

# **Department of Forensic Medicine & Toxicology**



**Study Guide For  
3<sup>rd</sup> Year MBBS**

**Sharif Medical & Dental College,  
Lahore**



## PREFACE

Study guides can make a major contribution to learning. They are sometimes likened to a tutor sitting on the student's shoulder-available 24 hours a day to advise the student what he/she should be doing at any stage in their study. Study guides are different from textbooks. They apprise the student at the beginning of an academic session about the course outline, the teaching methodology to be followed throughout the year, learning objectives of each academic activity and the assessment methodology to be followed in an academic session.

At SMDC we follow the traditional annual academic schedule in which the subject of Pharmacology and Therapeutics is taught in the third academic year of a medical student. Keeping in view the mission of UHS, Lahore and vision of our institute we have designed a training program which is intensive and at the same time interesting for the young minds. This guide includes details about various teaching activities which are to take place throughout the academic year along with the time allocation of each. A list of lectures to be conducted in this session with names of the instructors is attached. Broad learning outcomes of every section of the course accompanied by specific learning objective of every lecture is also included. A complete list of practical work to be carried out in the laboratory is part of this document. Details of various assessments and testing methodology are included and marks distribution for the subject in the 3<sup>rd</sup> Professional examinations has been given. Names and email contacts of faculty have also been mentioned to foster better interaction between the teacher and the taught. A list of prescribed text and reference books forms part of this study guide. Since this document is the first of its kind we intend to improve upon it in light of the student-feedback every year. For now happy reading.

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SMDC, Lahore



## **Vision & Mission of UHS**

Qualitative and Quantitative Revolution in Medical Education and Research through Evolution and thereby improve Health Care delivery to Populace.

UHS shall be innovative global center of excellence in learning and research, supporting a community of scholars and professionals committed to serving society, promoting the development of students to reach their true potential in becoming competent, ethical, caring, and inquiring health professionals for the benefit of the country and the wider world.

## **Mission of SMDC**

Sharif Medical & Dental College is dedicated to best serve the nation through preservation and dissemination of advanced knowledge and educating the students by latest trends in learning and research reaching levels pars excellence.

The Institution is committed to provide standardized quality medical education to its students by inculcating professional knowledge, skills and responsibilities in them with the aim of:

- Preparing them as modern physicians having initiative to act as future leaders in their respective fields and becoming lifelong learners.
- Encouraging the spirit of critical thinking through research and publication.
- Building up an understanding of the ethical values compatible with our religion, culture and social norms.
- Developing a sense of being responsible citizens of the society possessing professional competence and instilling in them the values of hard work and dedication thus preparing them to be accountable to the stakeholders and the state.

The Institution is devoted to keep abreast its faculty with the latest trends in Medical Education encompassing teaching/learning methodologies, assessment tools, research opportunities and professionalism to facilitate their professional development, competencies and commitment towards continues learning.

Our patient-centered mission is achieved by outstanding medical care & services in professional practice with due emphasis and focus on our local health needs.

Our mission further elaborate upon establishing academic and research facilities in areas of local demand under global gold standards and leading advancement in research, education & patient care.

## **Vision of SMDC**

To be recognized for the provision of a safe and functional environment conducive to collaborative teaching & learning, comfortable working atmosphere and conducting world class research through professionalism and excellence.



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## **PLANNED TEACHING ACTIVITIES FOR 3<sup>rd</sup> YEAR MBBS DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY**

PMC has allocated 100 hours of teaching in the subject of Forensic Medicine and Toxicology for the MBBS course. In order to meet this requirement following teaching modules have been planned. These modules have been carefully designed to impart core knowledge of Forensic Medicine and Toxicology in a manner that an undergraduate student can grasp the subject fully and is adequately prepared for university examinations.

### **Lectures:**

A total of 50 lectures are planned for the entire year. The lectures will be conducted by the Professor, associate and assistant professors or by senior lecturers that have teaching experience in the subject of Forensic Medicine and Toxicology. The lectures will be interactive and students should actively participate in them to clear their doubts. The students are required to take notes of the lectures and study the topic with the help of prescribed text books in light of the learning objectives of the topic enunciated by the teacher at the beginning of each lecture.

### **Practical classes:**

One practical class has been planned per week. It will comprise of trace evidence practicals including blood, Hair, semen, feces, urine, milk, vomits. Biological material collection preservation and dispatch to the PFSA, DNA profiling, general toxicology and Toxicology. The class will be divided into 03 batches to conduct the practicals effectively and one batch will be entertained once a week for these sessions. Practical will be conducted by demonstrators under an active supervision of senior instructors. Students are required to enter their work in their practical note books and get them checked by the instructors regularly.

### **Tutorials:**

One tutorial class per week is proposed throughout the academic session. The class will be divided into 03 batches. Topics for the tutorial will be notified at least one week before the class. Two instructors, one senior and one junior, will be deputed for every batch on rotation basis. During this interactive session the students must clear their concepts regarding the topic by actively engaging with their respective teachers.

