

# STUDENT STUDY GUIDE



## Forensic Medicine & Toxicology

Third Year MBBS

Integrated-Modular Curriculum

Academic Year 2023-2024

LIAQUAT UNIVERSITY OF MEDICAL & HEALTH SCIENCES  
(LUMHS) JAMSHORO, SINDH, PAKISTAN

**Parallel Integrated Module Committee**  
**Forensic Medicine & Toxicology**  
**LUMHS, Jamshoro**

**Modular Coordinator:**

**Dr. Abdul Samad Memon**

Associate Professor

Department of Forensic Medicine & Toxicology, LUMHS, Jamshoro.

**Committee Members:**

1. Prof. Mohammad Akber Kazi, Chairman Forensic Medicine BMC-LUMHS
2. Prof. Waheed Ali Nahyoon, Chairman Forensic Medicine LUMHS
3. Dr. Aisha Khalid Shaikh, Assistant Professor Forensic Medicine LUMHS
4. Dr. Ishrat Bibi, Assistant Professor Forensic Medicine LUMHS

## **RATIONALE**

Forensic Medicine is one of the largest and most important areas of Forensic Science. Forensic Science is imperative to the detection or investigation of crime that has a pivotal role in the administration and execution of justice.

By studying the forensic medicine, the main aim is to prepare a responsible and competent medical professional who can efficiently apply his/her knowledge with an objective approach to deal with the problems of medico-legal nature confirmed by the society in order to help the administration of law for the furtherance of justice.

### **The learning objectives:**

- Conduct a competent medico-legal autopsy, collect appropriate evidence pertaining to cause/mode/manner of death and identification of deceased and assailant. They must also be able to understand and interpret other important medico-legal aspects of death due to natural and unnatural conditions and poisonings.
- Have fundamental knowledge of all branches of medical disciplines related to their medico-legal applications. They must also be able to refer and understand relevant application of few other branches of science like botany, zoology, chemistry, and physics. It is also expected that they must be reasonably aware of using computer.
- Be aware of laws in relation to medico-legal work, medical practice and be acquainted with related relevant amendments and also related judgments passed by constitutional courts.
- Understand the important procedures and applicability of the general principals of analytical toxicology, ballistics, and immunology, occupational and environmental hazards

### **General learning outcomes:**

By the end of this course, the students should achieve the following outcomes in the form of cognitive, psychomotor and affective domains:

#### **Cognitive Domain:**

At the end of course, a student is able to:

1. Understand the prevailing laws and legal procedure of the country.
2. Understand the phenomenon of death and the background regarding evolution of various concepts, regarding death.
3. Understand the effects of violence on human body.
4. Enumerate the various toxic agents and intentionally/inadvertently in our environments.
5. Understand the importance and value of biological/non-biological specimens in medico-legal work recognizes the significance of medico-legal documents prepared to denote the physical, sexual and mental condition of a person.

### **Pyschomotor Domain:**

Student after completion of course is able to:

1. perform physical examination and make accurate observations regarding physical, sexual and mental trauma caused by various causative agents/ actions.
2. Recover and preserve biological and non- biological material from human body both in living and dead.
3. Recognize, collect and preserve trace evidence providing clues regarding personal identification, crime detection from the locus of incident, living and dead body.
4. Dispatch with justification, the biological and non-biological material to appropriate laboratory/agency, maintaining the chain of custody.
5. Conduct autopsy on dead and exhumed bodies.
6. Examine the skeletonized material and fragmentary remains for identification and detect cause, manner and time of death by using scientific knowledge and procedures.
7. Diagnose, resuscitate and manage a case of poisoning.
8. Prepare medical documents depicting comprehensive report of his/her observations and scientific opinion regarding the examination of living and dead for production before the investigators, attorneys and courts.

### **Affective Domain:**

At the end of course, a student is able to display following virtues of personal character:

1. Depicts in his/her actions sense of responsibility towards state, community.
2. Demonstrate honesty and professionalism while certifying and testifying a medico-legal case.
3. Believe in the value of truth, devotion and dedication while performing his professional duties.
4. Facilitate the transfer of information that is required for the diagnosis and management of a case of poisoning.
5. Distinguish his/her professional obligation vis-à-vis privileges.
6. Equip and abreast himself/herself of latest technical and legal advancements in the field of medical, forensic sciences and law.
7. Recognize the role of planning, organizing and working of a medico-legal center including autopsy and medico-legal examination setup that can fulfill the objectives of public service.
8. Deal with patient/injured and the relatives with compassion, sympathy in a non-discriminatory, non-prejudice and free manner.

Preserve confidentiality regarding his patient's clinical condition within possible limits in his/her commands.

