

SYLLABUS FOR UNDERGRADUATES IN FORENSIC MEDICINE AND TOXICOLOGY

Learning Objectives

At the end of the course in Forensic Medicine, the learner shall be able to:-

1. Identify, examine and prepare report or certificate in medico-legal cases/situations in accordance with the law of land.
2. Perform medico-legal postmortem examination and interpret autopsy findings and results of other relevant investigations to logically conclude the cause, manner and time since death.
3. Be conversant with medical ethics, etiquette, duties, rights, medical negligence and legal responsibilities of the physicians towards patients, profession, society, state and humanity at large.
4. Be aware of relevant legal/court procedures applicable to the medico-legal/medical practice.
5. Preserve and dispatch specimens in medico-legal/postmortem cases and other concerned materials to the appropriate Government agencies for necessary examination.
6. Manage medico-legal implications, diagnosis and principles of therapy of common poisons.
7. Be aware of general principles of environmental, occupational and preventive aspects of toxicology.

Course contents

FORENSIC MEDICINE (FORENSIC PATHOLOGY)

1. Definition of Forensic Medicine and Medical Jurisprudence.
2. Courts in India and their powers: Supreme Court, High Court, Sessions Court, Additional Sessions Court, Magistrate's Courts.
3. Court procedures: Summons, conduct money, oath, affirmation, perjury, types of witnesses, recording of evidence, conduct of doctor in witness box.
4. Medical certification and medico-legal reports including dying declaration.
5. Death:
 - a) Definition, types; somatic, cellular and brain-death.
 - b) Sudden natural and unnatural deaths.
 - c) Suspended animation.

6. Changes after death:
 - a) Immediate changes, cooling of body, lividity, rigor mortis, cadaveric spasm, cold stiffening and heat stiffening.
 - b) Putrefaction, mummification, adipocere and maceration.
 - c) Postmortem artifacts.
7. Inquest: Inquest by police, magistrate.
8. Identification:
 - a) Definition
 - b) Identification of unknown person, dead bodies and remains of a person by age, sex, stature, dental examination, scars, moles, tattoos, dactylography, DNA typing and personal belonging including photographs.
9. Exhumation.
10. Medico-legal autopsies:
 - a) Definitions of medico-legal and clinical/pathological autopsies.
 - b) Objectives, procedures, formalities of medico-legal autopsies.
 - c) Preservation of articles of importance, during autopsy.
 - d) Preservation of body fluids & viscera in suspected poisoning.
11. Mechanical injuries or wounds:
 - a) Definition, classification of mechanical injuries; description of blunt force, sharp force and firearm injuries.
 - b) Medico-legal aspects of injuries, differences between antemortem and post-mortem injuries, estimation of age of different types of injuries, defence injuries, hesitation cuts; fabricated injuries; simple and grievous hurt, suicidal/accidental/homicidal injuries; causes of death by mechanical injuries. Identification of injuries by torture.
12. Regional injuries: Injuries to Head, Neck, Thorax, Abdomen, Pelvis, Genitalia, Vertebral column and Bones.
13. Injuries due to physical agents and their medico-legal importance; cold, heat, electricity and lightning, explosions and radioactive substances.
14. Asphyxial deaths: Definition, causes, types, post-mortem appearances and medico-legal significance of hanging, strangulation, suffocation and drowning.

15. Deaths due to starvation.
16. Sexual Offences: Virginity, rape, unnatural sexual offences; sexual perversions.
17. Criminal abortion, Medical Termination of Pregnancy, 1971.
18. Infant and childhood deaths: Viability, determination of age of foetus, live birth, still birth and dead born child, sudden infant death syndrome, child abuse, medico-legal aspects of precipitate labour.
19. Biological fluids:
 - a) Blood-Preservation, dispatch of samples, importance of blood group in disputed paternity, hazards of blood transfusion.
 - b) Seminal stains-Preservation and dispatch of samples.

FORENSIC PSYCHIATRY

1. Definition and brief overview of common mental illnesses.
2. True and feigned mental illness.
3. Civil and criminal responsibilities of a mentally ill person.
4. Indian Mental Health Act, 1987 with special reference to admission, care and discharge of a mentally ill person.

MEDICAL JURISPRUDENCE

1. Indian Medical Council and State Medical Councils; their functions and disciplinary control.
2. Rights and privileges and duties of a registered medical practitioner, Disciplinary proceedings and penal erasure.
3. Professional conduct, Etiquette and Ethics in medical practice.
4. Professional secrecy, privileged communication.
5. Medical Negligence: Civil and criminal negligence, contributory negligence, vicarious liability, res ipsa loquitor, prevention of medical negligence and defences in medical negligence suits.
6. Consent: Types, informed consent, age in relation to consent, consent in relation to mental illness and alcohol intoxication, emergency and consent.
7. The Pre-natal Diagnostic Techniques Act (Prohibition of sex selection).
8. Human Organ Transplant Act, 1994.
9. Consumer Protection Act, 1994.
10. Certification of births, deaths, illness and fitness.
11. Euthanasia