### **Case based learning:**

The 3<sup>rd</sup> year MBBS class is taken in the batches, each student for 15 days, to the KEMU for medicolegal and autopsy classes. There they learn how the medicolegal cases of live victims and assailants are conducted and how postmortem examinations are conducted at the mortuary, also the collection, preservation and dispatch of various biological and non biological materials to the PFSA and preparation of reports.

### **Seminars:**

Departmental seminars are to take place periodically once the students have covered a substantial quantum of course work. Preferably Medicolegal and autopsy topics will be allocated to students and they will present a very short case history with ongoing treatment of the poisoning / medicolegal patient along with other available treatment options. Each presentation will be of 10-15 minutes duration with a Q&A session after it. All seminars on Medicolegal and autopsy topics will be conducted in coordination with the staff conducting autopsies and medicolegals and wherever possible, relevant consultant would be requested to participate in the session



**TRAINING PROGRAM FOR LECTURES**  
**DEPARTMENT OF FORENSIC MEDICINE & TOXICOLOGY**  
**3<sup>RD</sup> YEAR MBBS CLASS**

**GENERAL**

- Forensic Medicine is the application of medical knowledge for the furtherance of justice.
- It is taught to prepare students for the future medicolegal and autopsy work in the field once they become doctors.
- It teaches them various laws governing a medical man and the importance of court evidence he may have to give during the course of his work.
- Interactive modes of teaching e.g. tutorials, seminars, and case – based learning modules etc, should be an essential part of teaching methodology.
- Keeping in view the expanding scope of the subject and an exponential increase in the number of crimes in the society emphasis could be laid on their learning the skills of various aspects of Forensic Medicine and Toxicology.

**FORENSIC MEDICINE**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Forensic medicine and toxicology: introduction	Dr. Farah Hanif
02	Pakistan's legal system: powers and jurisdiction of courts	
03	Procedures for inquest and legal procedures	
04	Important legal terms	
05	Relevant legal sections of the penal code	
06	Role of a medical doctor in the medico-legal system	
07	Medical evidence in courts	
08	Document information to be prepared by medical doctor for legal procedures	
09	Procedure of court attendance and recording of evidence	

**FORENSIC SCIENCES**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Role of forensic sciences in crime detection	Dr. Kanwal Nadeem

**LAW IN RELATION TO MEDICAL MAN**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Privileges of a registered medical practitioner	Dr. Farah Hanif
02	Obligations of a registered medical practitioner	
03	Doctor – patient relationship	
04	Medical ethics	
05	Professional misconduct	
06	Professional secrecy and privileged communication	
07	Consent in medical practice	
08	Medical negligence	
09	Organ transplantation	Dr. Wafa Manzoor
10	Artificial insemination, euthanasia, biomedical research	



### **PERSONAL IDENTITY**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Parameters of personal identity	Dr. Farah Hanif
02	Methods of identifying living	
03	Methods of identifying dead	
04	Methods of identifying decomposed, mutilated and burnt bodies	
05	Methods of identifying skeletal and fragmentary remains	Dr. Kanwal Nadeem
06	Techniques used: forensic radiology, neutron activation analysis etc	
07	Objectives methods of identification: <ul style="list-style-type: none"> <li>• Osteometry</li> <li>• Dactylography</li> <li>• DNA technique</li> <li>• Super imposition photography</li> </ul>	Dr. Kanwal Dr. Farah Dr. Wafa Dr. Wafa
08	Methods of determination of age, sex and race by various methods and their medico legal aspects.	Dr. Farah Hanif
09	Methods to trace evidence, Locard's Principle of Exchange and its medico-legal significance	Dr. Wafa Manzoor

### **THANATOLOGY**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Scientific study of death	Dr. Farah Hanif
02	Medico-legal aspects of brain death	
03	Indicators of death	
04	Medico-legal aspects of sudden and unexpected deaths	
05	Causes, manner, mode and mechanisms of death	
06	Physicochemical changes subsequent to death occurring in various body tissues and organs under various environmental conditions	
07	A certification of death according to who guidelines	

### **TRAUMATOLOGY**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Mechanical injuries, wound production mechanism	Dr. Farah Hanif
02	Classification of wounds. wounds produced by conventional weapons and their medico-legal aspects	
03	Firearms, ammunition, classification and nomenclature	
04	Wound ballistics and medico legal aspects	
05	Mechanical injuries:- medico-legal considerations	
06	Laws in relation to causing bodily harm, wounding and homicide	
07	Examine an injured person; certify nature, manner of cause. Certify causative agent and dating of wounds	Dr. Kanwal Nadeem Dr. Wafa Manzoor
08	Cause of trauma, its sequelae, relationship of sequelae to pre-existing disease	Dr. Kanwal Nadeem
09	Distinguish between ante mortem and post- mortem wounds	Dr. Farah Hanif
10	Diagnose whether death is suicidal, homicidal and accidental	



### **REGIONAL INJURIES**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Mechanism of production of regional injuries, their classification and medico-legal aspects	Dr. Kanwal Nadeem
02	Head (scalp, skull, brain) and face injuries	
03	Vertebral column and contents, neck	
04	Chest abdomen, limbs, bones and joints	
05	Special trauma: transportation injuries	
06	Police torture and deaths in custody	Dr. Farah Hanif
07	Medico-legal aspects of heat, cold	Dr. Wafa Manzoor
08	Electrocution, medico-legal aspects	Dr. Farah Hanif

