

Over view of the course

Course Title: Forensic Medicine

Course Description:

Forensic Medicine is a critical field that integrates medical knowledge with legal principles to aid in the administration of justice. In the 3rd year of the MBBS program, students will deepen their understanding of the role of forensic medicine in various legal contexts, focusing on the application of medical expertise in criminal investigations, civil cases, and public health.

Course Objectives:

- To understand the principles and practices of forensic medicine.
- To learn the procedures for performing post-mortem examinations and determining cause of death.
- To familiarize students with medico-legal documentation and reporting.
- To discuss the ethical and legal implications of forensic practices.

Course Format:

DeliveryMethod:

- Lectures:** Delivered by experienced forensic experts.
- **Case Studies:** Analysis of real-world cases to apply theoretical knowledge.
- Audio visual lab simulation:** Autopsy techniques.
- **Group Discussions:** Encouraging critical thinking and ethical considerations in forensic scenarios.

Class Schedule:

- ✓ Meeting times and days
 - (Large Group Discussion on Monday, Tuesday
 - Small Group Discussions on Monday, Tuesday, Wednesday

Textbook and Materials:

Recommended Books in Forensic Medicine & Toxicology

- PARIKH,
Parikh's Text Book of Medical Jurisprudence, Forensic Medicine and Toxicology for class rooms and court rooms, 8th Edition.
- NASEEB. R. AWAN
Principles and Practice of Forensic Medicine and Toxicology, 2nd edition.
- GAUTAM BISWAS
Review of Forensic Medicine and Toxicology including Clinical and Pathological Aspects, 2nd Edition.
Assessment and Grading:

- ✓ A breakdown of the grading components (e.g., exams, assignments, projects, quizzes).
- ✓ The weight or percentage of each component in the final grade.
- ✓ The grading scale used (e.g., letter grades, numerical grades).

Course Policies:

Academic Integrity:

- ✓ Expectations for honest work and plagiarism policies.

Late Assignments:

- ✓ Policies for late submissions and potential penalties.

Attendance:

- ✓ Attendance requirements and consequences of absences.

Make-up Exams and Assignments:

- ✓ Procedures for missed exams or assignments.

Staff contacts:

Faculty

| S.# | Name | Designation |
|------------|--|---------------------|
| 1 | Prof. Dr. M. Younas Zarkoon MBBS, DMJ (pb), DPH(PIMS) | Professor /HoD |
| 2 | Dr. Arbab Abdul Wahid, MBBS | Senior Demonstrator |
| 3 | Dr. Sana Wakeel MBBS | Demonstrator |
| 4 | Dr. Rahima Mustafa MBBS | Demonstrator |
| 5 | Dr. Faryal Fatima MBBS | Demonstrator |

Block-1

1. Personal Identification

Over view of Topic

Personal identification is a crucial aspect of forensic medicine, focusing on the methods and techniques used to establish the identity of individuals in various legal contexts. This topic is fundamental for medical professionals who may encounter cases involving unidentified bodies, mass disasters, or criminal investigations.



| Learning Outcomes | Pre-requisites | Learning strategies | Assessment techniques | Learning Opportunities |
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| <ul style="list-style-type: none"> • Distinguish between living and dead, decomposed and mutilated from burnt bodies, skeletal and fragmentary remains by using appropriate parameters of personal identity. • Usedifferenttechniques (Dentistry: Radiology, Neutron Activation Analysis etc.)and objective methods of (Osteometry, Dactyloscopy, DNA Technique, Super imposition photography etc.). • Determine the age, sex andraceofanindividual byvariousmethodswith their medico-legal aspects. • Critiqueonmethodsto trace the evidence, Lockard’s Principle of exchangeanditsmedico-legal significance. | <ul style="list-style-type: none"> • Basic Medical Knowledge: <ul style="list-style-type: none"> • - Anatomy (skeletal and dental) • - Physiology • Forensic Science Fundamentals:* <ul style="list-style-type: none"> • - Introduction to Forensic Medicine • - Crime Scene Investigation • Biology and Genetics:* <ul style="list-style-type: none"> • - Molecular Biology (DNA analysis) • - Genetics (inheritance patterns) • Legal Aspects:* <ul style="list-style-type: none"> • - Basic Legal Knowledge (roles and evidence) • Ethical Considerations:* <ul style="list-style-type: none"> • - Introduction to Medical Ethics • Research and Analytical Skills:* <ul style="list-style-type: none"> • - Critical Thinking • - Research Methods | <p>LGIS,SGD, PBL</p> | <p>MCQs/ SEQs/VIVA</p> | <p>Role-Playing Small Group Discussion And simulation</p> |

