

SYLLABUS FOR Ph.D IN FORENSIC MEDICINE

Orientation Programme

- Familiarise with the philosophy and guiding principles of MD (Forensic Medicine) course.
- Identify the programme goals, specific objectives and conceptual framework for his/her course.

Basic Autopsy Skills

- Outline & demonstrate to principles and objectives of postmortem examination, formalities and procedures of medico-legal autopsies in accordance with existing conventions and the law.
- Describe and demonstrate the methods for preservation of viscera.

General principles of Forensic Medicine and Toxicology

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

Basic Sciences and Allied Subjects

- A. **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 the 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.

B. Physiology & Biochemistry – Mechanism of phenomenon that are important in the body from the medico legal viewpoint.

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

C. Pathology – Pathophysiology of vital processes and response mechanisms that modulate tissue and organ reaction to all forms of injury and have a bearing on ante mortem and postmortem appearance in medico legal cases, assessment of the duration of injuries and co-relate 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 & tubules and interstitial tissues of kidney, tumours, endocrinal disorders, venereal diseases, spontaneous intracranial haemorrhages.
- 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.

D. Dentistry – Adequate knowledge of dentistry for solution of medico legal problems like age determination and Identification.

E. Radiology – Adequate knowledge of radiological procedures for solution of medico legal problems.

Fundamentals of Forensic Sciences

- Describe the general forensic principle of ballistics, serology, analytical toxicology and photography.
- Interpret the scene of crime.
- Describe role of DNA profile and it's application in medico legal practice.
- Examine – bloodstains for blood grouping, nuclear sexing, HLA Typing, seminal stains & hair for medico-legal purpose.
- Lie detector / polygraph / brain mapping test / Narcoanalysis test.

Medical Ethics & Law (Medical Jurisprudence)

- Describe the history of forensic medicine.
- Describe the legal and medico-legal system in India.
- 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.
- Describe medical ethics and law in relation to organ transplantation, biomedical human research and experimentation, human rights, citizen charter and International codes of medical ethics.
- Describe the ethics and law in relation to artificial insemination, abortion, antenatal sex, fetus, genetics, and euthanasia.
- Interpret the ethics and law applicable to the animal experimentation.
- Describe ethics in relation to aged, women and children.
- Describe medical ethics and law in relation to nursing and other medical services / practices.

Clinical Forensic Medicine

- Examine, assess legal implications and prepare report or certificate in cases of physical assault, suspected drunkenness, sexual offences, consummation of marriage and disputed paternity.
- Collect, preserve & dispatch the specimen/material to the concerned authority and interpret the clinical and laboratory findings which are reported.
- Examine injured person, prepare medico-legal report and initiate management.

- Determine the age and establish identity of an individual for medico-legal purpose.
- Examine a person and assess disability in industrial accidents and diseases.
- Perform examination and interpret findings for medico legal purposes in cases pertaining to pregnancy, delivery, artificial insemination, abortion, sterilization, importance AIDS and infectious disease.
- Describe normal and abnormal sexual behaviour and its medico-legal implications.
- Examine and assess the medical fitness of a person for insurance, government service, sickness and fitness on recovery from illness.
- Examine medico-legal problems related to clinical disciplines of Medicine & allied subjects, Paediatrics, Surgery & allied subjects, ENT, Ophthalmology, Obstetrics & Gynaecology, Dermatology and Anesthesiology.
- Examine medico legal problems related to children, women and elderly.
- Identify the cases of torture and violation of human rights.

Forensic Pathology

- 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.
- Perform medico-legal postmortem and be able to exhume, collect, preserve and dispatch specimens or trace evidence to the appropriate authority.
- Diagnose and describe the pathology of wounds, mechanical and regional injuries, ballistics and wound ballistics, electrical injuries, neglect and starvation, thermal injuries, deaths associated with sexual offences, pregnancy, delivery, abortion, child abuse, dysbarism and barotraumas.
- Describe patho-physiology of shock & neurogenic shock.
- Describe the patho-physiology of asphyxia, classification, medico legal aspects and postmortem findings of different types of asphyxial deaths.
- Diagnose and classify death, identify the signs of death, postmortem changes, interpret the autopsy findings, artifacts and results of the other relevant investigations to logically conclude the cause, manner (suicidal, homicidal and accidental) and time of death.
- Manage medico-legal responsibilities in mass disasters involving multiple deaths like fire, traffic accident, aircraft accident, rail accident and natural calamities.

