross anatomy of male and female genitalia.
 - Describe the comparative anatomy of male and female skeleton.
 - Perform histological examination of various tissues.
 - Describe the development of foetus.
2. **Physiology and Biochemistry:** Mechanism of phenomena that are important in the body from the medico-legal viewpoint.
 - Describe mechanism of fluid and electrolyte balance, thermoregulation in newborn and adults, endocrine functions.
 - Describe physiology of sexual behavior.
 - Describe physiological functioning of circulatory system, digestive system, respiratory system, haemopoietic system, central nervous system and reproductive system including pregnancy.

3. **Pathology:** Pathophysiology of vital processes and response mechanisms that modulate tissue and organ reaction to all forms of injury and have a bearing on antemortem and postmortem appearance in medico-legal cases, assessment of the duration of injuries and correlate trauma and disease.
 - Describe pathology of inflammation and repair, immunity and hypersensitivity, Thrombosis and embolism, electric and ionizing radiation injuries, genetic factors in disease, deficiency disorders and malnutrition.
 - Describe pathology of myocardial infarction, congenital heart diseases, tuberculosis of lungs, cirrhosis of liver, diseases of glomeruli and tubules and interstitial; tissues of Kidney, tumours, endocrine disorders, venereal diseases, spontaneous intracranial hemorrhages.
 - Describe the pathology of sudden death.
 - Describe local and systemic response to trauma and patho-physiology of shock.
 - Describe pathology of common infections and infestations of medico-legal significance.
4. **Dentistry:** Adequate knowledge of dentistry for solution of medico-legal problems like, injuries, age determination and identification
5. **Radiology:** Adequate knowledge of radiological procedures for solution of medico-legal problems.
6. **Fundamentals of Forensic Medicine:**
 - Describe the general forensic principle of ballistics, serology, analytical toxicology and photography.
 - Interpret the scene of crime.
 - Describe role of DNA profile and its application in medico-legal practice.
 - Examine bloodstains for blood grouping, nuclear sexing, HLA typing, seminal stains and hair for medico-legal purpose.
 - Describe ethical aspects of Forensic Procedures including Narco-analysis, Brain mapping and Polygraph

III. Medical Ethics and Law (Medical Jurisprudence)

1. Describe the history of Forensic Medicine.
2. Describe the legal and medico-legal system in India.
3. Describe medical ethics and the law in relation to medical practice, declarations, oath, etiquette, Medical Council of India, disciplinary control, rights and duties of a registered medical practitioner's professional misconduct, consent, confidentiality, medical negligence (including all related issues) and Consumer Protection Act.
4. Describe medical ethics and law in relation to organ transplantation, biomedical human research and experimentation, human rights, cloning, genetic engineering, human genome, citizen's charter and International codes of medical ethics.
5. Describe the ethics and law in relation to artificial insemination, abortion, antenatal sex, foetus, genetics and euthanasia.
6. Interpret the ethics and law applicable to the human (clinical trials) and animal experimentation.
7. Describe ethics in relation to elderly, women and children.
8. Describe medical ethics and law in relation to nursing and other medical services/practices.
9. Understanding about bio-ethics

IV. Clinical Forensic Medicine

1. Examine, assess legal implications and prepare report or certificate in cases of physical assault, suspected drunkenness, sexual offences, consummation of marriage and disputed paternity.
2. Collect, preserve and dispatch the specimen/material to the concerned authority and interpret the clinical and laboratory findings which are reported.
3. Examine injured person, prepare medico-legal report and initiate management.
4. Determine the age and establish identity of an individual for medico-legal purpose.
5. Examine a person and assess disability in industrial accidents and diseases.
6. Perform examination and interpret findings for medico-legal purposes in cases pertaining to pregnancy, delivery, artificial insemination, abortion, sterilization, Impotence, AIDS and infectious disease.
7. Describe normal and abnormal sexual behavior and its medico-legal implications.
8. Examine and assess the medical fitness of a person for insurance, government service, sickness and fitness on recovery from illness.
9. Examine medico-legal problems related to clinical disciplines of medicine and allied subjects, Pediatrics, Surgery and allied subjects, ENT, Ophthalmology, Obstetrics and Gynecology, Dermatology and Anesthesiology.
10. Examine medico-legal problems related to children, women and elderly.
11. Identify the cases of torture and violation of human rights and issues thereto