2. Mechanical Injuries

Overview of Topic


Mechanical injuries are a fundamental topic in forensic medicine, focusing on injuries resulting from physical forces applied to the body. This area is crucial for understanding the mechanisms of injury, determining the cause of death, and providing insights into legal cases.



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| <ul style="list-style-type: none"> ● Correlate the mechanisms of wound production to their medico-legal aspects. ● Identify different ammunition types ● Appraise the nomenclature, wound Ballistics and medico-legal aspects of mechanical injuries ● List and debate on the laws in relation to causing Bodily harm, Wounding and Homicide ● Distinguish between <ul style="list-style-type: none"> ● ante-mortem and post-mortem wounds | <p>Basic Medical Knowledge:*</p> <ul style="list-style-type: none"> - Anatomy: Understanding of human body structures, particularly musculoskeletal anatomy. - Physiology: Familiarity with how the body responds to trauma and injury. <p>Forensic Science Fundamentals:*</p> <ul style="list-style-type: none"> - Introduction to Forensic Medicine: Basic principles and practices in forensic science. - Crime Scene Investigation: Knowledge of evidence collection and preservation techniques. <p>Pathology:*</p> <ul style="list-style-type: none"> - Basic Pathological Concepts: Understanding the nature and causes of injuries and diseases. <p>Biology:*</p> <ul style="list-style-type: none"> - Human Biology: Insight into biological responses to mechanical trauma. | <p>LGIS,SGD, PBL</p> | <p>MCQs/ SEQs/VIVA</p> | <p>Role-Playing Small Group Discussion And simulation</p> |
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| | <p>*Legal Aspects:*</p> <ul style="list-style-type: none"> - Basic Legal Knowledge: Awareness of the legal implications of injuries and the role of forensic evidence in court. <p>Ethical Considerations:*</p> <ul style="list-style-type: none"> - Introduction to Medical Ethics: Understanding ethical issues in the treatment of victims and handling forensic evidence. | | | |
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3. General Toxicology

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| <p>Over view of Topic</p> <p>General toxicology is a crucial component of forensic medicine that focuses on the study of poisons and their effects on the human body. Understanding toxicology is essential for diagnosing poisoning, determining causes of death, and providing expert testimony in legal cases.</p> |  |
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| <ul style="list-style-type: none"> ● Relate the cases of toxicology to its related laws ● Manage toxicological cases in acute and chronic exposure ● Interpret acute and chronic cases of poisoning in living and dead ● | <p>Basic Medical Knowledge:*</p> <ul style="list-style-type: none"> - *Anatomy:* Understanding the structure of the human body, particularly organ systems affected by toxins. - *Physiology:* Knowledge of how the body functions and responds to harmful substances. <p>Biochemistry:*</p> <ul style="list-style-type: none"> - Familiarity with metabolic pathways and how substances are processed in the body. <p>Pharmacology:*</p> <ul style="list-style-type: none"> - Basic understanding of drug actions, interactions, and the effects of various medications on the body. | <p>LGIS,SGD, PBL CBL</p> | <p>MCQs/ SEQs/VIVA</p> | <p>Role-Playing Small Group Discussion simulation and Laboratory practical's</p> |
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| | <p>*Pathology:* - Insight into disease processes and how toxic agents can cause pathological changes in tissues.</p> <p>5. *Forensic Science Fundamentals:* - Introduction to Forensic Medicine: Basic principles of forensic science and its applications. - Crime Scene Investigation: Understanding evidence collection and preservation relevant to toxicology cases.</p> <p>6. *Laboratory Techniques:* - Basic knowledge of laboratory procedures and techniques used in toxicological analysis.</p> <p>7. *Research and Analytical Skills:* - Critical Thinking: Ability to analyze toxicological data and interpret results. - Research Methods: Familiarity with scientific research principles, particularly in toxicology studies.</p> | | | |
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Block-II

