



# Study Guide MD Forensic Medicine



**Rawalpindi Medical University**

**Department of Forensic Medicine & Toxicology**  
**Rawalpindi Medical University**



**“Those who believed and performed righteous deeds' are  
the best of creatures; their reward is heaven”**

**(Al-Bayyina: 7-8)**

**Study Guide  
For  
4 Years Degree Program  
In  
Forensic Medicine & Toxicology**

**MD Forensic Medicine**



**Rawalpindi Medical University  
Rawalpindi**

## Preface



The horizons of Medical Education are widening & there has been a steady rise of global interest in Post Graduate Medical Education, an increased awareness of the necessity for experience in education skills for all healthcare professionals and the need for some formal recognition of postgraduate training in **Forensic Medicine & Toxicology**.

We are seeing a rise in the uptake of places on postgraduate courses in medical education, more frequent issues of medical education journals and the further development of e-journals and other new online resources. There is therefore a need to provide active support in *Post Graduate Medical Education* for a larger, national group of colleagues in all specialties and at all stages of their personal professional development.

A summary of the curriculum is incorporated in the logbook for convenience of supervisors and residents. It also allows the clinicians to gain an understanding of what goes into basic science discoveries and drug development. Translational research has an important role to play in medical research, and when used alongside basic science will lead to increased knowledge, discovery and treatment in medicine. A perfect monitoring system of a training program including monitoring of teaching and learning strategies, assessment and Research Activities cannot be denied so we at RMU have incorporated evaluation by Quality Assurance Cell and its comments in the logbook in addition to evaluation by University Training Monitoring Cell (URTMC). Reflection of the supervisor in each and every section of the logbook has been made sure to ensure transparency in the training program. The mission of Rawalpindi Medical University is to improve the health of the communities and we serve through education, biomedical research and health care. As an integral part of this mission, importance of research culture and establishment of a comprehensive research structure and research curriculum for the residents has been formulated and a separate journal for research publications of residents is available.

**Prof. Muhammad Umar (Sitara-e-Imtiaz)**  
(MBBS, MCPS, FCPS, FACG, FRCP (Lon),  
FRCP (Glassgow), AGAF)  
Vice Chancellor

## Foreword

Forensic Medicine is the branch of science which helps the law in searching for the truth to maintain justice in the society. The increasing interest in Forensic Medicine throughout the world is no doubt a result of the global rise in both crime and litigation. The Department of Forensic Medicine and Toxicology is working with the aim of equipping the medical students with the essential knowledge of crime scene investigation. To meet the upcoming challenges, advance technology and new techniques are also introduced to the students. The museum of the department is the most modern one having models, wet specimens, instruments and other exhibits like pictures, X-Rays of medico-legal nature and specimen of poisons, weapons etc. Thus, imparting knowledge and contributing to other teaching and training facilities directed to the undergraduate & postgraduate students. The department has well-furnished and well-equipped Toxicology Lab dealing with teaching and training in areas of Forensic Toxicology, Forensic Serology, Forensic Anatomy, and Forensic Radiology. The department has held Journal club meeting on every First Saturday of the month. For practical orientation, the students visit Forensic Medicine Department and DHQ for Autopsy and Medico Legal training

I am indebted to my faculty members, Assistant Professor Dr. Filza Ali and Senior Demonstrator Dr Shahida Bashir at the Forensic Medicine department for organizing and formulating this curriculum with me, they both have performed very well within a limited time frame.

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Forensic Medicine & Toxicology

Rawalpindi Medical University

Rawalpindi

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## SECTION – I

### General Overview of the MD Forensic Medicine

#### **Vision:**

The vision of Department of Forensic Medicine and Toxicology is to provide relevant professional knowledge, skills and ethical values to medical students to enable them to apply their professional skills in provision of justice

- The Department of Forensic Medicine and Toxicology strives to demonstrate leadership in Forensic Sciences in order to:
- Provide affordable, high quality undergraduate and postgraduate education in accordance with the needs of the legal system of the province.
- Improve the educational standards for the training medico-legal officers at grass-root level in order to strengthen the prevalent medico-legal system.
- Conduct new specialized programs postgraduate certificate/ diploma/ degree programs in the field of Forensic Medicine and Toxicology.
- To provide 24/7 medico legal services and consultations to all public upon the request of relevant authorities.