## **Index Of the Modules:**

- 1. Module-1**
- 2. Module-2**
- 3. Module-3**
- 4. Module-4**
- 5. Module-5**
- 6. Module-6**

S #	Wks	Module	Forensic Medicine			Demonstration / Tutorial Classes/Lab
1.	7	Module-1	Law in relation to Medical Man-I	Traumatology-I	Personal Identity-I	Gen Toxi, Corrosive, Metallic, Medicinal, Food poisoning & Visit-1
2.	6	Module-2	Law in relation to Medical Man-II	Firearm injuries	Personal Identity-II	Deliriant, Nux Vomica, Sedative, Animal, Kala-pathar Poisoning & Visit-2
3.	4	Module-3	Legal Procedure-I	Autopsy-I	Asphyxia-I	Organophosphorus, Naphthalene, Cyanides, Opium/Heroin & Visit-3
4.	4	Module-4	Legal Procedure-II	Autopsy-II	Asphyxia-II	Dependence/Drug addiction, Narcotics/Nicotine, Amphetamine/Hallucinogens & Visit-4
5.	7	Module-5	Sexual Offences	Thanatology	Forensic Sexology	Practical Work
6.	4	Module-6	Forensic Pediatrics	Traumatology-II	Forensic Psychiatry	Alcohol, Aluminum Phosphide/Carbon Monoxide, Fumigants poisoning & Visit-5

## **MODULE I:**

At the end of the Module, the student should be able to do the following:

<b>FORENSIC MEDICINE</b>				
<b>S. NO</b>	<b>LEARNING OBJECTIVES</b>	<b>TOPIC</b>	<b>TEACHING STRATEGY</b>	<b>ASSESSMENT</b>
<b>01</b>	<ul style="list-style-type: none"> <li>• Define Forensic Medicine and Toxicology and its various branches.</li> <li>• Discuss the importance and utility of Forensic Medicine and Toxicology and its various branches, its role in crime detection and other medical, legal and ethical issues in civilized society.</li> </ul>	<b>Introduction Forensic Medicine</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>LAWS IN RELATION TO MEDICAL MAN-1</b>				
<b>02</b>	<ul style="list-style-type: none"> <li>• Describe Hippocratic Oath and principles of Bioethics</li> <li>• Discuss the duties of doctor as advised by international code of medical ethics</li> </ul>	<b>Medical Ethics</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>03</b>	<ul style="list-style-type: none"> <li>• Describe the composition, functions of Pakistan Medical &amp; Dental Council at present and its role in medical education</li> <li>• Define Privileges &amp; obligations of registered medical practitioners</li> </ul>	<b>PM &amp; DC</b>		
<b>04</b>	<ul style="list-style-type: none"> <li>• Define consent, types of consent &amp; roles of consent in Medical Examination</li> <li>• Discuss Criteria for giving valid consent</li> <li>• Define Doctrine of informed consent</li> <li>• Determine Certain legal deviations/exemptions of consent</li> </ul>	<b>Consent</b>		
<b>TRAUMATOLOGY-I</b>				
<b>05</b>	<ul style="list-style-type: none"> <li>• Discuss Mechanism of mechanical injury</li> <li>• Classify Mechanical Injuries</li> <li>• Define Injury, Hurt, Wound, Assault and Battery</li> <li>• Describe Blunt weapon injuries- Abrasions, Bruises with medico legal significance.</li> </ul>	<b>Mechanical Injuries-1</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>06</b>	<ul style="list-style-type: none"> <li>• Describe Lacerated wounds, types, mechanism of production and medico legal significance</li> </ul>	<b>Mechanical Injuries-2</b>		
<b>07</b>	<ul style="list-style-type: none"> <li>• Describe Sharp weapon injuries</li> <li>• Describe Incised wounds with medico legal significance.</li> </ul>	<b>Mechanical Injuries-3</b>		
<b>08</b>	<ul style="list-style-type: none"> <li>• Describe Stab wounds with medico legal significance.</li> </ul>	<b>Mechanical Injuries-4</b>		
<b>09</b>	<ul style="list-style-type: none"> <li>• Intro of Qisas &amp; Diyat Ordinance.</li> <li>• Define &amp; classify Qisas &amp; Diyat.</li> <li>• Discuss Law regarding wounding of person.</li> </ul>	<b>Qisas &amp; Diyat Ordinance-1</b>		
<b>10</b>	<ul style="list-style-type: none"> <li>• Discuss Shajjah &amp; Jurh</li> <li>• Discuss interpretation of injuries accordingly.</li> </ul>	<b>Qisas &amp; Diyat Ordinance-2</b>		
<b>PERSONAL IDENTITY- I</b>				
<b>11</b>	<ul style="list-style-type: none"> <li>• Intro of Personal Identity.</li> <li>• Describe Parameters of identification.</li> </ul>	<b>Personal Identification</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE &

	<ul style="list-style-type: none"> <li>• Discuss methods identification</li> <li>• Describe Complete and partial identification.</li> <li>• Describe Identification in living and dead.</li> <li>• Discuss Locard's principle of exchange &amp; its medico legal importance</li> </ul>			VIVA Voce
<b>12</b>	<ul style="list-style-type: none"> <li>• Describe Determination of race</li> <li>• Discuss Osteometric indices</li> <li>• Determine Sex and intersex states</li> </ul>	<b>Race &amp; Sex Determination</b>		
<b>13</b>	<ul style="list-style-type: none"> <li>• Determine Age estimation in medico legal cases by General examination</li> <li>• Discuss Medico legal importance of age</li> </ul>	<b>Age Determination</b>		
<b>14</b>	<ul style="list-style-type: none"> <li>• Define Forensic Odontology &amp; Radiology</li> <li>• Discuss Medicolegal importance of Forensic Odontology &amp; Radiology</li> </ul>	<b>Forensic Odontology &amp; Radiology</b>		
<b>DEMONSTRATION /TUTORIALS CLASS /LAB</b>				
<b>GENERAL TOXICOLOGY</b>				
<b>01</b>	<ul style="list-style-type: none"> <li>• Discuss Toxicology, Forensic Toxicology (Intro)</li> <li>• Define poison &amp; Its Classification</li> <li>• Explain routes of administration and elimination of poisons from the body.</li> <li>• Describe the factors modifying action of poisons.</li> <li>• Discuss diagnosis of poisoning in living &amp; dead.</li> <li>• Enlist the common household poisons</li> </ul>	<b>General Toxicology-1</b>	Interactive lecture/ Practical	OSPE & Viva Voce
<b>02</b>	<ul style="list-style-type: none"> <li>• Discuss the duties of doctor in a case of poisoning.</li> <li>• Discuss Law to related toxicology.</li> <li>• Discuss the forensic aspects of poisons.</li> <li>• Discuss General management of acute &amp; chronic poisoning in living.</li> <li>• Enumerate the collection Preservation and dispatch evidentiary material in living &amp; dead.</li> </ul>	<b>General Toxicology-2</b>		
<b>SPECIAL TOXICOLOGY</b>				
<b>03</b>	<ul style="list-style-type: none"> <li>• Define Corrosive &amp; classify.</li> <li>• Discuss mode of action, signs &amp; symptoms, effects on different parts of body, different test and its management.</li> <li>• Discuss postmortem appearance(s) and medicolegal importance.</li> <li>• Define vitriolage and discuss its features, effect &amp; punishment.</li> </ul>	<b>Corrosive Poisoning (Oxalic Acid, Carbolic Acid [Phenol], Sulphuric Acid &amp; Hydrochloric Acid)</b>	Interactive lecture/ Practical	OSPE & Viva Voce
<b>04</b>	<ul style="list-style-type: none"> <li>• Describe general principles &amp; basic methodology</li> <li>• Define procedure of enhanced elimination of poisoning regarding arsenic, lead, mercury &amp; copper.</li> <li>• Discuss treatment of poisoning</li> <li>• Enumerate supportive &amp; antidote therapy</li> <li>• Enlist of Medicolegal aspects of Metallic poisoning</li> </ul>	<b>Metallic Poisoning (Lead, Arsenic, Mercury &amp; Copper poisoning)</b>		



	<ul style="list-style-type: none"> <li>• Discuss post mortem finding</li> </ul>			
<b>05</b>	<ul style="list-style-type: none"> <li>• Discuss the mechanism of medicinal poisoning</li> <li>• Discuss symptoms, signs &amp; management of poisoning.</li> <li>• Discuss postmortem appearance and Medicolegal aspects of medicinal poisoning.</li> </ul>	<b>Medicinal Poisoning (Paracetamol &amp; Salicylic Acid)</b>		
<b>06</b>	<ul style="list-style-type: none"> <li>• Define food poisoning</li> <li>• Differentiate b/w food infection and food intoxication</li> <li>• Enlist the bacteria causing food poisoning</li> <li>• Discuss S/S, Diagnosis &amp; Mgt of food poisoning</li> <li>• Describe the measure how to prevent food poisoning</li> </ul>	<b>Food Poisoning</b>		
<b>07</b>	<ul style="list-style-type: none"> <li>• Discuss procedure of CPD of Biological &amp; other evidentiary materials</li> </ul>	<b>Visit-1 (Forensic Museum, Forensic Science Lab/Forensic Molecular Biological Lab for DNA Testing)</b>		

## **MODULE 2:**

At the end of the Module, the student should be able to do the following:

<b>FORENSIC MEDICINE</b>				
<b>S. NO</b>	<b>LEARNING OBJECTIVES</b>	<b>TOPIC</b>	<b>TEACHING STRATEGY</b>	<b>ASSESSMENT</b>
<b>LAWS IN RELATION TO MEDICAL MAN-II</b>				
<b>01</b>	<ul style="list-style-type: none"> <li>• Define negligence, &amp; its types.</li> <li>• Define Professional negligence</li> <li>• Discuss Res-Ipsa-Liquotar, Novus Actus Inter venus &amp; Vicarious Liability</li> <li>• List 5 D'S for plaintiff's success</li> </ul>	<b>Medical Negligence</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>02</b>	<ul style="list-style-type: none"> <li>• Discuss Professional Secrecy &amp; misconduct (Infamous conduct)</li> </ul>	<b>Professional Misconduct</b>		
<b>FIREARM INJURIES</b>				
<b>03</b>	<ul style="list-style-type: none"> <li>• Define Ballistics, types of ballistics</li> <li>• Discuss Parts of a firearm weapon</li> <li>• Describe Cartridges of different firearms and types of projectiles i.e., pellets, bullets</li> </ul>	<b>Firearm/Ballistics-1</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>04</b>	<ul style="list-style-type: none"> <li>• Define Types of gun powder</li> <li>• Discuss Mechanism of fire in firearm weapons</li> </ul>	<b>Firearm/Ballistics-2</b>		
<b>05</b>	<ul style="list-style-type: none"> <li>• Discuss Characteristic features of wound of entry and exit of firearms</li> <li>• Describe Estimation of distance of fire</li> </ul>	<b>Firearm Injuries-1</b>		
<b>06</b>	<ul style="list-style-type: none"> <li>• Discuss Fabricated firearm injuries</li> <li>• Discuss Postmortem findings in cases of firearm injuries</li> </ul>	<b>Firearm Injuries-2</b>		
<b>PERSONAL IDENTITY – II</b>				
<b>07</b>	<ul style="list-style-type: none"> <li>• Discuss Acquired and congenital deformities.</li> <li>• Define Tattoo marks.</li> <li>• Medicolegal Importance of Name, Age, Sex &amp; Race.</li> </ul>	<b>Methods of Identification</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>08</b>	<ul style="list-style-type: none"> <li>• Define dactylography &amp; its types</li> <li>• Discuss medicolegal importance of fingerprint</li> </ul>	<b>Dactylography</b>		
<b>09</b>	<ul style="list-style-type: none"> <li>• Discuss Identification of a dead, decomposed body.</li> <li>• Discuss Mutilated &amp; burnt bodies, Skeletal &amp; Fragmentary remains.</li> </ul>	<b>Mass Disaster Identification</b>		
<b>10</b>	<ul style="list-style-type: none"> <li>• Discuss application of Blood groups in forensic work &amp; DNA profiling.</li> <li>• Discuss disputed paternity &amp; maternity.</li> <li>• Discuss Laboratory tests for examination of a blood staining.</li> </ul>	<b>Forensic Serology-1</b>		
<b>11</b>	<ul style="list-style-type: none"> <li>• Appraise the forensic importance of biological specimens (Semen, Saliva, Vomitus, Urine &amp; Hair)</li> <li>• Discuss trace evidence</li> </ul>	<b>Forensic Serology-2 &amp; Trace Evidence</b>		

**DEMONSTRATION /TUTORIALS CLASS /LAB****SPECIAL TOXICOLOGY**

<b>01</b>	<ul style="list-style-type: none"><li>• Introduction &amp; Classify types of Deliriant poisons.</li><li>• Discuss Clinical Features of Acute &amp; Chronic Poisoning, investigation techniques for the detection.</li><li>• Discuss Mode of action, Metabolism, Fatal doses, antidote and management</li><li>• Discuss P/M appearances &amp; medicolegal importance of deliriant poisons.</li></ul>	<b>Deliriant Poison(s) (Cannabis Indica, Cocaine &amp; Dhatura)</b>	Interactive lecture/ Practical	OSPE & Viva Voce
<b>02</b>	Describe symptoms, signs, treatment and Medicolegal importance of poisoning by Nux Vomica.	<b>Nux Vomica</b>		
<b>03</b>	<ul style="list-style-type: none"><li>• Define Properties, Pharmacological Action, Absorption, Distribution &amp; Elimination of Barbiturates.</li><li>• Explain Classification, Features of Acute &amp; Chronic Toxicity &amp; the Methods used for the Detection, Management &amp; Postmortem changes in a Victim of Barbiturate Toxicity.</li><li>• Discuss Fatal &amp; Lethal Doses, Medico-legal Aspects of Barbiturates.</li></ul>	<b>Sedative Poison(s) (Barbiturates)</b>		
<b>04</b>	<ul style="list-style-type: none"><li>• Classify types of snakes</li><li>• Discuss Diagnosis, Clinical features &amp; Management of a snake bite</li><li>• Discuss PM appearance and ML importance.</li></ul>	<b>Animal Poison(s) (Snake Bites)</b>		
<b>05</b>	<ul style="list-style-type: none"><li>• Define Paraphenylenediamine Poisoning.</li><li>• Explain clinical features, laboratory findings and outcomes of PPD poisoning.</li><li>• Discuss post mortem findings &amp; Medicolegal importance of Kala pathar.</li></ul>	<b>Paraphenylenediamine (Kala Pather)</b>		
<b>06</b>	<ul style="list-style-type: none"><li>• Observe Mental Health Ordinance</li></ul>	<b>Visit-2 (Sir Cowjee Institute of Behavioural Sciences)</b>		

## **MODULE 3:**

At the end of the Module, the student should be able to do the following:

<b>FORENSIC MEDICINE</b>				
<b>S. NO</b>	<b>LEARNING OBJECTIVES</b>	<b>TOPIC</b>	<b>TEACHING STRATEGY</b>	<b>ASSESSMENT</b>
<b>LEGAL PROCEDURES – I</b>				
<b>01</b>	<ul style="list-style-type: none"> <li>• Define important legal terms such as Summons, warrant, perjury, deposition, exhibit, offence, cognizable offence, non-cognizable offence, oath, conduct money, summons case, warrant case, bail &amp; FIR.</li> <li>• Differentiate between dying declaration and dying deposition</li> </ul>	<b>Legal Terminology</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>02</b>	<ul style="list-style-type: none"> <li>• Define the types of witnesses, types of examination in the court</li> <li>• Describe the recording of evidence and procedure of court attendance with special emphasis on the guidelines for doctor in the witness box</li> <li>• Explain Professional secrecy and Privileged communication</li> <li>• Describe Medical evidence, types of evidence (oral, documentary, hearsay, circumstantial)</li> </ul>	<b>Court Evidence</b>		
<b>03</b>	<ul style="list-style-type: none"> <li>• Describe the Documents prepared by a medical man</li> <li>• Discuss Medico Legal Reports</li> <li>• Discuss Post mortem Reports</li> </ul>	<b>Medicolegal Documents</b>		
<b>AUTOPSY-I</b>				
<b>04</b>	<ul style="list-style-type: none"> <li>• Define Autopsy,</li> <li>• Discuss Aims, objects &amp; Autopsy protocol</li> <li>• Classify Types of autopsies</li> <li>• Discuss establishment of autopsy suit</li> <li>• Describe Types of incisions</li> <li>• Describe Techniques of autopsy</li> <li>• Discuss Negative and Obscure autopsy</li> </ul>	<b>Autopsy-1</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>05</b>	<ul style="list-style-type: none"> <li>• Discuss Autopsy protocol</li> <li>• Describe Types of incisions</li> <li>• Describe Techniques of autopsy</li> <li>• Discuss Negative and Obscure autopsy</li> </ul>	<b>Autopsy-2</b>		
<b>ASPHYXIA-I</b>				
<b>06</b>	<ul style="list-style-type: none"> <li>• Discuss etiology, Patho physiology of asphyxia &amp; stages of asphyxia.</li> <li>• Describe Hanging, types of hanging</li> <li>• Describe postmortem findings of hanging &amp; Throttling</li> </ul>	<b>Asphyxia-1 (Intro, Hanging &amp; Throttling)</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>07</b>	<ul style="list-style-type: none"> <li>• Describe death from asphyxia and postmortem appearance of Suffocation, Smothering, choking &amp; Strangulation</li> </ul>	<b>Asphyxia-2 (Suffocation, Smothering, Choking &amp; Strangulation)</b>		

**DEMONSTRATION /TUTORIALS CLASS /LAB****SPECIAL TOXICOLOGY**

<b>01</b>	<ul style="list-style-type: none"><li>• Discuss the mode of action.</li></ul> Describe common uses of organophosphorus. <ul style="list-style-type: none"><li>• Discuss the clinical feature &amp; evaluation of a patient with suspected organophosphorus toxicity.</li><li>• Explain management of organophosphorus poisoning &amp; medicolegal importance of it.</li><li>• Discuss postmortem appearance and medicolegal importance.</li></ul>	<b>Organophosphorus Poisoning</b>	Interactive lecture/ Practical	OSPE & Viva Voce
<b>02</b>	<ul style="list-style-type: none"><li>• Enlist the other names of Naphthalene</li><li>• Discuss routes of transmission of Naphthalene in body</li><li>• Describe the clinical features, fatal dose and fatal period &amp; management of Naphthalene toxicity.</li><li>• Enlist the uses of Naphthalene.</li><li>• Describe Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to cyanides.</li><li>• Discuss medicolegal importance.</li></ul>	<b>Naphthalene &amp; Cyanides</b>		
<b>03</b>	<ul style="list-style-type: none"><li>• Define Narcotics (Opium &amp; Heroin).</li><li>• Discuss S/S of acute &amp; chronic opium poisoning.</li><li>• Discuss fatal dose &amp; fatal period and management of narcotics.</li><li>• Define heroin addiction</li><li>• Discuss causes, symptoms and withdrawal of heroin addiction.</li><li>• Discuss prevention to avoid side affects</li><li>• Discuss postmortem appearance and medicolegal aspect of Narcotics.</li></ul>	<b>Opium &amp; Heroin</b>		
<b>04</b>	<ul style="list-style-type: none"><li>• Observe Medicolegal Examinations</li></ul>	<b>Visit-3 (MLC Section LUH Hyd/Jamshoro)</b>		

## **MODULE 4:**

At the end of the Module, the student should be able to do the following:

<b>FORENSIC MEDICINE</b>				
<b>S. NO</b>	<b>LEARNING OBJECTIVES</b>	<b>TOPIC</b>	<b>TEACHING STRATEGY</b>	<b>ASSESSMENT</b>
<b>LEGAL PROCEDURES – II</b>				
<b>01</b>	<ul style="list-style-type: none"> <li>Describe the Documents prepared by a medical man (Certificates such as birth certificates, death certificates, prescription writing, sickness certificates, consent form, certificates of Physical fitness to drive a vehicle &amp; Medical certificate for estimation of age)</li> </ul>	<b>Medical Certificates</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>02</b>	<ul style="list-style-type: none"> <li>Describe the Criminal Justice system in Pakistan,</li> <li>Describe Pakistan Penal Code, Criminal Procedure Code and its execution and delivery</li> <li>List the general presumptions and exemptions of law</li> </ul>	<b>Criminal Justice System</b>		
<b>AUTOPSY-II</b>				
<b>03</b>	<ul style="list-style-type: none"> <li><b>Discuss</b> Internal examination of Cranial, thoracic and abdominal cavities &amp;</li> <li>Dissection of viscera's</li> </ul>	<b>Internal Examinations of Dead body</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>04</b>	<ul style="list-style-type: none"> <li>Explain Exhumation procedure</li> <li><b>Explain</b> Preservation of viscera for Chemical and Histo pathological examination</li> <li><b>Explain</b> Preservatives used in mortuary</li> </ul>	<b>Exhumation</b>		
<b>ASPHYXIA-II</b>				
<b>05</b>	<ul style="list-style-type: none"> <li>Define Drowning, its types</li> <li>Discuss Mechanism of drowning</li> <li>Describe Causes of death in drowning</li> <li>Discuss Postmortem finding of drowning</li> <li>Define Diatoms and their medico legal significance</li> </ul>	<b>Drowning</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>06</b>	<ul style="list-style-type: none"> <li>Discuss Traumatic Asphyxia</li> <li>Discuss Sexual asphyxia (auto erotic asphyxia)</li> </ul>	<b>Traumatic &amp; Sexual Asphyxia</b>		
<b>DEMONSTRATION /TUTORIALS CLASS /LAB</b>				
<b>SPECIAL TOXICOLOGY</b>				
<b>01</b>	<ul style="list-style-type: none"> <li>Define drug, drug dependence &amp; drug addiction.</li> <li>Enlist addictive drugs.</li> <li>Define drug abuse, habituation, hypnotics &amp; narcotics.</li> <li>Discuss different terminologies i.e. physical &amp; psychological dependence, psychotropic drugs, sedative, stimulants and tolerance.</li> <li>Discuss the law relate to drug Addiction/Abuse.</li> <li>Discuss management of drug Addiction /Abuse.</li> </ul>	<b>Dependence/Drug addiction</b>	<b>Interactive lecture/ Practical</b>	OSPE & Viva Voce
<b>02</b>	<ul style="list-style-type: none"> <li>Introduction (Definition, Pathophysiology)</li> <li>Discuss sources, S/S, fatal dose and fatal period</li> </ul>	<b>Narcotics &amp;</b>		

	and Management. • Discuss postmortem appearances and medicolegal importances.	<b>Nicotine</b>		
<b>03</b>	• Discuss Introduction, source, mode of action, S/S, fatal dose, fatal period and management. • Discuss Postmortem appearance. • Describe the medicolegal importance.	<b>Amphetamine &amp; Hallucinogens</b>		
<b>04</b>	• Observe Postmortem examinations	<b>Visit-4 (Mortuary)</b>		

## **MODULE 5:**

At the end of the Module, the student should be able to do the following:

<b>FORENSIC MEDICINE</b>				
<b>S. NO</b>	<b>LEARNING OBJECTIVES</b>	<b>TOPIC</b>	<b>TEACHING STRATEGY</b>	<b>ASSESSMENT</b>
<b>SEXUAL OFFENCES</b>				
<b>01</b>	<ul style="list-style-type: none"> <li>• Define &amp; Classify Sexual offences</li> <li>• Define Legal definition of Rape</li> <li>• Describe Procedure of examination a victim &amp; accused person of rape and Collection of specimens during examination</li> <li>• Define Rape in children</li> <li>• Define Incest and its legal aspects</li> </ul>	<b>Sexual Offences (Intro) &amp; Natural Sexual Offences and Its Legal Aspects</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>02</b>	<ul style="list-style-type: none"> <li>• Define Legal definition of sodomy and its types</li> <li>• Describe Examination of a victim of Sodomy</li> <li>• Describe Examination of a habitual passive agent (Catamite) and habitual active agent (Sodomite)</li> <li>• Describe Collection of samples from passive and active agent</li> <li>• Define Bestiality with examination</li> <li>• Define Tribadism or female homosexuality and its legal aspects</li> <li>• Define Buccal coitus</li> </ul>	<b>Unnatural Sexual Offences and Its Legal Aspects</b>		
<b>03</b>	<ul style="list-style-type: none"> <li>• Define Sexual perversions</li> <li>• Classify Sexual perversions</li> <li>• Discuss Sexual perversions</li> </ul>	<b>Sexual Perversions</b>		
<b>THANATOLOGY</b>				
<b>04</b>	<ul style="list-style-type: none"> <li>• Define death</li> <li>• Explain Scientific concepts regarding death</li> <li>• Discuss WHO criteria of death</li> <li>• Explain Medico-legal aspects of brain death, sudden &amp; unexpected deaths.</li> </ul>	<b>Death</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>05</b>	<ul style="list-style-type: none"> <li>• Discuss Cause, manner, mode and mechanism of death.</li> </ul>	<b>Cause, Manner, Mode &amp; Mechanism of Death</b>		
<b>06</b>	<ul style="list-style-type: none"> <li>• Describe Immediate signs of death with special stress on Somatic or clinical death</li> <li>• Define Suspended animation</li> <li>• Discuss Early changes after death such as Changes in the eye, Algor Mortis, Rigor Mortis &amp; Livor Mortis.</li> </ul>	<b>Immediate &amp; Early Signs of Death</b>		
<b>07</b>	<ul style="list-style-type: none"> <li>• Describe Physio-chemical changes in various body tissues and organs under various environmental conditions, such as changes in muscular system after death.</li> <li>• Describe Changes in the blood, CSF, Vitreous humor &amp; Bone marrow</li> </ul>	<b>Physio-Chemical Changes of Death Death Changes in Blood, CSF, Vitreous Humour &amp; Bone Marrow</b>		
<b>08</b>	<ul style="list-style-type: none"> <li>• Describe Late signs of death i.e., Putrefaction,</li> </ul>	<b>Decomposition</b>		