1. Thanatology

Over view of Topic

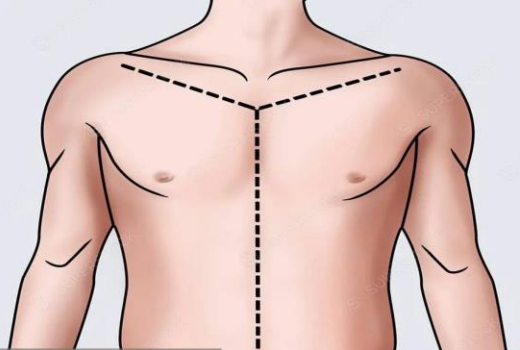
Thanatology is the scientific study of death and the practices associated with it, including the processes of dying, the care of the dying, and the grief experienced by the bereaved. It integrates knowledge from medicine, psychology, ethics, law, sociology, and cultural studies.



| Learning Outcomes | Pre-requisites | Learning strategies | Assessment techniques | Learning Opportunities |
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| <ul style="list-style-type: none"> Identify the causes, manner, mode, mechanisms, medico-legal aspects and indicators of death. Correlate between the physicochemical changes occurring in various body tissues after death under different environmental conditions to the medico-legal aspects of sudden and unexpected deaths. | <p>1. Basic Human Anatomy and Physiology</p> <p>Understanding of major organ systems and their functions.</p> <p>Familiarity with normal physiological processes and homeostasis.</p> <p>General Pathology</p> <p>Basic concepts of disease, cell injury, and inflammation.</p> <p>Mechanisms of death (e.g., shock, hypoxia, trauma).</p> <p>3. Forensic Medicine Fundamentals</p> <p>Introduction to medicolegal aspects of death.</p> <p>Familiarity with types of injuries and their medicolegal implications.</p> <p>4. Medical Ethics and Communication</p> <p>Basic principles of medical ethics (e.g., autonomy, beneficence).</p> <p>Skills in empathetic communication, especially around sensitive topics.</p> | <p>LGIS,SGD, PBL</p> | <p>MCQs/ SEQs/VIVA</p> | <p>Role-Playing</p> <p>Small Group Discussion</p> <p>And simulation</p> |

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| | <p>5. Legal Terminology and Procedures</p> <p>General awareness of legal definitions (e.g., cause vs. manner of death).</p> <p>Understanding of the role of documentation and certification in death cases.</p> <p>6. Microbiology and Infection Control</p> <p>Understanding of infectious causes of death.</p> <p>Awareness of universal precautions during handling of deceased bodies</p> | | | |
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2. Autopsy