### **VIOLENT ASPHYXIAL DEATHS**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Definition, classification, anatomy of neck structure	Dr. Farah Hanif
02	Physiological, biochemical and pathological signs of violent asphyxial deaths	
03	Mechanical, chemical and environmental asphyxial deaths	
04	Medico-legal aspects of various violent asphyxial deaths	

### **AUTOPSY**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Types of autopsy, objectives and rules	Dr. Farah Hanif
02	Procedure for postmortem examination	
03	Methods for assessment of fatal period and postmortem interval	
04	Postmortem artifacts	
05	Risks and hazards of autopsy	Dr. Kanwal Nadeem
06	The autopsy protocol	Dr. Wafa Manzoor
07	Procedure for collection and preservation labeling and dispatch of biological and non –biological materials for laboratory examination	
08	Negative autopsy	Dr. Farah Hanif
09	Exhumation procedure, its value and limitation	

### **FORENSIC SEXOLOGY**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Impotence, sterility, artificial insemination	Dr. Wafa Manzoor
02	Virginity, pregnancy and delivery and their medico-legal aspects, examination and reporting	

### **SEXUAL OFFENCES AND RELEVANT SECTIONS OF LAW (ZINA AND HUDOOD ORDINANCE)**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Natural and unnatural sexual offences, examination of a victim and assailant collection preservation and dispatch of samples and medico legal certification	Dr. Farah Hanif
02	Sexual perversions	





### **MISCARRIAGE**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Laws related to miscarriage, medico legal aspects of miscarriage	Dr. Farah Hanif
02	Examination of female and the aborted material, its collection preservation and dispatch to PFSA	

### **CRIME AGAINST NEW-BORN, INFANTS AND CHILD**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Infanticide	Dr. Wafa Manzoor
02	Criminal and non-accidental violence/abuse of a new born, infant or child	

### **FORENSIC PSYCHIATRY**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Mental illness, true and feigned insanity	Dr. Kanwal Nadeem
02	Procedure of restraint of the mentally ill	
03	Limitation of civil and criminal responsibilities of mentally ill	

### **EXAMINATION OF BIOLOGICAL SPECIMENS**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Forensic importance of biological specimens (blood, semen, saliva, vomits, breath, urine, hair)	Dr. Kanwal Nadeem
02	The method of their collection, preservation, dispatch and the common laboratory tests performed	Dr. Wafa Manzoor

### **TOXICOLOGY**

#### **GENERAL PRINCIPLES OF TOXICOLOGY**

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	The scope of toxicology	Dr. Wafa Manzoor
02	Laws regulating drugs and noxious products describe common toxicants in our environments and their abuse describe to cause of drug dependence, the fate and detoxification of poisons in the biological tissues	
03	Diagnose toxicological cases in acute and chronic exposure in living and dead	
04	Utilize general principles of treatment with anti-dotal therapy and management	
05	Handle specimens	
06	work within the framework of duties of doctor in cases of poisoning	
07	Prepare and interpret chemical examiners reports	
08	Autopsy techniques with collection, preservation and dispatch of PFSA	



## **SPECIFIC POISONS**

Study of poisons/drugs of abuse prevailing in our society along with medico-legal aspects

<b>Sr. No</b>	<b>Title of Lecture</b>	<b>Instructors</b>
01	Alcohol	Dr. Kanwal Nadeem
02	Opiates, Opioids and other narcotics	Dr. Wafa Manzoor
03	Salicylates and Paracetamol	Dr. Kanwal Nadeem
04	Hypnotics and Sedatives	Dr. Wafa Manzoor
05	Stimulants (cocaine), cannabis	Dr. Kanwal Nadeem
06	Poisonous plants (aconite, belladonna, hyoscyamus, stramonium, digitalis, ergot, mushrooms, nux vomica, oleander, tobacco)	
07	Venomous insects (snakes)	Dr. Wafa Manzoor
08	Inorganic elements, antimony, arsenic, lead, mercury, phosphorus	Dr. Kanwal Nadeem
09	Volatile poisons and corrosives (carbon monoxide, hydrocarbons, cyanides, sulphuric acid, oxalic acid, carbolic acid and alkalis)	Dr. Wafa Manzoor
10	Pesticides, herbicides and insecticides	Dr. Kanwal Nadeem



**LIST OF LECTURES IN THE SUBJECT OF FORENSIC MEDICINE  
AND TOXICOLOGY AND THEIR LEARNING OBJECTIVES  
DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY  
3<sup>RD</sup> YEAR MBBS CLASS**

**FORENSIC MEDICINE:**

Forensic Medicine is derived from FORUM and deals with the application of medical knowledge in the administration of justice by correlating such knowledge and applying it for the purposes of law. At the end of course student will be able to discuss that a doctor may be summoned to appear in a court of law as an expert witness and his evidence helps the court to assess the responsibility of the accused. Students will know the scope that it deals with all branches of medical knowledge, administered in a court of law for the purpose of administration of justice.