	mechanism, changes, gases of decomposition • Explain Adipocere formation & Mummification			
<b>FORENSIC SEXOLOGY</b>				
<b>09</b>	<ul style="list-style-type: none"> <li>Describe Virginity and its medico legal perspectives</li> <li>Describe Signs of virginity on medico legal examination</li> <li>Differentiate between true and false virgin on examination.</li> <li>Discuss Pregnancy and its legal aspects</li> </ul>	<b>Virginity &amp; Pregnancy</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>10</b>	<ul style="list-style-type: none"> <li><b>Define</b> Abortion, types of abortion &amp; its Medico legal aspects</li> <li><b>Define</b> Criminal abortion and its types according to Pakistan Penal Code</li> <li><b>Describe</b> Causes of death in criminal abortion and autopsy finding</li> <li>Describe Delivery and its medico legal aspects</li> <li><b>Describe</b> Signs of recent delivery in living &amp; dead</li> <li><b>Describe</b> Signs of remote delivery in living &amp; dead</li> </ul>	<b>Abortion &amp; Delivery</b>		
<b>11</b>	<ul style="list-style-type: none"> <li>Define Impotence, Sterility and Artificial insemination along with causes</li> <li><b>Describe</b> Consummation of marriage, causes of nullity of marriage and divorce from legal aspects</li> <li><b>Discuss</b> Examination of a case of impotency and how to give opinion in such a case</li> </ul>	<b>Impotence</b>		
<b>Demonstration /Tutorials Class /Lab</b>				
<b>Practical Work</b>				
<b>01</b>	<b>Practical-1</b>	<b>Interactive lecture/ Practical</b>	OSPE & Viva Voce	
<b>02</b>	<b>Practical-2</b>			
<b>03</b>	<b>Practical-3</b>			
<b>04</b>	<b>Practical-4</b>			
<b>05</b>	<b>Practical-5</b>			
<b>06</b>	<b>Practical-6</b>			
<b>07</b>	<b>Practical-7</b>			

## **MODULE 6:**

At the end of the Module, the student should be able to do the following:

<b>FORENSIC MEDICINE</b>				
<b>S. NO</b>	<b>LEARNING OBJECTIVES</b>	<b>TOPIC</b>	<b>TEACHING STRATEGY</b>	<b>ASSESSMENT</b>
<b>FORENSIC PEDIATRICS</b>				
<b>01</b>	<ul style="list-style-type: none"> <li>• Define Infanticide &amp; Feticide.</li> <li>• Differentiate Still born &amp; Dead born baby</li> <li>• Describe Signs of live birth</li> <li>• Discuss Criminal causes of death of new born babies i.e., Acts of commission and acts of omission</li> <li>• Explain Autopsy on bodies of new born babies</li> </ul>	<b>Infanticide</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>02</b>	<ul style="list-style-type: none"> <li>• Define Battered Baby Syndrome, Shaken Baby Syndrome</li> <li>• Discuss Etiology &amp; Clinical Features of a battered baby.</li> <li>• Describe Injuries seen in Shaken Baby Syndrome with mechanism &amp; legal importance of SIDS.</li> </ul>	<b>Battered Baby Syndrome &amp; Sudden Infant death syndrome (SIDS)</b>		
<b>FORENSIC PSYCHIATRY</b>				
<b>03</b>	<ul style="list-style-type: none"> <li>• Describe the Mental Health ordinance 2001 with special reference to admission, care and discharge of a mentally ill person.</li> </ul>	<b>Mental Health Ordinance</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>04</b>	<ul style="list-style-type: none"> <li>• Describe Civil and criminal responsibilities of a mentally ill person.</li> <li>• Discuss Testamentary capacity.</li> <li>• Discuss McNaughten rules, Durham rule and Currens rule.</li> <li>• Define insanity &amp; differentiate between true insanity from feigned insanity.</li> </ul>	<b>Civil/ Criminal responsibilities of a mentally ill &amp; Insanity</b>		
<b>TRAUMATOLOGY-II</b>				
<b>05</b>	<ul style="list-style-type: none"> <li>• Describe Head injuries to scalp &amp; Fractures of Skull and their medico legal significance.</li> <li>• Classify types of injuries to the brain, spine &amp; their Medico legal importance.</li> <li>• Discuss <b>Face &amp; Neck</b> including different cervical fractures, whiplash injuries, homicidal and suicidal cut throat.</li> </ul>	<b>Injuries of Head &amp; Neck</b>	<b>Interactive Lecture</b>	SBA, SEQs, OSPE & VIVA Voce
<b>06</b>	<ul style="list-style-type: none"> <li>• Discuss <b>Face &amp; Neck</b> including different cervical fractures, whiplash injuries, homicidal and suicidal cut throat.</li> <li>• Describe chest injuries including traumatic asphyxia, injuries to ribs, lungs, heart with special emphasis on penetrating injuries and Commotion Cordis.</li> <li>• Describe Abdominal injuries with medico legal aspects of rupture of liver, spleen, injuries to abdominal aorta and intestines,</li> <li>• Define Pelvic injuries &amp; its medico legal significance.</li> </ul>	<b>Injuries of Chest &amp; Abdomen</b>		