V. Forensic Pathology

1. Apply the principles involved in methods of identification of human remains by race, age, sex, religion, complexion, stature, hair, teeth, anthropometry, dactylography, foot prints, hairs, tattoos, poroscopy and superimposition techniques.
2. Perform medico-legal postmortem and be able to exhume, collect, preserve and dispatch specimens or trace evidence to the appropriate authority.
3. Diagnose and describe the pathology of wounds, mechanical and regional injuries, ballistics and wound ballistics, electrical injuries, lightning, neglect and starvation, thermal injuries, deaths associated with sexual offences, pregnancy, delivery, abortion, child abuse, dysbarism and barotraumas.
4. Describe patho-physiology of shock and neurogenic shock.
5. Describe patho-physiology of asphyxia, classification, medico-legal aspects and postmortem findings of different types of asphyxial deaths.
6. Diagnose and classify death, identify the signs of death, postmortem changes, interpret autopsy findings, artifacts and results of the other relevant investigations to logically conclude the cause, manner (suicidal, homicidal and accidental) and time of death.
7. Manage medico-legal responsibilities in mass disasters involving multiple deaths like fire, traffic accident, aircraft accident, rail accident and natural calamities.
8. Demonstrate postmortem findings in infant death and to differentiate amongst live birth, still birth and dead born.
9. Perform postmortem examination in cases of death in custody, torture and violation of human rights.
10. Perform postmortem examination in cases of death due to alleged medical negligence as in operative and anesthetic deaths.

VI. Toxicology

1. Describe the law relating to poisons, drugs, cosmetics, narcotic drugs and psychotropic substances.
2. Examine and diagnose poisoning cases and apply principles of general management and organ system approach for the management of poisoning cases.

3. Describe the basic principles of pharmacokinetics and pharmacodynamics of poisonous substances.
4. Describe the toxic hazards of occupation, industry, environment and the principles of predictive toxicology.
5. Collect, preserve and dispatch material/s for analysis, interpret the laboratory findings and perform the Medico-legal formalities in a case of poisoning.
6. Demonstrate the methods of identification and analysis of common poisons
7. Describe the signs, symptoms, diagnosis and management of common acute and chronic poisoning due to:
 - a. Corrosives
 - b. Nonmetallic substances
 - c. Insecticides and weed killers
 - d. Metallic substances
 - e. Vegetable and organic irritants
 - f. Somniferous compounds
 - g. Inebriant substances
 - h. Deliriant substances
 - i. Food Contamination/adulteration.
 - j. Substances causing spinal and cardiac toxicity
 - k. Substances causing asphyxia (Asphyxiants)
 - l. Household toxins
 - m. Toxic envenomation
 - n. Biological and chemical warfare
 - o. Environmental intoxicants
 - p. Occupational intoxicants

VII. Forensic Psychiatry

1. Explain the common terminologies of forensic importance in Psychiatry.
2. Describe the medico-legal aspects of Psychiatry and mental health.
3. Describe medico-legal aspects of drug addiction.
4. Describe role of Psychiatry in criminal investigation, punishment and trial.
5. Describe the civil and criminal responsibilities of a mentally ill person.
6. Describe the role of Psychology in criminal investigation, punishment and trial

TEACHING AND LEARNING METHODS

Teaching methodology

1. **Lectures:** Lectures are to be kept to a minimum. They may, however, be employed for teaching certain topics. Lectures may be didactic or integrated.
The course shall be of three years, organized in six units (0-5). This modular pattern is a guideline for the department, to organize training. Training programme can be modified depending upon the work load and academic assignments of the department.
2. **Journal Club & Subject seminars:** Both are recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter in the Log Book relevant details. Further, every PG trainee must make a presentation from the allotted journal(s), selected articles and a total of 12 seminar presentations in three years. The presentations would be evaluated and would carry weightage for internal assessment.
3. **Case Presentations:** Minimum of 5 cases to be presented by every PG trainee each year. They should be assessed using check lists and entries made in the log book

4. **Clinico-Pathological correlation \ Conference:** Recommended once a month for all post graduate students. Presentation is to be done by rotation. If cases are not available, it could be supplemented by published CPCs.
5. **Inter-Departmental Meetings:** These meetings should be attended by post graduate students and relevant entries must be made in the Log Book.
6. **Teaching Skills:** The postgraduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
7. Undertake audit, use information technology tools and carry out research, both basic and clinical, with the aim of publishing his work and presenting his work at various scientific fora.
8. **Continuing Medical Education Programmes (CME):** At least two CME programmes should be attended by each student in 3 years.
9. **Conferences:** The student to attend courses, conferences and seminars relevant to the speciality.
10. A postgraduate student of a postgraduate degree course in broad specialities/super specialities would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.
11. **Rotation:** Other than the Department of Forensic Medicine, student may be posted for training in the following clinical disciplines for a given period of time on rotational basis:

	Place of posting	First year	Second year	Third year
01	Trauma & Emergency/ Casualty / Emergency medicine department	1 month	15 days	15 days
02	Radiology	7 days	5 days	3 days
03	Psychiatry	5 days	3 days	2 days
04	Forensic science lab	7 days	15 days	Not required
05	Histopathology	7 days	5 days	3 days

12. Department should encourage e-learning activities.

ASSESSMENT

FORMATIVE ASSESSMENT, ie., during the training

General Principles

Internal Assessment should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills. The Internal Assessment should be conducted in theory and clinical examination.

Quarterly assessment during the MD training should be based on following educational activities:

1. **Journal based / recent advances learning**
2. **Patient based /Laboratory or Skill based learning**
3. **Self directed learning and teaching**
4. **Departmental and interdepartmental learning activity**
5. **External and Outreach Activities / CMEs**

The student to be assessed periodically as per categories listed in postgraduate student appraisal form (Annexure I).

SUMMATIVE ASSESSMENT, ie., assessment at the end of training

The Postgraduate examination shall be in three parts:

The summative examination would be carried out as per the Rules given in POSTGRADUATE MEDICAL EDUCATION REGULATIONS, 2000.

The examination shall be in three parts:

1. Thesis

Every post graduate student shall carry out work on an assigned research project under the guidance of a recognised Post Graduate Teacher, the result of which shall be written up and submitted in the form of a Thesis. Work for writing the Thesis is aimed at contributing to the development of a spirit of enquiry, besides exposing the post graduate student to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature.

2. Theory:

The examinations shall be organized on the basis of 'Grading' or 'Marking system' to evaluate and to certify PG trainee's level of knowledge, skill and competence at the end of the training. The examination for M.D. shall be held at the end of 3rd academic year. An academic term shall mean six month's training period.

There shall be four papers each of three hours duration. These are:

Theory Examination: There shall be four theory papers.

Paper I: Basic of Forensic Medicine, basic sciences and allied subjects.

Paper II: Clinical Forensic Medicine and medical jurisprudence.

Paper III: Forensic pathology and toxicology.

Paper IV: Recent advances in Forensic Medicine, Forensic Psychiatry and Medical Toxicology, applied aspects of clinical disciplines and forensic sciences

3. Practical Examination:

Practical examination would be spread over two days and should be as follows:

Day 1

Clinical Cases - (any 4) Age estimation, injury report, examination of an insane person to evaluate criminal/civil responsibility, examination of an intoxicated person, examination of a suspected case of poisoning (acute/chronic), disputed paternity case and sexual offences (accused and victim).

- Spots - (10) Histopathology slides, photographs, exhibit material, X-rays, mounted specimens, bones, poisons and weapons, charts etc.
- Toxicology Exercises - (02) Identification and details of common poisons or chemical tests etc.
- Laboratory Tests - (01) Identification of biological stains (Semen, Blood, Body fluids), Histopathology slides of medico legal relevance, gram and acid fast staining etc.

Day 2

- Postmortem Examination.
- Thesis/Seminar Presentation - For assessment of research/teaching ability
- Discussion on a case for expert opinion

- Grand Viva Voce.

Recommended Reading

Books (latest edition)

