

SYLLABUS FOR PhD IN FORENSIC MEDICINE 2021

**PhD (Doctor of Philosophy)
(FORENSIC MEDICINE)**

COURSE CONTENT (SYLLABUS)

Theme I

(Asphyxial Death, Psychiatry, Basic Sciences and Allied Subjects)

A)Asphyxial Death

Mechanical asphyxia: different types of hanging and strangulation including clinical findings, causes of death, post-mortem findings and medico-legal aspects of death due to hanging and strangulation including examination, preservation and dispatch of ligature material Describe types of injuries, clinical features, patho-physiology, post-mortem findings and medico-legal aspects in cases of burns, scalds, lightening, electrocution and radiations Mechanical asphyxia patho-physiology, clinical features, post-mortem findings and medico-legal aspects of traumatic asphyxia, obstruction of nose & mouth, suffocation and sexual asphyxia,

B)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..
- Determine the age and establish identity of an individual for medico-legal purpose
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C)Basic Sciences and Allied Subjects

The essentials of basic sciences including Anatomy, Physiology, Biochemistry, Pathological basis of various situations pertaining to Forensic Medicine and related aspects of Radiology and Microbiology.

Theme II

(Identification, Thanatology, legal procedure and medical jurisprudence)

A)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.

B)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.

C)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.

D)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.

Theme III

Forensic Trauma

A) Injury

- Injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine Mechanical injuries and wounds, different types of mechanical injuries, abrasion, bruise, laceration, Mechanical injuries and wounds:
- Mechanical injuries and wounds: accidental, suicidal and homicidal injuries. Simple, grievous and dangerous injuries.
- Ante-mortem and post-mortem injuries Mechanical injuries and wounds:
- Different types of mechanical injuries, , stab wound, incised wound, chop wound
- Mechanical injuries and wounds: Describe healing of injury and fracture of bones with its medico-legal importance
- Factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary
- Weapons including dangerous weapons and their examination
- Firearm injuries: types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking
- Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms
- Regional Injuries: head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton Regional Injuries

B)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.
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- 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.

C)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.

Theme IV

Sexual Jurisprudence

A) Child abuse and Infant Deaths

- Describe and discuss child abuse and battered baby syndrome Define and discuss infanticide, foeticide and stillbirth
- Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus ossification centres, Hydrostatic test, Sudden Infants Death syndrome and Munchausen's syndrome by proxy

B) Sexual Offences

- Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases
- Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and dispatch of trace evidences in such cases
- Describe and discuss adultery and unnatural sexual offences sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and despatch of trace evidences in such cases

C) Sexual perversions

- Describe and discuss the sexual perversions fetishism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia
- Describe anatomy of male and female genitalia, hymen and its types. Discuss the medico-legal importance of hymen. Define virginity, defloration, legitimacy and its medicolegal importance

D) Pregnancy and Delivery

- Discuss the medicolegal aspects of pregnancy and delivery, signs of pregnancy, precipitate labour superfoetation, super fecundation and signs of recent and remote delivery in living and dead
- Discuss disputed paternity and maternity

E) Impotence and Sterility

- Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female
- Discuss Sterilization of male and female, artificial insemination, Test Tube Baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws
- Discuss the relative importance of surgical methods of contraception (vasectomy and tubectomy) as methods of contraception in the National Family Planning Programme

F) Abortion

- Define, classify and discuss abortion, methods of procuring MTP and criminal abortion and complication of abortion. MTP Act 1971
- Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion

Theme V

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.

RECOMMENDED TEXT BOOKS AND JOURNALS

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, Massachussetts.
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. Chapmann and Hall, London.
25. Mason JK. Paediatric Forensic Medicine and Pathology. Chapmann 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, Lon