S.NO.	TITLE OF LECTURES WITH LEARNING OBJECTIVES
1.	Forensic medicine and toxicology: introduction By the end of the lecture the student will be able to <ol style="list-style-type: none"> <li>i. Define what are forensic medicine and its application in the medical field, both in the living and dead.</li> <li>ii. Define toxicology and its application in the medical field, both in the living and dead.</li> </ol>
2.	Pakistan's legal system: powers and jurisdiction of courts By the end of the lecture the student will be able to <ol style="list-style-type: none"> <li>i. Explain Pakistan's legal system</li> <li>ii. Discuss various courts in Pakistan</li> <li>iii. Describe the powers of various courts</li> <li>iv. Explain the jurisdiction of various courts</li> </ol>
3.	Procedures for inquest and legal procedures By the end of the lecture the student will be able to <ol style="list-style-type: none"> <li>i. Describe various procedures for inquest prevalent all over the world</li> <li>ii. Procedure for inquest prevalent in Pakistan and its shortcomings</li> <li>iii. Describe the legal proceedings in Pakistan</li> </ol>
4.	Important legal terms By the end of the lecture the student will be able to <ol style="list-style-type: none"> <li>i. Define and discuss various important legal terms</li> <li>ii. Describe the importance of knowing each legal term in order to understand the legal procedure</li> </ol>
5.	Relevant legal sections of the penal code By the end of the lecture the student will be able to <ol style="list-style-type: none"> <li>i. Describe the relevant sections of criminal penal code CrPC</li> <li>ii. Discuss them in relation to an injured, poisoned, and dead person</li> </ol>
6.	Role of a medical doctor in the medico-legal system By the end of the lecture the student will be able to <ol style="list-style-type: none"> <li>i. Discuss the importance of giving evidence in the courts, by helping the victim get the justice through courts and the assailant getting punished thereby</li> <li>ii. Describe the importance of having the knowledge and applying it for the betterment of society.</li> </ol>



7.	<p>Medical evidence in courts</p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"> <li>i. Define and classify evidence</li> <li>ii. Discuss the importance of giving evidence in the court</li> </ol>
8.	<p>Document information to be prepared by medical doctor for legal procedures</p> <p>By the end of this lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Prepare the document that is to be furnished to the court as evidence</li> <li>ii. Whether this document concerns a living or a dead person</li> </ol>
9.	<p>Procedure of court attendance and recording of evidence</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Know the protocol to attend court as a witness</li> <li>ii. Discuss the steps of recording evidence in the court both as a common and as an expert witness</li> </ol>
<b>FORENSIC SCIENCES</b>	
1	<p>Role of forensic sciences in crime detection</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the role of forensic sciences in the crime detection</li> <li>ii. The importance of collection preservation and dispatch of both biological and non biological material</li> </ol>

### **LAW IN RELATION TO MEDICAL MAN**

In Pakistan, the general control of the medical profession is vested with the Pakistan Medical Commission (PMC) and the main functions relate to and students will be able to describe them at the end of course:

- i. The undergraduate and postgraduate medical and dental education
- ii. Medical qualification
- iii. Registration of medical practitioners
- iv. Advising the health ministry on appeals against disciplinary actions taken by the state medical council
- v. Issuing of warning notices
- vi. Issuing certificates of good conduct and character to doctors going abroad
- vii. Sponsoring and organizing continuing medical education (CME programmes)
- viii. Prescribing a code of medical ethics

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	<p>Privileges of a registered medical practitioner</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Know what a registered medical practitioner is</li> <li>ii. Describe the privileges he gets after getting registered</li> </ol>
2.	<p>Obligations of a registered medical practitioner</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Student will able to discuss the obligations of a RMP</li> <li>ii. He will be able to apply them in his practical life after becoming a doctor.</li> </ol>
3.	<p>Doctor – patient relationship</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the high ethical and moral values of a doctor patient relationship</li> <li>ii. That it is an ‘implied contract’, a contract not written</li> </ol>



4.	<p>Medical ethics: By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the moral principles for the members of the medical profession in their dealing with each other, 'their patients and the state.</li> <li>ii. Know that aim is to honor and maintain the noble traditions of the medical profession</li> </ol>
5.	<p>Professional misconduct: By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the conduct on the part of a medical practitioner during the practice of his profession which would be reasonably regarded as disgraceful or dishonorable by his professional colleagues of good repute and competence</li> <li>ii. Describe various examples of professional misconduct</li> </ol>
6.	<p>Professional secrecy and privileged communication By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the importance of keeping professional secrets as a doctor that he come to know in his professional capacity</li> <li>ii. Describe the communication made by a doctor to a proper authority</li> </ol>
7.	<p>Consent in medical practice: By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss various types of consent</li> <li>ii. Describe the various principles in respect of consent</li> </ol>
8.	<p>Medical negligence: By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss various types of medical negligence</li> <li>ii. Describe the precautions against negligence</li> </ol>
9.	<p>Organ transplantation By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Define brain death and its importance in organ transplantation</li> <li>ii. discuss the human organ and tissue transplant act (HOTTA)</li> </ol>
10.	<p>Artificial insemination, euthanasia, biomedical research: By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss insemination, euthanasia and biomedical research</li> </ol>