- Subramanyam BV. Modi's Medical Jurisprudence and Toxicology. Butterworths India, New Delhi.
- Nundy A. Principles of Forensic Medicine, New Central Book Agency Calcutta.
- Lyon's Medical Jurisprudence for India. Delhi Law House, Delhi.
- Reddy KSN. The Essentials of Forensic Medicine and Toxicology, K. Saguna Devi Publishers, Hyderabad.
- Parikh CK. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology, CBS Publishers and Distributors, New Delhi.
- Bernard Knight. Forensic Pathology. Arnold Publishers London.
- Di Maio VJ, Di Maio D. Forensic Pathology. CRC Press New York.
- Camps FE. Gradwohl's legal Medicine. Bristol: John Wright and Sons Ltd.
- American College of Legal Medicine Textbook Committee. Legal Medicine Mosby Publishers, USA.
- Di Maio VJM. Gunshot Wounds, CRC Press USA.
- Gordon I, Shapiro HA, Berson SD. Forensic Medicine – A Guide to Principle. Churchill Livingstone New York.
- Mant AK. Taylor's Principles and Practice of Medical Jurisprudence, Churchill Livingstone, New York.
- Parikh CK. Medicolegal Postmortems in India. Medical Publications, Bombay.
- Gresham GA, Turner AF. Postmortem Procedures An illustrated Text Book. Wolfe Medical Publications.
- Ludwig J. Current Methods of Autopsy Practice. WB Saunders Company, London.
- Gordon I, Turner R. Medical Jurisprudence E and S Livingstone Ltd. London.
- Spitz WU, Fisher RS. Medico-legal Investigation of Death. Charles Thomas Publishers.
- Schroeder O.C. Dental Jurisprudence. PSG Publishing Company, Littleton, Massachusetts.
- Stark MM. A Physicians Guide to Clinical Forensic Medicine. Humana Press Totowa, New Jersey.
- Olshakar JS, Jackson JS, Jackson MC, Smock WS. Forensic Emergency Medicine. Lippincott William and Wilkins, Philadelphia.
- Norah Rudin, Keith Inman. An introduction to Forensic DNA Analysis. CRC Press, London.
- Robertson J, Ross AM, Burgoyne LA. DNA in Forensic Science - Theory, Technique and Application. Ellis Horwood, UK
- Curry AS. Method of Forensic Science Vol. I-III. Inter-science Publishers London.
- Clement JG, Ranson DL. Craniofacial Identification in Forensic Medicine. Arnold Publishers, London.
- Sellier GK, Kneubuechl BP. Wound Ballistics and the scientific background. Elsevier, Amsterdam.
- Bernard Knight. Simpson's Forensic Medicine. Arnold Publishers London.
- Bernard Knight. Legal aspects of Medical Practice. Churchill Livingstone New York.
- Gunn and Taylor. Forensic Psychiatry Clinical, Legal and Ethical issues. Butterworth Heinemann
- G Gustafson. Forensic Odontology. Staples Press.

- Gonzalez TA. Legal Medicine, Pathology and Toxicology- Appleton Century- Crofts Inc. New York.
- Hirsch CS, Morris RC, Moritz AR. Handbbok of Legal Medicine. CV Mosby Company London.
- Lincoln PJ, Thomas J. Forensic DNA Profiling Protocols. Methods in Molecular Biology, Vol. 98, Humana Press, Totowa, New Jersey.
- Lee HC, Gaensslen RE. DNA and other polymorphism in Forensic Science. Yearbook Medical Publishers, London.
- Bergaus G, Brinkmann B, Rittner C. Staak M. (Eds.). DNA Technology and its Forensic Application. Springer- Verlag. Berlin
- Beveridge A. Forensic Investigation of Explosions. Taylor and Francis USA.
- Jay Dix. Colour Atlas of Forensic Pathology. CRC Press New York.
- Bernard Knight. (ed.) The Estimation of Time since Death in the early Post Mortem Period. Arnold Publishers London.
- Mant AK. Modern Trends in Forensic Medicine 1-3. Butterworth, London.
- Luntz and Luntz. Handbook for Dental Identification. JB Lippincott. Toronto.
- Buttler JM. Forensic DNA Typing. Academic Press New York.
- MasonJK. Forensic Medicine- an illustrated reference. Chapman and Hall, London.
- Mason JK. Paediatric Forensic Medicine and Pathology. Chapman and Hall, London.
- Patnaik VP. MKR Krishnan's handbook of Forensic Medicine. Paras Publishing.
- Lundquist Frank. Methods of Forensic science, vol. II, Interscience publishers.
- Mehta HS. Medical, Law and Ethics in India. The Bombay Samachar Pvt. Ltd.
- Gaur's firearms, Forensic Ballistics, Forensic Chemistry and Criminal Jurisprudence. Law Publishers (India) Pvt. Ltd. Allahabad.
- Tedeschi Eckert. Forensic Medicine Vol. I -IV, WB Saunders Company.
- Polson, Gee, Knight. The Essentials of Forensic Medicine. Pergomann Press, UK.
- Redsicker DR. Forensic Photography, CRC Press USA.
- Krogmann. Human skeleton in Forensic Medicine.
- Abdullah Fateh. Handbook of Forensic Pathology
- Simpson K. Taylor's Principle and Practice of Medical Jurisprudence. Vol. I-II.
- Krishan Vij. Textbook of Forensic Medicine and Toxicology, Churchill Livingstone.
- Pillay VV. Textbook of Forensic Medicine and Toxicology, Paras Publishing, Hyderabad.
- Mukherjee JB. Textbook of Forensic Medicine and Toxicology, Arnold's Publishers, London.
- Henry J, Wiseman H. Management of Poisoning. Published by WHO, UNEP and ILO.
- Flanagan RJ et al. Basic Analytical Toxicology. Published by WHO, UNEP and ILO.
- Guidelines for Poison Control. Published by WHO, UNEP and ILO
- Genetics in Medicine – J. S. Thompson and M.W. Thompson.
- Research – How to plan, speak and write about it – C. Hawkins and M. Sorgi.