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| <p>Over view of Topic</p> <p>An autopsy (also known as a postmortem examination) is a systematic examination of a body after death to determine the cause of death, study the effects of diseases, and evaluate injuries. It is a crucial tool in medicine, pathology, and forensic science.</p> |  |
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| <ul style="list-style-type: none"> • Cognitive (Knowledge-Based) Outcomes: • Define autopsy and distinguish between clinical and medicolegal autopsies. • Describe the objectives and significance of autopsies in medical and legal practice. • Explain the procedure of an autopsy, including | <p>1. Human Anatomy</p> <p>Detailed knowledge of gross anatomy of all body systems.</p> <p>Familiarity with anatomical landmarks for dissection.</p> <p>2. Human Physiology</p> <p>Understanding of normal physiological processes.</p> <p>Ability to correlate physiological changes with pathological findings.</p> | Audio visual lab | MCQs/SEQs/VIVA | Small Group Discussion And simulation |
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| <p>external and internal examinations.</p> <ul style="list-style-type: none"> • Identify common postmortem changes and their relevance in estimating time since death. • Understand the documentation process and the legal requirements for conducting autopsies <p>2. Effective (Attitude-Based) Outcomes:</p> <p>Demonstrate respect and sensitivity when dealing with deceased individuals and their families.</p> <p>Acknowledge the importance of autopsy in uncovering the truth in both medical and legal contexts.</p> <p>Display professionalism and ethical conduct in all autopsy-related tasks.</p> | <p>3. General and Systemic Pathology</p> <p>Knowledge of pathological processes like inflammation, necrosis, thrombosis, etc.</p> <p>Understanding of organ-specific diseases and their gross and microscopic appearance.</p> <p>4. Forensic Medicine Basics Introduction to types and causes of death.</p> <p>Legal classifications: natural, unnatural, accidental, suicidal, homicidal.</p> <p>5. Medical Microbiology</p> <p>Basic understanding of infectious diseases.</p> <p>Knowledge of biosafety and infection control practices during postmortem.</p> <p>6. Medical Ethics and Law</p> <p>Understanding consent, confidentiality, and the medicolegal importance of autopsies.</p> <p>Legal requirements for medicolegal and clinical autopsies.</p> <p>7. Communication Skills and Professionalism</p> <p>Ability to handle sensitive situations with empathy.</p> <p>Awareness of protocols for interacting with families and legal authorities.</p> | | | |
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3.Special Toxicology

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| <p>Over view of Topic</p> <p>Special toxicology focuses on the study of toxic substances and their effects on the human body, particularly in the context of forensic medicine. It encompasses the identification, analysis, and interpretation of toxicological findings in cases of poisoning, drug overdoses, and environmental toxic exposures</p> | |  | | |
| <p>Discuss the effects of specific poisons/drugs prevailing in our society along with medico-legal aspects</p> | <p>Basic Biological Sciences*</p> <ul style="list-style-type: none"> - Human Anatomy and Physiology - Cell Biology <p>*Pharmacology*</p> <ul style="list-style-type: none"> - Drug Mechanism of Action - Pharmacokinetics and Pharmacodynamics <p>*Pathology*</p> <ul style="list-style-type: none"> - General Pathology - Toxicological Pathology <p>*Forensic Science Fundamentals*</p> <ul style="list-style-type: none"> - Basic Forensic Principles - Legal Aspects of Forensics <p>*Laboratory Skills*</p> <ul style="list-style-type: none"> - Basic Lab Techniques - Analytical Methods | <p>LGIS,SGD, PBL CBL</p> | <p>MCQs/ SEQs/VIVA</p> | <p>Role-Playing Small Group Discussion simulation and Laboratory practical's</p> |

Block-III

1. Law

Over view of Topic

Forensic medicine involves applying medical knowledge to legal matters, especially in criminal and civil cases. Doctors have legal responsibilities like obtaining consent, maintaining confidentiality, and reporting specific cases.



| Learning Outcomes | Pre-requisites | Learning strategies | Assessment techniques | Learning Opportunities |
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| <ul style="list-style-type: none"> • Identify the principles of inter professional and patient interaction in clinical practice • Correlate the medical ethics while examining patient to medical negligence and professional misconduct • Justify the guarding of professional secrets and privileged communication. • Debate on legal and ethical aspect of organ transplantation • Employ the moral and ethical implications of medical procedures (Artificial insemination, Therapeutic abortions, Euthanasia, Biomedical research) in clinical practice | <ol style="list-style-type: none"> 1. Basic Understanding of Legal Terminology <ul style="list-style-type: none"> – Terms like plaintiff, defendant, witness, evidence, negligence, etc. 2. Knowledge of Court Systems <ul style="list-style-type: none"> Types of courts and their roles (criminal, civil, juvenile, coroner’s court). 3. Familiarity with Legal Responsibilities of Doctors <ul style="list-style-type: none"> – Consent, confidentiality, duty to report, and handling medico-legal cases. 4. Awareness of Key Legal Provisions <ul style="list-style-type: none"> – Relevant sections from IPC, CrPC, and IEA. 5. Understanding of Documentation Standards <ul style="list-style-type: none"> – Proper preparation of medico-legal reports, injury certificates, and postmortem reports | <p>LGIS,SGD, PBL</p> | <p>MCQs/ SEQs/VIVA</p> | <p>Role-Playing Small Group Discussion</p> |

2. Sexual Offences


Over view of Topic

Sexual offences involve any non-consensual sexual act, sexual harassment, or exploitation, covered under various laws.