#### **Mission:**

- To have a good command over the subject of Forensic Medicine & Toxicology to prepare a comprehensive Autopsy / Medicolegal certificates with the help of application of principles of medical knowledge in the court of law for furthering of justice
- Provision of standardized medico-legal services to the citizens of Rawalpindi District

## Statutes

### 1. **Nomenclature:**

The name of degree program shall be MD Forensic Medicine. This name is well recognized and established for the last many decades worldwide.

### 2. **Course Title:**

MD Forensic Medicine

### 3. **Training Centre:**

Department of Forensic Medicine & Toxicology, NTB & Mortuary of Rawalpindi Teaching Hospital.

### 4. **Duration of Course:**

The duration of MD Forensic Medicine course shall be four 4 with structured training in a Department of Forensic Medicine & Toxicology under the guidance of an approved supervisor.

### 5. **Overview of the course structure:**

- The course is structured in 4 parts; each part will have duration of 1 year.
- After admission, during the 4 years in MD Forensic Medicine program the trainee will be stationed in Forensic Medicine & Additionally in various Basic & clinical departments (Anatomy, Pathology, Community Medicine, Psychiatry) to get an in depth understanding of clinical aspects of basic medical sciences with a salient focus on medicolegal training & psychological sciences. The trainees will also undergo training in basic principles of research and will work at the development and completion of a research project.
- After completion of each year training, the trainees will have an exam. During the training period, trainees will work as registrars in the aforementioned department, where experienced faculty will supervise them.
- The trainee will be able to undertake the MD Forensic Medicine final exam provided the yearly exams have been cleared and a research project report/thesis has been submitted to Rawalpindi Medical University. The final degree will be awarded upon completion of all the requirements stipulated in the document.



## Admission Criteria

Applications for admission to MD Training Programs will be invited through advertisement in print and electronic media Mentioning closing date of applications and date of Entry Examination

### Eligibility:

- Applications for admission to MD Training Programs will be invited through advertisement in print and electronic media mentioning closing date of applications and date of Entry Examination
- The applicant on the last date of submission of applications for admission must possess the:
  - i. MBBS or equivalent qualification registered with P.M.D.C.
  - ii. One-year internship/House job in an institution recognized by P.M.D.C.
  - iii. Two- year teaching experience as demonstrator in Forensic Medicine in the institution recognized by P.M.D.C. **OR**
  - iv. Two years' experience as M.O/WMO in RHC/THQ/D.H.Q/Teaching Hospital **OR**
  - v. Three years working experience as MLO after graduation.

### Selection Criterion:

Selection of a candidate is subject to clearance of following tests.

- **Entry test:** M.C.Q(50 SBA)
- **Interview:** Candidates securing passing scores will be allowed to appear in interviews.
- **Selection Priorities:** After clearance of entry test, previous academic record, service in rural area.

### Registration and Enrolment:

- As per policy of Pakistan Medical Council the number of PG Trainees/ Students per supervisor shall be maximum 05 per annum for all residency programs including minor programs (if any).
- The University will approve supervisors for MD courses
- Candidates selected for the courses: after their enrollment at the relevant institutions shall be registered with RMU as per prescribed Registration Regulations.

## Aims and Objectives of Course

### General Objectives:

To train and teach postgraduate students Forensic or State medicine for attaining knowledge and skill to:

- Identify, examine & prepare report or certificate in medico legal cases/situations in accordance with the law of land.
- Perform medico legal post-mortem & interpret findings & results of other relevant investigations to logically conclude the cause, manner & time since death.
- Become aware of Medical ethics & etiquettes, Medical negligence and Medico legal duties
- To identify responsibilities of the doctors towards patient, profession, society, state & humanity.
- Acclimatize with relevant legal/court procedures applicable to the medico legal/ medical practice.
- Identify General principle of analytical environmental, occupational & preventive aspects of toxicology.
- Ascertain medico legal implications, diagnosis & principles of therapy of common poisons.
- Classify Different types of Bio-medical waste potential risks & their management.

### Specific Objectives:

The training is aimed to achieve the following learning outcomes in the Cognitive, Psychomotor and Affective domains.

#### A. Cognitive Domain

At the end of training, a candidate is able to:

##### 1. Understand the prevailing laws and legal procedure of the country

- Distinguish between the systems of medico-legal investigation in the country and abroad.
- Comprehend the court procedures and his /her position and role as an expert witness.
- Apply the Principles of medical Science for the elucidation of judicial queries.
- Interpret the enactments promulgated 'by the competent authorities to prevent offences against human body from the day of conception to death in accordance to the medical facts.
- Identify the legal and ethical aspects of medical practice.
- Utilize privileges and fulfill obligations as a Forensic expert towards state, community and professional colleagues.