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

Toxicology

- Describe the law relating to poisons, drugs, cosmetics, narcotic drugs and psychotropic substances.
- Examine & diagnose the poisoning cases and apply principles of general management and organ system approach for the management of poisoning cases.
- Describe the toxic hazards of occupation, industry, environment and the principles of predictive toxicology.
- Collect, preserve and dispatch the material for analysis, interpret the laboratory findings and perform the Medico-legal formalities in a case of poisoning.
- Demonstrate the methods of identification and analysis of common poisons prevalent in the region.
- Describe the signs, symptoms, diagnosis and management of common acute and chronic poisoning due to –
 - Corrosives
 - Nonmetallic substances
 - Insecticides and weed killers
 - Metallic substances
 - Vegetable and organic irritants
 - Somniferous compounds
 - Inebriant substances
 - Deliriant substances
 - Food contamination/adulteration..
 - Substance causing spinal and cardiac toxicity
 - Substances causing asphyxia (Asphyxiants)
 - Household toxins
 - Toxic envenomation
 - Biological and chemical warfare.

Forensic Psychiatry

- Explain the common terminologies of forensic importance in Psychiatry.
- Describe the medico-legal aspects of Psychiatry and mental health.
- Describe medico-legal aspects of drug addiction.
- Describe role of Psychiatry in criminal investigation, punishment and trial.
- Describe the civil and criminal responsibilities of an insane person.
- Restrain of an insane person..

SUGGESTED READING:

1. Subramanyam BV. Modi's Medical Jurisprudence and Toxicology. Butterworths India. New Delhi.
2. Nundy A. Principles of Forensic Medicine. New Central Book Agency Calcutta.
3. Lyon's Medical Jurisprudence for India. Delhi Law House, Delhi.
4. Reddy KSN, The Essentials of Forensic Medicine & Toxicology, K Saguna Devi Publishers. Hyderabad.
5. Parikh CK. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine & Toxicology, CBS Publishers and Distributors, New Delhi.
6. Bernard Knight. Forensic Pathology. Arnold Publishers London.
7. Camps FE. Gradwohl's Legal Medicine. Bristol: John Wright & sons Ltd.
8. Gordon I. Shapiro HA, Berson SD. Forensic Medicine – A Guide to Principle. Churchill Livingstone New York.
9. Mant AK. Taylor's Principles and Practice of Medical Jurisprudence, Churchill Livingstone, New York.
10. Parikh CK. Medicolegal Post Mortems in India. Medical Publications, Bombay.
11. Gresham GA & Turner AF. Postmortem Procedures An illustrated Text Book. Wolfe Medical Publications.
12. Ludwig J. Current Methods of Autopsy Practice. WB saunders Company London.
13. Gordon I. & Turner R. Medical Jurisprudence. E & S Livingstone Ltd. London.
14. Spitz WU. Fisher RS. Medicolegal Investigation of Death. Charles Thomas Publishers.

- 15.Schroeder O.C. Dental jurisprudence. PSG Publishing Company, Littleton. Massachussets.
- 16.Norah Rudin. Keith Inman. An Introduction to Forensic DNA Analysis. CRC Press, London.
- 17.Bernard Knight. Simpson's Forensic Medicine. Arnold Publishers London.
- 18.Bernard Knight. Legal aspects of Medical practice. Churchil Livingstone New York.
- 19.Gunn & Taylor. Forensic Psychiatry – Clinical, Legal and Ethical issues. Butterworth Heinemann.
- 20.G. Gustafson. Forensic Odontology. Staples. Press.
- 21.Gonzalez TA. Legal Medicine. Pathology and Toxicology – Appleton Century – Crofts Inc. New York.
- 22.Beveridge A Forensic Investigation of Explosions. Taylor and Francis USA.
- 23.Mant AK. Modern Trends in Forensic Medicine 1-3. Butterworth, London.
- 24.Mason JK. Forensic Medicine an illustrated reference. Chapman and Hall, London.
- 25.Mason JK. Paediatric Forensic Medicine and Pathology. Chapman and Hall, London.
- 26.Tedeschi Eckert. Forensic Medicine Vol. I-IV.. WB saunders Company.
- 27.Krogmann. Human skeleton in Forensic Medicine.
- 28.Simpson K. Taylor's Principle and Practice of Medical Jurisprudence Vol. I-II.
- 29.Krishan Vij. Textbook of Forensic Medicine and Toxicology. Churchill Livingstone.
- 30.Pillay VV. Textbook of Forensic Medicine and Toxicology. Paras Publishing , Hyderabad.
- 31.JB Mukherjee. Textbook of Forensic Medicine & Toxicology. Arnold's Publishers