### **PERSONAL IDENTITY**

The students are taught that by identity is meant the establishment of the individuality of a person. Identification of a person or dead body means the recognition of that person or dead body and that it is based on certain physical characteristics unique to that individual which they will describe at the end of course.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	<p>Parameters of personal identity: By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the different parameters considered for the establishment of identity</li> <li>ii. Discuss it by giving examples</li> </ol>
2.	<p>Methods of identifying living By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the methods of identifying a living person</li> <li>ii. Describe the medico-legal importance of identification of a living person</li> </ol>



3.	<p>Methods of identifying dead:</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the methods of identifying a dead person</li> <li>ii. Describe the medico-legal importance of identification of a dead person</li> </ol>
4.	<p>Methods of identifying decomposed, mutilated and burnt bodies:</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the identification of decomposed bodies</li> <li>ii. Describe in detail the methods to identify mutilated and burnt bodies</li> </ol>
5.	<p>Methods of identifying skeletal and fragmentary remains:</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the methods of identifying the skeletal remains of a person</li> <li>ii. Discuss different methods of identifying fragmentary remains</li> </ol>
6.	<p>Techniques used: Forensic Radiology, Neutron Activation Analysis etc</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss different techniques used in the establishment of identity like Radiology, CT SCAN, MRI</li> <li>ii. Describe the techniques used in identification e.g. neutron activation analysis.</li> </ol>
7.	<p>Objective methods of identification:</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss Osteometry and its role in establishment of identification</li> <li>ii. Describe and discuss in detail dactylography and its role in the identification of both living and dead</li> <li>iii. Discuss DNA technique, profiling and its application in identification of living and dead</li> <li>iv. Discuss the role of superimposition photography in identification</li> </ol>
8.	<p>Methods of determination of age, sex and race by various methods and their medicolegal aspects</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss various methods and procedures used to determine age, sex, race of an individual</li> <li>ii. Describe the medico-legal aspects of age, sex and race determination</li> </ol>
9.	<p>Methods to trace evidence, Locard's principle of exchange and its medico-legal significance</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss different methods used to trace evidence</li> <li>ii. Describe what is Locard's principle of exchange</li> <li>iii. Describe the M/L importance of trace evidence, Locard's principle of exchange</li> </ol>

### **THANATOLOGY**

The students is imparted knowledge regarding thanatology which is the study of death its related issues. By the end of course the student is able to discuss the medico legal aspects of death and to determine the time since death according to the changes present in the body at the time of examination, after death.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	<p>Scientific study of death</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the term death scientifically its various types and related issues:</li> <li>ii. Discuss the stoppage of functioning of various systems that is permanent and irreversible</li> </ol>



2.	Medico-legal aspects of brain death: By the end of lecture the students will be able to i. Discuss brain death, coma, suspended animation ii. Discuss the transplantation of human organs and tissues
3.	Indicators of death: By the end of lecture the students will be able to i. Discuss various indicators of death ii. Describe various immediate, early and late changes after death
4.	Medico-legal aspects of sudden and unexpected deaths By the end of lecture the students will be able to i. Describe the various sudden and unexpected deaths ii. Discuss the medico-legal aspects of sudden and unexpected death
5.	Causes, manner, mode and mechanism of death By the end of lecture the students will be able to i. Describe the causes, manner, mode and mechanism of death ii. Discuss various aspects of causes, manner, mode and mechanism of death after defining them
6.	Physicochemical changes subsequent to death occurring in various body tissues and organs under various environmental conditions By the end of lecture the students will be able to i. Discuss the role and affect of various environmental conditions in the physicochemical changes subsequent to death occurring in various body tissues and organs ii. Describe these changes in detail
7.	A certification of death according to who guideline By the end of lecture the students will be able to i. Describe what is the importance of WHO specified death certificate ii. Discuss how to fill the different columns of the WHO specified death certificate

### **TRAUMATOLOGY**

The student is imparted knowledge about the mechanical injuries, wound production, classification and various medico legal aspects. By the end of the course the students should be able to discuss wounds produced by conventional weapons and firearms and their medico legal importance, injuries and the laws governing them.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	Mechanical injuries, wound production mechanism By the end of lecture the students will be able to i. Discuss the mechanical injuries and the mechanism of wound production ii. Describe the wound types and their production
2.	Classification of wounds. Wounds produced by conventional weapons and their medico-legal aspects By the end of lecture the students will be able to i. Classify wounds ii. Discuss various wounds produced by conventional weapons iii. Describe the medico-legal aspects of wounds.
3.	Firearms, ammunition, classification and nomenclature By the end of lecture the students will be able to i. Define firearms and ammunition ii. Classify different firearms iii. Discuss the nomenclature used