##### 2. Understand the Phenomenon of death and the background regarding evolution of Various concepts, regarding death.

- Verify death in the light of evolution of various concepts regarding definition of death.
- Diagnose the moment of death and the changes occurring in a dead body subsequently.
- Recognize various Anatomical, Physiological, Pathological and Toxicological causes of death.
- Certify the cause of death based on international criterion.
- Estimate the fatal period, post mortem interval, manner and Mechanism of death.
- Comprehend the legal and ethical issues relevant to organ transplantation, persistent vegetative state and euthanasia.

##### 3. Understand the effects of violence on human body.

- Identify the various physicochemical agents existing in the environments/ society responsible for injury to human body.

- Interpret effects of such physicochemical agents On human body in structure: function and overall behavior,
- 4. Enumerate the various toxic agents used intentionally/ inadvertently in our environments**
- 5. Understand the importance and value of Biological/Non Biological Specimen in medico-legal work.**
- Select representative specimen for confirmation/ diagnostic purpose.  
Interpret logically the results of laboratory tests in the medico-legal context.
  - Demonstrate common laboratory Techniques and procedure
- 6. Recognize the significance of medico-legal documents prepared to denote the physical, sexual and mental condition of a person.**
- Prepare Autopsy report, Medical certificates regarding death and physical, sexual and mental fitness under various enactments.
  - Notify the concerned quarters regarding the seen and unforeseen dangers for public safety purpose.

### **B. Psychomotor Domain**

Trainee after completion of training is able to:

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

### **C. Affective Domain**

At the end of training program, a candidate is able to display following virtues of personal character.

- Depict in his 'actions sense of responsibility towards state, community and his brethren colleagues.
- Demonstrate honesty and professionalism while certifying and testifying a Medico-legal case.

- Believe in the value of truth, devotion and dedication while performing his professional duties.
- Establish a positive relationship with investigators and law enforcing institutions to achieve the aims of justice.
- Facilitate the transfer of information that is required for the diagnosis and management of the case.
- Distinguish his professional obligation vis-à-vis privileges.
- Accept the leadership of seniors and demonstrate spirit of teamwork.
- Understand the importance of obtaining and valuing a second opinion.
- Believe in the importance of self-learning, continuing education by consistently improving professional knowledge, skills and approach.
- Equip and abreast himself of latest technical and legal advancements in the field of Medical, Forensic Sciences and law.
- Recognize the role of planning, organizing and working of a medico-legal center including Autopsy and Medico-legal examination set up that can fulfill the objectives of Public Service.
- Offer his professional Services with willingness and pleasure whenever' required by the law enforcing institutions.
- Deal with patient/injured and the relatives with compassion, sympathy, in a nondiscriminatory, non-prejudice and free manner.
- Demonstrate sensitivity in performing intimate examination. He must inform and explain to the patient about his/her clinical condition.
- Preserve confidentiality regarding his patient's clinical condition within possible limits in his commands

## Training Modalities

### A. Duration Of Training/Course:

Total duration of the training session is four years. After completion of 1<sup>ST</sup> & 2nd year, an assessment examination will be conducted, under the name of Part I examination, (Candidate can only be promoted to Part II, after clearing Part I examination.)

### B. Attachment:

The trainee shall be attached for a period of two years to the Department of Forensic Medicine and Toxicology, Rawalpindi medical university. In addition the trainee is required to attend the ancillary departments as per schedule declared by the department of Forensic Medicine.

### C. Maintenance Of Discipline And Performance Of Duties:

The trainees are required to:

- Maintain strict discipline in the attached Departments.
- Maintain punctuality, regularity and consistency in their work.
- Actively participate in the routine work (teaching) and other academic and co-academic activities of the Department.
- Work efficiently to complete the assigned tasks within stipulated time.
- Attend various Departments/centers on rotation basis,
- Consider themselves as duty-bound officers, and work with same spirit and responsibilities as they were displaying in their parent institutions.

### D. Evaluation Of Performance:

Continuous assessment of the performance and acquisition of knowledge would be made and recorded during the period of training. The candidate performance will be communicated to the employer/head of the institution from which he is deputed, on periodical basis.