Journals

03-05 international Journals and 02 national (all indexed) journals

**Postgraduate Students Appraisal Form
Pre / Para /Clinical Disciplines**

Name of the Department/Unit :

Name of the PG Student :

Period of Training:

FROM.....TO.....

Sr. No.	Particulars	Not satisfactory	Satisfactory	More Than Satisfactory	Remarks
		1 2 3	4 5 6	7 8 9	
1.	Journal based/recent advances learning				
2.	Patient based/Laboratory or Skill based learning				
3.	Self directed learning and teaching				
4.	Departmental and interdepartmental learning activity				
5.	External and Outreach Activities/CMEs				
6.	Thesis/Research work				
7.	Log Book Maintenance				

Publications

Yes/ No

Remarks* _____

*REMARKS: Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.

SIGNATURE OF
ASSESSEE

SIGNATURE OF
CONSULTANT

SIGNATURE OF HOD

MD-9141

MODEL PAPER

Foren.Med.-I

**MD Examination Month, Year
FORENSIC MEDICINE**

**Paper –I
Basic of Forensic Medicine, Basic Sciences and Allied Subjects**

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

- Q.1 Describe blood supply of Heart and its medico legal significance. 20
- Q.2 Describe in detail : 2x15=30
- a. Breath alcohol analyzer
 - b. Describe Gross Anatomy of Female genitalia.
- Q.3 Write short notes : 5x10=50
- a. HPLC
 - b. Differentiate Male & Female pelvis
 - c. Mechanism of fluid & electrolyte balance
 - d. Medico legal Significance of blood group
 - e. Narcoanalysis

MD-9142

MODEL PAPER

Foren.Med.-II

**MD Examination Month, Year
FORENSIC MEDICINE**

**Paper –II
Clinical Forensic Medicine & Medical Jurisprudence**

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

- Q.1 Describe IPC 375 in details 20
- Q.2 Describe in Detail: 2x15=30
- a. Medicolegal significance of Age
 - b. Types of Abrasion and its Medico legal Significance
- Q.3. Write short notes : 5x10=50
- a. Transvestism
 - b. Surrogacy
 - c. Disputed Paternity
 - d. Positive Signs of Pregnancy
 - e. AIDS and its Medico legal Significance

MD-9143

MODEL PAPER

Foren.Med.-III

**MD Examination Month, Year
FORENSIC MEDICINE**

**Paper –III
Forensic Pathology & Toxicology**

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

- Q.1 Enumerate various types of autopsy and discuss virtual autopsy 20
- Q.2 Describe in detail : 2x15=30
- a. Describe patho-physiology of Shock
 - b. Dactylography and its Medicolegal significance.
- Q.3 Write short notes : 5x10=50
- a. Drug addiction
 - b. Chronic cocaine poisoning
 - c. Heroin
 - d. Differential Diagnosis of opium poisoning
 - e. Toxalbumin

MD-9144

MODEL PAPER

Foren.Med.-IV

**MD Examination Month, Year
FORENSIC MEDICINE**

Paper –IV

**Recent advances in Forensic Medicine, Forensic Psychiatry & Medical Toxicology
Applied Aspect of Clinical Disciplines and Forensic Sciences**

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

- Q.1 Describe role of DNA and its Medicolegal Significance. 20
- Q.2 Write in detail : 2x15=30
- a. MC – Naughten Rule
 - b. Professional Misconduct
- Q.3 Write short notes : 5x10=50
- a. Medical Negligence
 - b. Forensic Photography
 - c. Locard's Exchange Principle
 - d. Mental Health Act 1987
 - e. Written expressed Consent