4.	Wound ballistics and medicolegal aspects By the end of lecture the students will be able to i. Describe the wound ballistics ii. Discuss the medicolegal aspects of wound ballistics
5.	Mechanical injuries – medico-legal considerations By the end of lecture the students will be able to i. Describe the medico-legal aspects of mechanical injuries ii. Discuss in detail mechanical injuries and related medico-legal issues.
6.	Laws in relation to causing bodily harm, wounding and homicide By the end of lecture the students will be able to i. Discuss the law related to bodily harm and wounding ii. Describe the laws related to homicide
7.	Examine an injured person, certify nature, manner of cause By the end of lecture the students will be able to i. Describe how to examine an injured person ii. Discuss how to prepare a medico-legal certificate stating the nature, manner and cause of injury iii. Describe how to certify causative agent and also how to date the wounds
8.	Cause of trauma, its sequelae, relationship of sequelae to pre-existing disease By the end of lecture the students will be able to i. Describe the cause of trauma and its sequelae ii. Discuss the relationship of sequelae to pre existing disease
9.	Distinguish between ante mortem and post mortem wounds By the end of lecture the students will be able to i. Discuss how to distinguish between antemortem and postmortem wounds ii. Describe what an antemortem and postmortem wounds presentation is
10.	Diagnose whether death is suicidal, homicidal and accidental By the end of lecture the students will be able to i. Describe how to diagnose death whether it is suicidal, homicidal or accidental ii. Discuss the medico-legal aspects of death

### **REGIONAL INJURIES**

The objective of teaching regional injuries to students is to describe the productions classification and medico-legal aspects of various regions of body. By the end of course student must be able to describe head, face, vertebral column and content along with neck injuries. Student must be able to discuss various chest, abdomen, limb, bone joint injuries. Special trauma related to transportation injuries, police torture and custody deaths medico-legal aspects of heat cold and electrocution.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	Mechanism of production of regional injuries, their classification and medico-legal aspects By the end of lecture the students will be able to i. Describe in detail the mechanism of production of regional injuries ii. How to classify regional injuries iii. Discuss the medico-legal aspects of regional injuries





2.	Head (scalp, skull, brain) and face injuries By the end of lecture the students will be able to i. Discuss head (scalp, skull, brain) and face injuries ii. Describe the medico-legal importance
3.	Vertebral column and contents, neck By the end of lecture the students will be able to i. Describe the vertebral column, contents and neck injuries ii. Discuss the medico-legal aspects of these injuries
4.	Chest abdomen limbs, bones and joints By the end of lecture the students will be able to i. Describe the chest and abdomen injuries and their medico-legal importance ii. Discuss various limbs, bones and joints injuries and their medico-legal importance.
5.	Special trauma: transportation injuries By the end of lecture the students will be able to i. Discuss various transportation injuries and their medicolegal importance ii. Describe injuries peculiar to that transportation accident
6.	Police torture and deaths in custody By the end of lecture the students will be able to i. Describe the police torture injuries ii. Discuss the deaths in custody
7.	Medicolegal aspects of heat, cold By the end of lecture the students will be able to i. Describe the medicolegal aspects of heat and cold ii. Discuss in details different presentations of such cases
8.	Electrocution , medicolegal aspects By the end of lecture the students will be able to i. Discuss various electrical injuries and their M/L aspects ii. Describe the injuries, death due to electrocution and medicolegal aspects

### **VIOLENT ASPHYXIAL DEATHS**

The objective of teaching violent asphyxial deaths is to highlight the violent aspect of asphyxia as it is relevant to the field of forensic medicine. By the end of course student will be able to define and classify know the anatomy of neck structure, biochemical physiological and pathological signs of violent death the student will know the medicolegal aspects of various violent asphyxial deaths once they complete the course.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	Definition, classification, anatomy of neck structures By the end of lecture the students will be able to i. Discuss the definition and classification of asphyxia ii. Describe the anatomy of neck structures
2.	Physiological, biochemical and pathological signs of violent death By the end of lecture the students will be able to i. Describe the physiological and biochemical signs of violent death ii. Discuss the pathological signs of violent asphyxial deaths
3.	Mechanical, chemical and environmental asphyxial death By the end of lecture the students will be able to i. Discuss mechanical and chemical asphyxial deaths ii. Describe environmental asphyxial death



4.	<p>Medicolegal aspects of various violent asphyxial deaths</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the medicolegal aspects of various violent asphyxial deaths</li> <li>ii. Describe the importance of medicolegal aspects relevant to that type of asphyxial death.</li> </ol>
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### **AUTOPSY**

The objective of teaching autopsy or postmortem examination is to tell the students what autopsy is, its various types, procedures and final interpretation and preparation of a complete final report. They should know the autopsy protocol, artifacts, its risks and hazards as well. They are expected to know by the end of the course, how to collect, and preserve label and dispatch various biological and non biological materials to the lab for examinations and reporting. How to report when no findings are available even on thorough examination and how to proceed for exhumation and prepare its report, once called to do it.

