SYLLABI AND COURSES OF STUDIES IN
M.PHIL FORENSIC MEDICINE & TOXICOLOGY

A. **Major (compulsory) Course:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Marks</th>
<th>Items</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MCQ’s Paper</td>
<td>150</td>
<td>150</td>
<td>3</td>
</tr>
<tr>
<td>SEQ’s Paper</td>
<td>150</td>
<td>15</td>
<td>3</td>
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<tr>
<td>Viva voce &amp; Practical exam.</td>
<td>100</td>
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<td>Total</td>
<td>400</td>
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**Contents of courses**

I. **General Forensic Medicine**

1. **Laws related to medical man**
   ii. Evidence act and evidence recording before the court of law, Guidelines for medical man when appearing in court as a witness.
   v. Ethical aspect of medical practice. Role of ethics while dealing with research, euthanasia & artificial insemination.
   ix. Statutes related to miscarriage like isqat-haml & isqat-janin,

2. **Personal Identity**
Parameters of identification, methods of identification in living & dead including decomposed, mutilated bodies, fragmentary & skeletal remains. Role of various identification techniques like dentistry, radiology, dactylography, superimposition photography, DNA fingerprinting. Determination of age, sex & race by various methods & its medico-legal aspects.
3. **Trace Evidence**
Application of Locard’s principle of exchange in criminal cases, study of scene of crime, collection preservation and dispatch of trace evidence material to lab. Examination of biological specimens of forensic importance like Blood, Semen, Saliva, Vomitus, Breath, Urine, Hair and their examination in the laboratory.

4. **Thanatology**

5. **Autopsy.**

6. **Traumatology**

II. **Special Forensic Medicine**

1. **Special traumatology**
Regional injuries, Firearm and explosive injuries, Transportation injuries (road traffic accidents, railway accidents, air crashes) Police torture injuries & custodial deaths.

2. **Environmental hazards**
Burns, electrocution, lightning, radiation, cold, heat, starvation.

3. **Asphyxial deaths**
Classification & physio-chemico-pathological changes in asphyxial deaths. Suffocation, Hanging, Strangulation, Throttling, Sexual Asphyxia, Traumatic Asphyxia, Environmental Asphyxia, Drowning, Scuba diving.

4. **Medicolegal aspects of marriage.**
Virginity, impotence, pregnancy, delivery, legitimacy, contraception, artificial insemination, abortion (criminal & justified), nullity of marriage.
5. **Sexual offences.**
Classification of sexual offences, Examination of offender and victim and collection, preservation and dispatch of biological material to laboratory. Sexual perversions.

6. **Crime against new born / infant / child**
Infanticide, child abandonment, child abuse, stillbirths, cot deaths.

7. **Forensic Psychiatry**
Various psychiatric terms. Principles of constitution of crime and grounds for diminished civil and criminal responsibilities. Distinguish between true and feigned insanity.

8. **Forensic Sciences**
Introduction to Forensic Sciences, scope and importance of various disciplines like photography, dactylography, odontology, anthropology, questioned documents, tool marks, ballistics, and DNA fingerprinting.

9. Forensic aspect of various specialties, like anaesthesia, surgery, radiotherapy, etc.

III. **Forensic Pathology:**
1. Morphology of myocardial infarction
2. Morphology of thrombo-embolism and pulmonary infarction
3. Morphology of Pneumonia
5. Morphology of bronchogenic Carcinoma.
7. Morphology of tumours of stomach and intestines.
8. Morphology of heavy metal poisoning.

IV. **Forensic Anatomy:**
1. Assessment of age, sex, race, stature & evidence of trauma / poisoning from skeleton.
2. Study of dentition for assessment of age.
3. Study of human & animal hair
4. Fertilization and development of placenta.
5. Assessment of foetal age.

V. **Forensic Serology:**
1. Morphology of human and other species RBC’s
2. Various blood group systems and laws of inheritance of blood groups & their role in resolving paternity and maternity issues
3. Forensic importance of blood stains and their detection in the laboratory.
5. Secretors and non secretors.
6. Method of forward and backward blood grouping and cross matching.
7. Hazards of blood transfusion
VI. Forensic Biochemistry
   i. Clinical biochemistry:
      Biochemical changes in muscles, blood, CSF & vitreous after death.
      Biochemistry of asphyxia and drowning.
      Biochemical changes in wounds.
   ii. Analytical biochemistry:
      Analytical techniques for detection of drugs and poisons Principles of
      modern techniques like (spectrophotometry, atomic absorption
      spectrophotometry, mass spectrophotometry, flame photometry,
      chromatography, electrophoresis.
   iii. Genetics:
      Structure of DNA, replication, DNA profiling and its role in Forensic
      Medicine. Method of collection / preservation of samples to be sent to
      DNA laboratory.

VII. Forensic Radiology
Technique of radiology and its use in Forensic Medicine practices.

VIII. Toxicology

   General Toxicology:
   Definition, scope, classification of poisons, Drug dependence, Diagnosis of
   intoxicated cases in acute and chronic exposure in living and dead. Factors
   affecting outcome. General management of case of poisoning and
   including legal duties of doctor in handling such cases.