### E. Attendance:

75% attendance in the main and ancillary departments is mandatory. The trainee will be governed by standing Government rules regarding Casual, Sick or maternity leave

### F. Rotatory Training:

In order to acquire knowledge of applied basic Sciences, the trainee is required to be posted in the following Departments as per schedule notified by the respective Departments

### G. Activity Calendar:

All activities performed by the trainee will be recorded in a "activity card". Record of his participation in earning/demonstration of skills, Seminars, meetings, case presentation, teaching undergraduates and quality of cases observed will be maintained and considered for final evaluation of the candidate,

## Training Drill

The trainee shall be attached for the period of two years with the department of Forensic Medicine and Toxicology, RMU. 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.

Sr No	Venue	Objectives	Minimum Duration
1.	Department of Forensic Medicine	To understand laws related to medical man through lectures, CBLs, and teach undergraduates students	12 Months
2.	Medico-Legal Clinic & Accident & emergency of RTH	To observe and conduct Medico-legal examination	12 Months
3.	Mortuary	To observe! conduct Post-Mortem examination and to learn writing of reports	12 Months
4.	Research Methodology, Biostatics & Medical Writing	To learn about research, thesis writing and role of biostatistics in research	12Months
5.	Serology & Analytical Laboratory	To learn various serological tests related to field of Forensic Sciences	3 Months
6.	Electives Ballistics / Punjab Forensic Science lab	To learn about ballistics its types and their medico-legal importance	2 Months
7.	Department of Radio-Imaging	To learn and interpret Radiological findings relevant to Forensic Cases	1 Month

**M.D Forensic Medicine  
TRAINING DRILL  
(4 Years Program)**

**Medico-legal Examination  
(12 months)**  
Medico-legal Clinic  
Police Surgeon's office

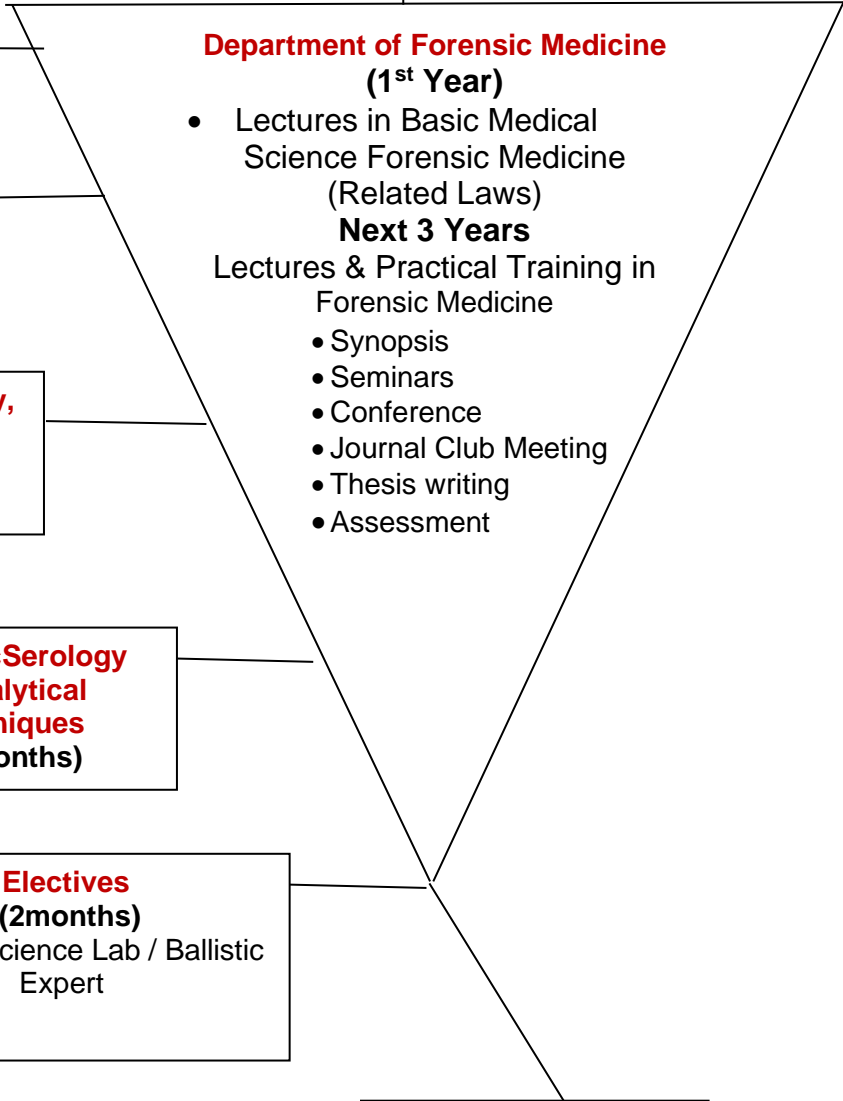
**Mortuary  
(12 Months)**  
Post- Mortem  
Laboratory