S.NO.	TITLE OF LECTURES WITH LEARNING OBJECTIVES
1.	<p>Types of autopsy, objectives and rules</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the types of autopsy</li> <li>ii. Discuss the objectives and rules of autopsy conduction</li> </ol>
2.	<p>Procedure for postmortem</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the various autopsy incisions</li> <li>ii. Discuss the procedure of post mortem conduction</li> </ol>
03.	<p>Methods for assessment of fatal period and post mortem interval</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the methods for assessment of fatal period</li> <li>ii. Discuss the method to determine pm interval</li> </ol>
04.	<p>Post mortem artifacts</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the various types of post mortem artifacts</li> <li>ii. Discuss how to differentiate artifacts from facts at the time of autopsy</li> </ol>
05	<p>Risks and hazards of autopsy</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe various risks of PM examination</li> <li>ii. Discuss the various hazards and how to protect oneself from such risks and hazards</li> </ol>
06	<p>The autopsy protocol</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the autopsy protocol</li> <li>ii. Discuss the importance of each step of protocol and the dangers of missing any step</li> </ol>
07	<p>Procedure for collection, preservation labeling and sealing dispatch of biological and non biological materials for laboratory examination</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the procedure for collection and preservation of various samples</li> <li>ii. Describe the labeling sealing and dispatch for laboratory examination and reporting</li> </ol>
08	<p>Negative autopsy</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe what a negative autopsy is</li> <li>ii. Discuss how to prepare a negative autopsy report</li> </ol>



09	Exhumation procedure its value and limitation By the end of lecture the students will be able to <ol style="list-style-type: none"> <li>i. Discuss the procedure of exhumation</li> <li>ii. Describe its value and limitations</li> </ol>
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### **FORENSIC SEXOLOGY**

The objective is to teach students various aspects of forensic sexology like impotence, sterility and artificial insemination. They are expected to know the medicolegal importance of virginity, pregnancy and delivery. By the end of course they will know the medicolegal examination and reporting of these cases.

S.NO.	TITLE OF LECTURES WITH LEARNING OBJECTIVES
1.	Impotence, sterility, artificial insemination. By the end of lecture the students will be able to <ol style="list-style-type: none"> <li>i. Discuss impotence, sterility, and artificial insemination.</li> <li>ii. Describe the medicolegal aspects of impotence, sterility, and artificial insemination.</li> </ol>
2.	Virginity, pregnancy and delivery and their medicolegal aspects, examination and reporting By the end of lecture the students will be able to <ol style="list-style-type: none"> <li>i. Describe virginity pregnancy and delivery in detail both in the living and the dead</li> <li>ii. Discuss the medicolegal aspects and examination and reporting of these cases</li> </ol>

### **SEXUAL OFFENCES AND RELEVANT SECTIONS OF LAW (ZINA AND HUDOOD ORDINANCE)**

Objectives of teaching students this topic is to emphasize the importance of examination of a victim and assailant and collection preservation sealing and dispatch of sample and preparation of report. By the end of course they know about the sexual perversions also

S.NO.	TITLE OF LECTURES WITH LEARNING OBJECTIVES
1.	Natural and unnatural sexual offences, examination of a victim and assailant , collection, preservation, sealing and dispatch of sample and m/l certification By the end of lecture the students will be able to <ol style="list-style-type: none"> <li>i. Discuss the natural and unnatural sexual offences</li> <li>ii. Describe the examination of a victim and assailant , collection, preservation, sealing and dispatch of sample and M/L certification</li> </ol>
2.	Sexual perversion By the end of lecture the students will be able to <ol style="list-style-type: none"> <li>i. Describe sexual perversions</li> <li>ii. Discuss various M/L aspects related to them</li> </ol>

### **MISCARRIAGE**

The objective is to teach various laws related to miscarriage and various medicolegal aspects of miscarriage in a woman

S.NO.	TITLE OF LECTURES WITH LEARNING OBJECTIVES
1.	Laws related to miscarriage medicolegal aspects of miscarriage By the end of lecture the students will be able to <ol style="list-style-type: none"> <li>i. Describe the laws related to miscarriage</li> <li>ii. Discuss the medicolegal aspects of miscarriage</li> </ol>



2.	<p>Examination of female and aborted material its, collection, preservation sealing and dispatch to PFSA</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the examination of a female who had miscarriage</li> <li>ii. Discuss the collection, preservation, sealing and dispatch of aborted material to PFSA</li> </ol>
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### **CRIME AGAINST NEWBORN, INFANTS AND CHILD**

The objective is to teach students about the crimes committed against the newborns and infants. By the end of course students will be able to describe neonatal and infant killing and how to describe the differences between criminal and non accidental violence and abuse of a newborn, infant or child from accidental deaths and injuries.