TOXICOLOGY

1. General aspects of poisoning: Principles of general toxicology.
2. Duties of doctor in cases of poisoning, medico-legal autopsy in poisoning, preservation and dispatch of viscera for chemical analysis. Role of Forensic Science Laboratory in brief.
3. Types of poisons, diagnosis, principles of therapy and medico-legal aspects of:
 - a) Corrosive poisons: strong mineral acids and organic acids.
 - b) Metallic poisons: Lead, Arsenic, Mercury and Copper.
 - c) Animal poisons: Snake and scorpion bites.
 - d) Deliriant: Dhatura, Cannabis and Cocaine.
 - e) Somniferous agents: Opium Morphine and other opiods.
 - f) Inebriants: Methyl and ethyl alcohol.
 - g) Asphyxiant poisons: Carbon monoxide, Carbon dioxide, Methane and cyanides.
 - h) Anesthetic agents.
 - i) Cardiac poisons:
 - a) Cerbera thevetia and Nerium odorum.
 - b) Cerbera odollam
 - j) Miscellaneous: Aspirin, paracetamol, barbiturates, diazepam, antihistaminics, antidepressants and kerosene oil.
 - k) Insecticides: Organophosphorus compounds, Carbamates and Organochloro compounds, Aluminum phosphide.
 - l) Food poisoning.
 - m) Drug abuse and dependence.

Desirable to know following poisonings:

- a) Inorganic non metallic poisons: Phosphorous.
- b) Organic vegetable irritants: Abrus precatorious, Capsicum, Calotropis, Semicarpus anacardium, Croton.
- c) Cardiac Poisons: Aconite
- d) Convulsants: Strychnine
- e) Paralytic agents, Curare
- f) War gases and Industrial gases
- g) Chloral hydrate
- h) Mechanical poisons

SKILLS

	Skill	Able to perform independently	Able perform under guidance	Assist	Observe
1	Prepare proper certificates of birth and death.				
2	Prepare dying declaration.				
3	Give evidence in a court of law as an expert witness.				
4	Collect and do proper labeling, preservation and dispatch of medico-legal specimens.				
5	Diagnose and manage common acute and chronic poisonings.				
6	Perform the medico-legal duties in case of poisoning.				
7	Observing of ten medico-legal autopsies and enter the reports in a practical record.				
8	Age estimation from bones, x-rays and dentition (mock exercise).				
9	Examination of injuries, weapons and report writing (mock exercise).				
10	Examination of an alcohol intoxicated person and report writing (mock exercise).				
11	Examination of victim and accused in sexual offences and report writing (mock exercise).				
12	Study of specimens of poisons.				
13	Study of wet specimens.				

Suggested topics for e-learning:

1. Examination of an injured patient and report writing.
2. Examination of victim of sexual assault and report writing.

Suggested topics for integrated teaching

1. Death and dying
2. Organ transplant
3. Poisoning
4. Ethical & Medico legal issues in clinical practices
5. Child abuse
6. HIV/AIDS
7. Alcoholism

METHOD OF ASSESSMENT:

Modified essay question, Microscopic examination, Short answer questions, MCQs, Problem solving exercises, OSPE, Records Review, Checklist and Structured Oral Viva Voce

TEACHING LEARNING METHODS:

Structured interactive sessions, Small group discussion, Practical including demonstrations, Problem based exercises, Video clips, Written case scenario, Self learning tools, Interactive learning and e-modules.

TIME OF EVALUATION:

There should be regular formative assessment. Formative assessment, day-to-day performance should be given greater importance. Examination of Forensic Medicine & Toxicology should be at the end of 5th semester and formative assessment in the middle of 3rd, 4th and 5th semester and summative assessment at the end of 5th semester.

LEARNING RESOURCE MATERIALS

Text books, Reference books, Practical note books, Internet resources, Video films etc.

Suggested Textbooks for Forensic Medicine & Toxicology

1. Text book of Forensic Medicine and Toxicology by V.V. Pillay, 15th Edition, Paras Medical Publishing, Hyderabad.
2. Fundamentals of Forensic Medicine and Toxicology by R. Basu, Publishers-Books and Allied (P) Ltd, Kolkata.
3. Guharaj Forensic Medicine, 2nd Edition by P.V. Guharaj, Edited by M.R. Chandran, Orient Longman, Hyderabad.

Reference Books:

1. Modi's Medical Jurisprudence and Toxicology, 23rd Edition, Edited by K. Mathiharan and A.K. Patnaik, Eastern Book Company, Lucknow.
2. Knight's Forensic Pathology, 3rd Edition, Edited by Pekka Saukko and Bernard Knight, Arnold Publication, London, Co-published by Oxford Publications, USA.

Internet:

1. Journal of Indian Congress of Forensic Medicine & Toxicology at www.icfmt.org/