**Research Methodology,  
Biostatics & Medical  
writing.  
( 12months)**

**Forensic Serology  
& Analytical  
Techniques  
( 3months)**

**Electives  
(2months)**  
Forensic Science Lab / Ballistic  
Expert

**Radio – Imaging  
(01month)**



**MD Forensic Medicine PART I**  
**Detailed Syllabus**  
**Curriculum For 1<sup>st</sup> & 2<sup>nd</sup> Year**

Module: \_\_\_\_\_ (Basic sciences) Anatomy , Physiology & Biochemistry

Module Duration: \_\_\_\_\_ 2 Months

Module Coordinator: \_\_\_\_\_

<b>Applied Morbid Anatomy</b>			
<b>Topic</b>	<b>Content</b>	<b>Learning Strategy</b>	<b>Assessment tool</b>
General	<ul style="list-style-type: none"> <li>• Surface landmarks and regional Anatomy of Medico-legal significance</li> <li>• Outline of body organs with their relative position in erect and supine posture</li> <li>• Anatomy of Neck with Special reference to violent Asphyxial Deaths</li> <li>• Anatomy of scalp, skull &amp; its contents (brain &amp; meninges)</li> <li>• Anatomy of Heart and coronaries</li> <li>• Anatomy of male &amp; female genitalia with developmental Anomalies</li> </ul>		
Osteology	<ul style="list-style-type: none"> <li>• Comparative study of Anatomical features of male &amp; female skeleton with reference to skull, pelvis, long bones, mandible, Teeth and sternum.</li> <li>• Objective (Mathematical) Methods of gender differentiation from bones. .</li> <li>• Estimation of skeletal age from bones by study of location and time of appearance of ossification centers, Diphyseo-Epiphysel union, and metamorphic changes of senility.</li> <li>• Determination of racial stock &amp; estimation of stature from bony skeleton.</li> </ul>	Interactive Seminars and Videos  Interactive Lecture  SGD  PBL	MCQ  SEQ  OSPE  OSVE
Embryology	<ul style="list-style-type: none"> <li>• Outline of Embroyic /fetal development.</li> <li>• Studies of morphological developmental features to determine the fetal age.</li> <li>• Concept about Crown-Rump length, Crown-Heal length, body weight and appearance of ossification centers in fetal life.</li> </ul>		
Odontology	<ul style="list-style-type: none"> <li>• Pre &amp; post development of tooth.</li> <li>• Gross and sectional Anatomy of tooth.</li> <li>• Determination of age from developmental and atrophic changes in teeth.</li> <li>• Study of gender &amp; racial characteristics.</li> </ul>		



### Applied Physiology

Topic	Content	Learning Strategy	Assessment tool
Physiology	<ul style="list-style-type: none"> <li>• Body water and fluid balance.</li> <li>• Physiology of menstrual cycle &amp; pregnancy.</li> <li>• Physiology of thermoregulation.</li> <li>• Blood sugar Regulation, Diabetic and Hypoglycemic coma.</li> <li>• Blood grouping and RI-I incompatibility.</li> <li>• Physiology of Musculo-skeletal system.</li> <li>• Physiology of sexual and reproductive system.</li> </ul>	Interactive Seminars and Videos Interactive Lecture SGD PBL	MCQ SEQ OSPE OSVE

### Biochemistry

Topic	Content	Learning Strategy	Assessment tool
General	<ul style="list-style-type: none"> <li>• General concepts. Classification, Mechanism of action of Enzymes.</li> <li>• Role of enzymes in inflammatory conditions and death.</li> <li>• Acid Base balance, general consideration, buffer system of plasma, interstitial regulation of normal PH.</li> <li>• Water and Electrolyte Balance, general considerations. Body fluid compartments, regulation of body water balance and the electrolytes of body fluids.</li> <li>• System international (S.I) units and their conversion.</li> </ul>	Interactive Seminars and Videos Interactive Lecture SGD PBL	MCQ SEQ OSPE OSVE

