

## *Syllabus*

### **I. General Principles of Forensic Medicine and Toxicology**

- i. 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.
- ii. Describe the basic principles of techniques used in toxicological laboratory namely TLC, GLC, ASS, HPLC and Breath Alcohol Analyzer.
- iii. Execute the skills and knowledge expected at undergraduate level.

### **II. Basic Sciences and allied Subjects**

#### **A. Anatomy:** Anatomy of parts and organs of the body which are important from the medico-legal aspect.

- i. Describe surface and regional anatomy of head, neck, chest and abdomen.
- ii. Describe gross anatomy and blood supply of heart, brain, lungs, spleen, liver and kidneys.
- iii. Describe gross anatomy of male and female genitalia.
- iv. Describe the comparative anatomy of male and female skeleton.
- v. Perform histological examination of various tissues.
- vi. Describe the development of foetus.

#### **B. Physiology and Biochemistry:** Mechanism of phenomena that are important in the body from the medico-legal viewpoint.

- i. Describe mechanism of fluid and electrolyte balance, thermoregulation in newborn and adults, endocrine functions.
- ii. Describe physiology of sexual behavior.
- iii. Describe physiological functioning of circulatory system, digestive system, respiratory system, haemopoietic system, central nervous system and reproductive system including pregnancy.

**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.

- iv. 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.
- v. 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.
- vi. Describe the pathology of sudden death.
- vii. Describe local and systemic response to trauma and patho-physiology of shock.
- viii. Describe pathology of common infections and infestations of medico-legal significance.

**C. Dentistry:** Adequate knowledge of dentistry for solution of medico-legal problems like, injuries, age determination and identification

**D. Radiology:** Adequate knowledge of radiological procedures for solution of medico-legal problems.

**E. Fundamentals of Forensic Medicine:**

- i. Describe the general forensic principle of ballistics, serology, analytical toxicology and photography.
- ii. Interpret the scene of crime.
- iii. Describe role of DNA profile and its application in medico-legal practice.
- iv. Examine bloodstains for blood grouping, nuclear sexing, HLA typing, seminal stains and hair for medico-legal purpose.
- v. Describe ethical aspects of Forensic Procedures including Narco-analysis, Brainmapping and Polygraph

### **III. Medical Ethics and Law (Medical Jurisprudence)**

- i. Describe the history of Forensic Medicine.
- ii. Describe the legal and medico-legal system in India.
- iii. 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.
- iv. 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.
- v. Describe the ethics and law in relation to artificial insemination, abortion, antenatal sex, foetus, genetics and euthanasia.

Interpret the ethics and law applicable to the human (clinical trials) and animal experimentation.

- vi. Describe ethics in relation to elderly, women and children.
- vii. Describe medical ethics and law in relation to nursing and other medical services/practices.
- viii. Understanding about bio-ethics

### **IV. Clinical Forensic Medicine**

- i. Examine, assess legal implications and prepare report or certificate in cases of physical assault, suspected drunkenness, sexual offences, consummation of marriage and disputed paternity.
- ii. Collect, preserve and dispatch the specimen/material to the concerned authority and interpret the clinical and laboratory findings which are reported.
- iii. Examine injured person, prepare medico-legal report and initiate management.
- iv. Determine the age and establish identity of an individual for medico-legal purpose.
- v. Examine a person and assess disability in industrial accidents and diseases.

- vi. Perform examination and interpret findings for medico-legal purposes in cases pertaining to pregnancy, delivery, artificial insemination, abortion, sterilization, Impotence, AIDS and infectious disease.
- vii. Describe normal and abnormal sexual behavior and its medico-legal implications.
- viii. Examine and assess the medical fitness of a person for insurance, government service, sickness and fitness on recovery from illness.
- ix. 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.
- x. Examine medico-legal problems related to children, women and elderly.
- xi. Identify the cases of torture and violation of human rights and issues thereto

## **V. Forensic Pathology**

- i. 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.
- ii. Perform medico-legal postmortem and be able to exhume, collect, preserve and dispatch specimens or trace evidence to the appropriate authority.
- iii. 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.
- iv. Describe patho-physiology of shock and neurogenic shock.  
Describe patho-physiology of asphyxia, classification, medico-legal aspects and postmortem findings of different types of asphyxial deaths.
- v. 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.
- vi. Manage medico-legal responsibilities in mass disasters involving multiple

deaths like fire, traffic accident, aircraft accident, rail accident and natural calamities.