   Specific Poisons:
   Poisons/drugs of abuse prevailing in our society along with medicolegal
   aspects.
   i. Alcohol.
   ii. Opiates, and other narcotics
   iii. Salicylates and paracetamol
   iv. Hypnotics and sedatives
   v. Stimulants Cocaine, cannabis
   vi. Poisonous Plants (Aconite, Belladonna, Hyoscyamus, Stramonium,
      Digitalis, Ergot, Mushrooms, Nux Vomica, Oleander, Tobacco)
   vii. Venomous insects (Snakes)
   viii. Inorganic elements, Antimony, Arsenic, lead, Mercury, Phosphorus
   ix. Volatile poisons and Carbon monoxide, Hydro carbons, Cyanides,
      Corrosives (Hydrochloric acid, Nitric acid, Sulfuric acid, Oxalic acid,
      Carbofic acid and Alkalies)
   x. Pesticides, herbicides and insecticides

PRACTICAL TRAINING

   The trainee shall be attached for the period of two years with the
   department of Forensic Medicine and Toxicology, Postgraduate Medical Institute
   & Lahore General Hospital, Lahore. During his attachment with the department the
   trainee should attend lectures, demonstrations, Clinico-Pathological conferences,
   seminars and journal club meetings arranged by the department. In addition, he is
   required to present cases of general interest in the Clinico-Pathological
conferences. The trainees would be required to take part in the routine work (teaching) and academic activities of the department.

The trainees would be posted in the following departments on rotation basis, as per following schedule, for practical training.

### YEAR-I

<table>
<thead>
<tr>
<th>Venue</th>
<th>Duration</th>
<th>Minimum</th>
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<tbody>
<tr>
<td>1. Medico-Legal Clinic</td>
<td>Months</td>
<td>6</td>
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<td><strong>Objectives:</strong> To observe and conduct Medico-legal examination and learn the art of Medico-legal certification.</td>
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<tr>
<td>2. Serology/ Haematology Laboratory</td>
<td>Month</td>
<td>1</td>
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<td><strong>Objectives:</strong> To learn various serological tests related to field of Forensic Medicine</td>
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<tr>
<td>3. Histopathology Lab</td>
<td>Month</td>
<td>1</td>
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<td>4. Court Attendance</td>
<td>Weeks</td>
<td>2</td>
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<td><strong>Objectives:</strong> To observe court procedure, proceedings And learn to act as expert witness.</td>
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<tr>
<td>5. Dentistry</td>
<td>Weeks</td>
<td>2</td>
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<td><strong>Objectives:</strong> To learn the nomenclature, international Charting and role of dentistry in Forensic Medicine.</td>
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### YEAR-II

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<thead>
<tr>
<th>Venue</th>
<th>Duration</th>
<th>Minimum</th>
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<tbody>
<tr>
<td>1. Autopsy Lab / Mortuary</td>
<td>Months</td>
<td>6</td>
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<td><strong>Objectives:</strong> To observe/ conduct Post-Mortem Examination and to learn reports writing.</td>
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2. **Chemical Examiner to Govt. of Punjab**
   **Month.**

   **Objectives:** To Learn various qualitative and
   Quantitative analytical techniques.

3. **Radiology Department**
   **Month**

   **Objectives:** To learn and interpret various radiological/
   Ultrasound findings relevant to field of Forensic Medicine.

4. **Ballistics / Forensic Science Laboratory**
   **Month**

   **Objectives:** To learn about various detection
   techniques performed.

B. **1st Minor (elective) course**

   General Pathology 100 Marks 100 Items 2 Hours

C. **2nd Minor (elective) course**

   2nd Minor 100 Marks 100 Items 2 Hours
   One elective course should be selected from the following,

   1. Chemical Pathology
   2. Haematology
   3. Immunology & Serology
   4. Cytogenetics

D. **Thesis**

   Thesis Examination 200 Marks
Suggested Readings:

5. Postmortem Procedures: By G. Gresham, and A. F. Turner. Published by Wolfe Medical Publications LTD.
6. The Pathology of Violent Injury: By J.K. Mason, Published by Edward Arnold.
7. Noys’ Modern Clinical Psychiatry: By Lawrence C. Koib, Published by W.E. Saunders Company.
8. Modern Legal Medicine, Psychiatry and Forensic Science: By William J. Curran; A. Louis Megarry; Charles S. Petty. Published by F.A. Davis Company.
10. Gradwohl’s Legal Medicine: By Francis E. Camps. Published by Bristol, Join Wright and Sons Ltd.
15. DNA & Criminal justice—the technology of justice.
17. Introductions to statistics for Forensic Scientists.
18. Computer Forensic investigations
20. Principles & Practice of Forensic Medicine by Nasib R. Awan
21. Robbin’s Pathologic basis of disease
22. Knight’s Forensic Pathology
23. Hand book of Forensic Pathology by Dimaio

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