Module: (Basic sciences) Pathology & Pharmacology

Module Duration: 1 Month

Module Coordinator: \_\_\_\_\_

**Pathology**

Topic	Content	Learning Strategy	Assessment tool
General	<ul style="list-style-type: none"><li>• Pathology of cell/ tissues, degenerative changes.</li><li>• Secondary Changes</li><li>• (Atrophy, Hypertrophy, Aplasia, Hyperplasia, Ischaemia, Necrosis, Infections, Cloudy swelling, Amyloidosis, Thrombo-Embolism, Fat-embolism wound healing &amp; repair)</li><li>• Body's local and systemic response to trauma.</li><li>• Phslo-Pathology of shock</li><li>• Outline of inflammation acute and chronic</li><li>• Carcinogenic agents, Tumors benign and malignant</li></ul>	Interactive Seminars and Videos Interactive Lecture SGD PBL	MCQ SEQ OSPE OSVE
Special	<ul style="list-style-type: none"><li>• Gross and Microscopic changes in Myocardial Infarction, Congenital and Hypertensive Heart Diseases, Tuberculosis, Cirrhosis</li><li>• Chronic industrial diseases with pulmonary manifestations.</li><li>• Anaphylaxis and Hypersensitivity reaction.</li><li>• Microbiology of cadavers with special reference to CL. Welchii</li><li>• Trauma and its relationship with suppurative conditions, malignant growths and stress phenomenon.</li></ul>		

**Applied Pharmacology**

Topic	Content	Learning Strategy	Assessment tool
Pharmacology	<ul style="list-style-type: none"><li>• Outline of Mechanism of absorption, distribution, metabolism, Biotransformation and excretion of Exotoxins (Poisons) in the biological systems.</li><li>• Drug interaction and adverse drug reaction.</li><li>• Concept of fatal dose.</li></ul>	Interactive Seminars and Videos Interactive Lecture SGD PBL	MCQ SEQ OSPE OSVE

Module: (Basic sciences) Forensic Medicine

Module Duration: 6 Months

Module Coordinator: \_\_\_\_\_

<b>Medical Jurisprudence (Law Related to Medical Man)</b>			
<b>Topic</b>	<b>Content</b>	<b>Learning Strategy</b>	<b>Assessment tool</b>
<p>Basic matters relevant to Forensic Medicine / Medical Jurisprudence and Law</p>	<ul style="list-style-type: none"> <li>• Definition role of Medical man in solving forensic problems</li> <li>• Historical background and development of the subject of Forensic Medicine</li> <li>• Legal system in Pakistan</li> <li>• Common legal terms / definitions</li> <li>• Courts and their powers legal procedure and inquest. System of Medico-legal investigation in Pakistan and other countries. Procedure of recording evidence in Courts Medical evidence, conduct and duties of Doctor towards court and while appearing in witness box. Dictums of Professional secrecy.</li> <li>• Importance of documentation in Medical practice. Various formats of Medical documents.</li> <li>• Law various types, statute Laws relevant to Medico-Legal practice like Pakistan Penal Code, Criminal Procedure Code, Police rules, Qanoon-e-Shahdat (Evidence Act) Qisas and Diyat ordinance, Zina and Hudood ordinance, Workman' Act, Social Security Act, child marriage restraint Act, Rules regarding admissions, treatment and discharge of mentally ill person to Mental Hospitals and Laws in relation to Drugs.</li> <li>• Regulations of Medical Profession, Governing Body (P.M &amp;D.C), its constitution and functions. Laws in relation to Medical man.</li> <li>• Duties of a Medical man as per Geneva declaration.</li> <li>• Privileges and obligations of a registered Medical practitioner</li> <li>• Consent, its types and importance in Medical practice.</li> <li>• Medical Negligence</li> <li>• Medical Ethics, their importance and Hippocratic oath.</li> <li>• Professional misconduct.</li> <li>• Confidentiality in Medical practice.</li> <li>• Privileged communications.</li> <li>• Ethical issue related to Therapeutic and Human experimentation, Organ Transplantation, Euthanasia, and obstetrical procedures.</li> </ul>	<p>Interactive Seminars and Videos Interactive Lecture SGD PBL</p>	<p>MCQ SEQ OSPE OSVE</p>