<b>07</b>	<ul style="list-style-type: none"> <li>Define electrical burn and its types</li> <li>Enlist the body tissues that are resistant to electrical burn &amp; factors on which injury of electrical burn depends.</li> <li>Describe the mortality of electrical burn</li> <li>Define Features of injuries due to various types of electrical current.</li> </ul>	<b>Thermal Injury &amp; Burn</b>		
<b>08</b>	<ul style="list-style-type: none"> <li>Describe Causes of death due to electrocution.</li> <li>Discuss Lightning injuries and lightning deaths.</li> </ul>	<b>Electrocution/ Lighting</b>		
<b>DEMONSTRATION /TUTORIALS CLASS /LAB</b>				
<b>SPECIAL TOXICOLOGY</b>				
<b>01</b>	<ul style="list-style-type: none"> <li>Define alcohol &amp; its metabolism</li> <li>Discuss acute &amp; chronic alcohol poisoning</li> <li>Discuss diagnostic methods of alcohol poisoning, sample collection for examination and management.</li> <li>Discuss postmortem appearances and medicolegal importance's.</li> </ul>	<b>Alcohol</b>	Interactive lecture/ Practical	OSPE & Viva Voce
<b>02</b>	<ul style="list-style-type: none"> <li>Discuss Mode of Poisoning, Sign &amp; Symptoms, Fatal Dose &amp; fatal period, Management, Postmortem Appearances &amp; Medicolegal importance of Aluminum Phosphide.</li> <li>Define Properties, Common sources, common features for absorption, Clinical Features, methods for the detection of Carbon Monoxide &amp; its management.</li> <li>Discuss Postmortem changes &amp; Medico-legal aspects of Carbon Monoxide Poisoning.</li> </ul>	<b>Aluminium Phosphide &amp; Carbon Monoxide</b>		
<b>03</b>	<ul style="list-style-type: none"> <li>Define fumigants</li> <li>Enlist most common fumigants.</li> <li>Discuss procedure of fumigation.</li> <li>Describe types of fumigation methods.</li> <li>Discuss factors affecting fumigation efficacy.</li> <li>Discuss advantages and disadvantages of fumigation.</li> </ul>	<b>Fumigants</b>		
<b>04</b>	<ul style="list-style-type: none"> <li>Observe the Court procedures</li> </ul>	<b>Visit-5 [Court(s)]</b>		

**Practical Work/Skills:** Forensic Museum & Laboratory sessions are important as they provide opportunity for experiential learning in terms of study of Models, Poisons, slides and identification of tissues.

Mortuary, Court Visits Postmortem sessions are important part of & curriculum to achieve psychomotor and affective outcomes. This provides opportunity for medical students in & will stimulate contextual learning. For proper orientation and practical demonstration.

## **Visits:**

**Visit-1:** Forensic Museum, Forensic science laboratory/ Forensic Molecular & Biological Laboratory for DNA testing, LUMHS, Jamshoro.

**Visit-2:** Sir Cowasjee Jehangir Institute of Psychiatry & Behavioural Sciences Hyderabad.

**Visit-3:** MLC Section LUH Hyderabad/Jamshoro

**Visit-4:** Mortuary @ MLC Section LUH Hyderabad/Jamshoro

**Visit-5:** Court

## **Practical's:**

**Practical-1:** Medical Certificates

**Practical-2:** Medicolegal Examinations/Certificate(s)

**Practical-3:** Application of Qisas & Diyat Laws in Medical Practice

**Practical-4:** Clinical Examination(s) in case of Sexual Offences

**Practical-5:** Collection, Preservation & Dispatch of Biological & other evidentiary material

**Practical-6:** Examination (s)of Blood Stains Seminal Stains

**Practical-7:** Medicolegal Autopsies, Exhumation Protocol & Autopsy Instruments.

## **LEARNING RESOURCES**

### **FORENSIC MEDICINE & TOXICOLOGY**

#### **BOOKS:**

- Nasib R. Awan. Principles and practice of Forensic Medicine 1<sup>st</sup> ed. 2002.
- Parikh, C.K. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 6<sup>th</sup> ed.1999.
- Knight B. Simpson's Forensic Medicine. 11<sup>th</sup> ed.1993.
- Polson. Polson's Essential of Forensic Medicine. 4<sup>th</sup> edition. 1985.
- Taylor. Taylor's Principles and Practice of Medical Jurisprudence. 1984.
- Gradwhol, R.B.H. Gradwhol's Legal Medicine. 3<sup>rd</sup> ed.1976.
- Rao. Atlas of Forensic Medicine.
- Govindiah. Color Atlas of Forensic Medicine. 1999.

#### **CDs:**

- Lectures on Forensic Medicine.
- Atlas of Forensic Medicine.

#### **WEBSITES:**

- [www.forensicmedicine.co.uk](http://www.forensicmedicine.co.uk)