- vii. Demonstrate postmortem findings in infant death and to differentiate amongst livebirth, still birth and dead born.
- viii. Perform postmortem examination in cases of death in custody, torture and violation of human rights.
- ix. Perform postmortem examination in cases of death due to alleged medical negligence in operative and anesthetic deaths.

## **VI. Toxicology**

- i. Describe the law relating to poisons, drugs, cosmetics, narcotic drugs and
  - a. psychotropic substances.
- ii. Examine and diagnose poisoning cases and apply principles of general management and organ system approach for the management of poisoning cases.
- iii. Describe the basic principles of pharmacokinetics and pharmacodynamics of poisonous substances.
- iv. Describe the toxic hazards of occupation, industry, environment and the principles of predictive toxicology.
- v. Collect, preserve and dispatch material/s for analysis, interpret the laboratory findings and perform the Medico-legal formalities in a case of poisoning.
- vi. Demonstrate the methods of identification and analysis of common poisons
- vii. 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

Biological and chemical warfare

- n. Environmental intoxicants
- P. Occupational intoxicants

## **VII. Forensic Psychiatry**

- i. Explain the common terminologies of forensic importance in Psychiatry.
- ii. Describe the medico-legal aspects of Psychiatry and mental health.
- iii. Describe medico-legal aspects of drug addiction.
- iv. Describe role of Psychiatry in criminal investigation, punishment and trial.
- v. Describe the civil and criminal responsibilities of a mentally ill person.
- vi. Describe the role of Psychology in criminal investigation, punishment and trial

### **MD GENERAL MEDICINE PROGRAMME**

<b>Course Code</b>	<b>Course Title</b>
01110301	MD General Medicine

## ***PROGRAMME OUTCOMES***

### PO & CO Analysis

<b>Sr. No.</b>	<b>By the end of the programme, the Medical Graduate will:</b>
1	A Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion
2	A Leader and member of the health care team and system
3	A Communicator with patients, families, colleagues and community
4	A Lifelong learner committed to continuous improvement of skills and knowledge
5	A Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession

### **Format for Course Outcomes (CO): Forensic Medicine & Toxicology**

<b>Semester</b>	<b>Course</b>	<b>Class</b>	<b>CO No</b>	<b>Statement</b>
Third, Fourth, & Fifth Semester	Forensic Medicine & Toxicology	Second MBBS	FMT.1	Knowledge of court & Law enforcing agencies, Knowledge of Natural & Unnatural Deaths, Certification of Deaths & Organ Transplantation Act

			FMT. 2	Knowledge ,observation ,analysis, interpretation of Postmortem Findings in Various Types of Deaths And Writing of Postmortem Reports
			FMT. 3	Judicious & effective communication with Living Cases of medico-legal examination and Good report writing.

### Course Outcomes (CO): Forensic Medicine & Toxicology

Semester	Course	Class	CO No	Statement
Third, Fourth, & Fifth Semester	Forensic Medicine & Toxicology	Second & Third MBBS Part	FMT.4	Knowledge, Diagnosis and management of common Poisoning cases and writing medico-legal report and Reporting
			FMT.5	Knowledge of various laws and regulation related to hospital service. Knowledge of medico-legal records related to casualty and emergency medico-legal cases
			FMT.6	Acquire Integrated knowledge of Para-clinical and Clinical specialties related to Medico-legal issues
			FMT.7	Knowledge of laws in relation to medical Practice and develop attitude communication and professional skill to handle ethical and medical negligence issues