S.NO.	TITLE OF LECTURES WITH LEARNING OBJECTIVES
1.	<p>Infanticide</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the term infanticide and differentiate it from natural deaths</li> <li>ii. Discuss the live born and dead born child and its medicolegal importance</li> </ol>
2.	<p>Criminal and non accidental violence / abuse of new born infant or child</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss criminal and non accidental violence / abuse of new born infant or child</li> <li>ii. Describe the M/L importance of criminal and non accidental violence / abuse of new born infant or child</li> </ol>

### **FORENSIC PSYCHIATRY**

The objective is to teach students about different mental illnesses, how to differentiate true from feigned insanity. They will be able to describe the procedure of restraint of the mentally ill. By the end of course they will know and discuss the limitations of civil and criminal responsibilities of mentally ill

S.NO.	TITLE OF LECTURES WITH LEARNING OBJECTIVES
1.	<p>Mental illness, true and feigned insanity</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss mental illness</li> <li>ii. Describe the differences between true and feigned insanity</li> </ol>
2.	<p>Procedure of restraint of the mentally ill</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the procedure of restraint of the mentally ill</li> <li>ii. Describe the admission for emergency / or various durations at mental health facility and their discharge also</li> </ol>
3.	<p>Limitation of civil and criminal responsibilities of mentally ill</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the limitation of civil and criminal responsibilities of mentally ill</li> <li>ii. Discuss the criminal responsibilities and its M/L importance</li> </ol>



**LIST OF PRACTICALS FOR 3<sup>rd</sup> YEAR MBBS  
DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY  
SHARIF MEDICAL & DENTAL COLLEGE LAHORE**

- 1. Examination of biological specimens and their medicolegal importance are explained to the students. Various microscopic slides are shown to the students and the common tests performed, spectroscopy, under UV light, TLC. 1 session each of 2 hours duration**
  - a. Blood
  - b. Semen
  - c. Hair
- 2. The method of collection, preservation, sealing and dispatch and the various biological and non biological specimens are discussed and practically done, one practical of 2 hours duration.**
- 3. Autopsy/postmortem: (6 sessions 2 hours duration)**
  - a. autopsy/postmortem examination class at mortuary
  - b. Medicolegal examination of injured at the accident and emergency of the hospital
  - c. Medicolegal examination of poisoned at the accident and emergency of the hospital
  - d. Estimation of age and its medicolegal importance. The role of forensic radiology
  - e. Sexual assaults and sex related cases, preparation of medicolegal report and specimen collection preservation, sealing and dispatch PFSA.
  - f. Procedure of consent taking and medical certification
- 4. In toxicology: students should have an understanding of and be able to describe: (1 session 2 hours duration)**
  - a. Diagnostic and management process (alcohol, narcotics and insecticide poisons)
  - b. Collection, preservation, sealing and dispatch of biological materials
  - c. Visual, olfactory and tactile identification of common poisons found in communities and country
- 5. Visits: for proper orientation and practical demonstration, visits are also suggested to:**
  - a. Court
  - b. Punjab Forensic Science Agency (PFSA)
  - c. Psychiatric unit and jail
  - d. Site during conduction of exhumation



## **ASSESSMENT PLAN**

### **DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY**

### **SHARIF MEDICAL AND DENTAL COLLEGE LAHORE**

Following modes of assessment are planned for 3<sup>rd</sup> year MBBS class in the subject of Forensic Medicine and Toxicology. This plan has been designed keeping in view the university curriculum and hopefully will facilitate the students in preparing for 3<sup>rd</sup> professional examinations in the subject.

#### **Chapter Tests:**

These will be conducted at the completion of every chapter. The test will comprise of MCQs and SEQs on the pattern of university examinations. A preparatory time of at least 10 days shall be given prior to these tests. Each test will be followed by viva voce, for which the class will be divided into smaller batches.

#### **Pre-tutorial Tests:**

Tutorial topics will be notified minimum one week before the tutorial class. A small test of 10 -15 minutes duration, comprising of MCQs, true or false statements or fill in the blanks will be held before the start of each tutorial. The topic will be then discussed by a senior instructor in detail. This will be an interactive session. The paper of the PTT will be marked by demonstrators in quick time and the papers will be returned before the conclusion of each class.

#### **OSPE Tests:**

In order to prepare the students for practical examinations at least two OSPE tests will be conducted on the pattern of university examinations.

#### **Term Tests:**

Two term tests shall be conducted in coordination with other subjects. This will comprise of theory, practical and viva segments and a sizeable portion of the total course will be included in each of them.

#### **Pre-annual Exam:**

This will be undertaken in coordination with other departments, exactly following the format of university professional examinations. It will comprise of MCQs, SEQs, OSPE and Viva voce.

#### **Continuous Internal Assessment:**

Internal assessment will be calculated out of 20 on the basis of all these tests that will be conducted throughout the year.



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## **PRESCRIBED TEXT BOOKS & REFERENCES**

### **RECOMMENDED BOOKS:**

#### **Text Books**

1. Simpson's Forensic Medicine by Barnard Knight, 13<sup>th</sup> Ed., Edward Arnold, London.
2. Parikh's Text book of Medical Jurisprudence, Forensic Medicine and Toxicology by C.K. Parikh 6<sup>th</sup> Ed., CBS Publisher.
3. Buchanan's Text book of Forensic Medicine and Toxicology by Buchanan, 9<sup>th</sup> Ed., Livingstone.
4. G. principles and Practice of Forensic Medicine by Prof. Nasib R. Awan.
5. Medical jurisprudence and Toxicology by Dr. Siddique Hussain.

### **PRACTICAL COPIES:**

1. Handbook of applied Forensic Medicine & Toxicology