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| <ul style="list-style-type: none"> • Assess the sexual offences and relate it to relevant Sections of Law (Zina and Hudood Ordinance) • Differentiate between natural and unnatural sexual offences • Address the causes of common sexual perversions • Distinguish between Impotence, Virginity, Pregnancy and criminal acts during delivery (their medico-legal aspects, examination procedure and reporting) • Appraise the procedure of performing clinical l examination of victim and assailant in case of sexual offense, collect specific specimens and write a required certification. • Appraise the relevant sections of law, Medico-legal aspects applicable to miscarriage; and be able to. • Crime Against New-Born, Infants and Child. • identify infanticide and criminal and non-accidental violence or abuse to a newborn child. | <ul style="list-style-type: none"> • Sexual Offences and Relevant Sections of Law (Zina and Hudood Ordinance) <ul style="list-style-type: none"> ○ Natural and unnatural sexual offences ○ Medical examination of victim and assailant, collection of specific specimens. ○ Common sexual perversions and their cause. ○ approach to Impotence, determination of Virginity, Pregnancy and criminal processes during delivery, their medico-legal aspects, examination procedure and reporting. ○ Miscarriage: ○ Crime Against New-Born, Infants and Child. Infanticide and criminal and non-accidental violence or abuse to a newborn, infant or child | LGIS,SGD, PBL | MCQs/ SEQs/VIVA | Role-Playing Small Group Discussion And simulation |
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3. Forensic Psychiatry

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| <p>Over view of Topic</p> <p>Forensic psychiatry is the branch of psychiatry that deals with the assessment and treatment of mentally ill individuals in the context of law.</p> | |  | | |
| <ul style="list-style-type: none"> • Distinguish between true and feigned insanity. • Advise on procedure of restraint of the mentally ill. List limitations to civil and criminal responsibilities of mentally ill. | <ol style="list-style-type: none"> 1. Basic Understanding of Psychiatry <ul style="list-style-type: none"> – Knowledge of mental illnesses (psychosis, neurosis, personality disorders, etc.) 2. Familiarity with Legal Concepts <ul style="list-style-type: none"> – Criminal 3. Understanding of Mental Health Laws 4. Skills in Psychiatric Evaluation <ul style="list-style-type: none"> – Clinical interview, mental status examination, and report writing 5. Ethical and Legal Duties of Psychiatrists <ul style="list-style-type: none"> – Consent, confidentiality, mandatory reporting, and safeguarding patient right | <p>LGIS,SGD, PBL CBL</p> | <p>MCQs/ SEQs/VIVA</p> | <p>Role-Playing Small Group Discussion simulation</p> |

3. Medical Ethics, consent & negligence

Over view of Topic

Medical ethics involves principles like autonomy, beneficence, non-maleficence, and justice, emphasizing patient rights and confidentiality. Consent must be informed and obtained from capable individuals, with special considerations for minors and unconscious patients. Negligence occurs when healthcare providers fail to meet the expected standard of care, resulting in harm, and includes elements like duty, breach, causation, and harm.



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| <p>Apply ethical principles of medicine as physicians/ in their clinical clerkships according to national as well as international code of ethics</p> | <ul style="list-style-type: none"> • Powers and jurisdiction of courts • procedures for inquest, and legal Procedures. • Important Legal terms • Application of relevant Legal sections of the penal code • Role of a medical doctor in the medico-legal system • Medical evidence in courts. • Document information to be prepared by a medical doctor for legal procedures. • Procedure of Court attendance and recording of evidence | <p>LGIS,SGD, PBL CBL</p> | <p>MCQs/ SEQs/VIVA</p> | <p>Role-Playing Small Group Discussion simulation</p> |
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