Module: (Basic sciences) Serology & Analytical techniques

Module Duration: 3 Months

Module Coordinator: \_\_\_\_\_

**Serology**

Topic	Content	Learning Strategy	Assessment tool
	<ul style="list-style-type: none"> <li>• Basic concepts of serology and Immunology</li> <li>• Morphology of Human Blood and its comparative study with common Domestic Animal species</li> <li>• Laws of inheritances of blood group systems</li> <li>• Methods of collection of blood for grouping its preservation and dispatch techniques</li> <li>• Blood group systems: A.B.O, RH and others with their determination techniques.</li> <li>• Constituents of blood for grouping like red cell enzymes, Haptoglobins, GM, Go systems and Hemoglobin.</li> <li>• D.N.A Technology and its Forensic, Application with method of collection and preservation of specimen for D.N.A test.</li> <li>• Application of blood groups and D.N.A Techniques in paternity tests.</li> <li>• Forensic importance of blood stains and their study under following headings               <ul style="list-style-type: none"> <li>✓ Physical</li> <li>✓ Chemical</li> <li>✓ Spectroscopic</li> <li>✓ Microscopic</li> <li>✓ Biological / Immunological</li> <li>✓ Group determination techniques</li> </ul> </li> <li>• Group specific substance and their utility</li> <li>• Study of semen and saliva with determination of grouping and ownership</li> <li>• Principles and techniques of various Immuno-Serological tests, precipitin test and its application to human soluble protein material like blood, semen, bony the grnents and tags of tissues</li> <li>• Pregnancy test.</li> </ul>	Interactive Seminars and Videos Interactive Lecture SGD PBL	MCQ SEQ OSPE OSVE

**Analytical Techniques**

Topic	Content	Learning Strategy	Assessment tool
General	<ul style="list-style-type: none"> <li>• Principles of Stass - Otto Process</li> <li>• Calorimetry</li> <li>• Photoelectric Colorimetry</li> <li>• Flame Photometry Atomic</li> <li>• Absorption-Spectro-Photometry</li> <li>• Chromatography</li> <li>• Electrophoresis</li> <li>• ELISA</li> </ul>	Interactive Seminars and Videos Interactive Lecture SGD PBL	MCQ SEQ OSPE OSVE

## MD Forensic Medicine & Toxicology PART II

(After 3rd & 4<sup>th</sup> Year)

### Curriculum for 3<sup>rd</sup> & 4<sup>th</sup> Year

Module: General Forensic Medicine

Module Duration: 1.5 Months

Module Coordinator: \_\_\_\_\_

<b>General Forensic Medicine</b>			
<b>Topic</b>	<b>Content</b>	<b>Learning Strategy</b>	<b>Assessment tool</b>
Forensic Sciences	<ul style="list-style-type: none"> <li>Introduction Historical development, scope and importance of various disciplines in crime detection and personal identity, especially Photography, Photo-fit and Identikit techniques Dactylography, Poroscopy, Dentistry, Anthropometry, Questioned documents, criminalistics, Ballistics, Lie detection D.N.A techniques Forensic aspects of Radiology, Anesthesiology and Obstetrics.</li> </ul>	Interactive Seminars and Videos  Interactive Lecture  SGD  PBL	MCQ  SEQ  OSPE  OSVE
Personal Identity	<ul style="list-style-type: none"> <li>Importance problems in living and dead various objective methods of identification, determination of Race, Sex, Age by using clinical and objective methods.</li> <li>Specification identification by observation by Moles, Birth marks scars, Occupation marks body measurements, Footprints, Supervision photographic and Para –Nasal sinuses technique.</li> <li>Evaluation of evidence from examination of skeleton and fragmentary remains.</li> </ul>		
Trace Evidence	<ul style="list-style-type: none"> <li>Definition, Classification and types. Locard's Principle of exchange with its application in Criminal cases.</li> <li>Study of scene of Crime Methods of recovery, collection, preservation and dispatch of trace evidence to laboratory.</li> </ul>		
Thanatology	<ul style="list-style-type: none"> <li>Definition, concepts about death and their evolution. Diagnosis of death and factors responsible for uncertainty in diagnosing death.</li> <li>Suspended animation, U.K code as diagnostic criterion for death. Mode, Cause manner and Mechanism of death. Physical changes in the various body structures after death and its importance.</li> <li>Importance of death certification and notification. International format of death certificate with illustrations and its importance.</li> <li>Post Mortem Chemistry of body fluids like blood, C.S.F and vitreous humour, their methods of collection, importance and interpretation of results.</li> </ul>		
Sudden Deaths	<ul style="list-style-type: none"> <li>Unexpected sudden natural deaths, causes with emphasis on Ischemic Heart diseases, Vasovagal Shock and Thrombo-Embollic Phenomenon</li> </ul>		

Module: Special Forensic Medicine

Module Duration: 3 Months

Module Coordinator: \_\_\_\_\_

<b>Special Forensic Medicine</b>			
<b>Topic</b>	<b>Content</b>	<b>Learning Strategy</b>	<b>Assessment tool</b>
Autopsy	<ul style="list-style-type: none"> <li>Definition, Types, Objective rules and techniques with procedural details. Autopsy protocol, Negative Autopsy and Post-Mortem artifacts, Requirements of Modern Mortuary with preventive strategy against potential risks and hazards determination of fatal period &amp; Post mortem interval.</li> <li>Autopsy on exhumed bodies, legal procedure, Techniques and validity.</li> </ul>		
General Traumatology ✓ Mechanical Injuries ✓ Firearm and Blast Injuries ✓ Non Mechanical Injuries	<ul style="list-style-type: none"> <li>Definitions of wound, injury and Hurt, Mechanism of production of wound. Clinical and legal classification of wounds and hurts. Clinical examination and certification of an injured person, assessment of disability, methods of determination of age of wound.</li> <li>Study of types of wounds according to causative agents. Firearms and ammunition, types effects of firearm projectile and other components discharged during firing on human body proportionate to type of projectile and Muzzle target distance.</li> <li>Traumatic lesions produced due to Environmental and Physical agents like heat, Cold, Electricity, Lightening and Radiations.</li> </ul>	Interactive Seminars and Videos  Interactive Lecture	MCQ  SEQ  OSPE
Special Traumatology ✓ Regional Injuries ✓ Road Traffic Injuries ✓ Custodial Injuries	<ul style="list-style-type: none"> <li>Wound and their aspects on various body structures and viscera's like scalp, skull, Meninges, Brain, Spinal cord, Pelvis, Neck, Chest, abdomen, locomotors systems &amp; teeth.</li> <li>Accidents, Industrial, Domestic Road Railway and aviation. Mass disaster &amp; Explosions methods / protocol of investigation.</li> <li>Torture, pattern and effects of Custodial deaths.</li> <li>Causes of death &amp; their complications, Presumption of Survivorship.</li> <li>Distinction between wounds caused by using criminal force, self-infliction and accidents.</li> <li>Distinction between suicidal, Homicidal &amp; Accidental Traumatic lisions Ante-mortem &amp; Postmortem wounds.</li> </ul>	SGD  PBL	OSPE  OSVE
✓ Violent Asphyxial Deaths	<ul style="list-style-type: none"> <li>Definition, Classification of Asphyxial deaths. Physio-Pathology and biochemical changes following Asphyxia. Mechanism, Causes of death, Post Mortem appearances and Medico-legal Aspects of deaths due to suffocation, Strangulation, Throttling, Traumatic Asphyxia, Sexual</li> </ul>		

	Asphyxia and Drowning. (Dysbarism & BaroTrauma).		
✓ Medicolegal Aspects of	<ul style="list-style-type: none"> <li>• Medico-legal aspects of Marriage. medical grounds of Nullity of marriage and Divorce, Impotence and Sterility Medico-legal aspects causes, examination and certification.</li> </ul>		
a. Marital Relationship	<ul style="list-style-type: none"> <li>• Diagnosis and Medico-legal aspects of virginity, Pregnancy, Delivery, Diagnosis of Delivery in living and Dead Legitimacy.</li> <li>• Termination of Pregnancy causes of natural and unnatural abortions, criminal abortion motives, methods, complications and causes of death following abortion.</li> </ul>		
b. Sexual Offences	<ul style="list-style-type: none"> <li>• Post-Mortem examination of the female, including determination of age gestation and aborted material. Estimation of Fetal age.</li> <li>• Natural &amp; unnatural Sexual offenses. Examination procedure, Justification regarding choice, Methods of recovery, collection and preservation of Biological specimens for confirmation in cases of sexual offence both in victim and aggressor.</li> </ul>		
c. Medicolegal Aspects of Infanticide and Child Abuse	<ul style="list-style-type: none"> <li>• Paraphilia: Pattern, Definitions.</li> <li>• Intentional /non accidental injures to children, sexual offences (Pedophilia). Distinction between live born, dead born, still born on autopsy examination. Causes of Un Natural deaths in infants.</li> </ul>		
d. Forensic Psychiatry	<ul style="list-style-type: none"> <li>• Autopsy on infants, determination of age in neonates.</li> <li>• Classification of mental disorders and abnormal Human behaviors. Civil and Criminal responsibility in mentally sick persons. Feigned insanity.</li> <li>• Suicide and Para Suicide</li> </ul>		





Module: Research

Module Duration: 12 Months

Module Coordinator: \_\_\_\_\_

Topic	Learning Objectives	Learning Strategy	Assessment tool
<b>Research methodology</b>	Understand some basic concept of research and its methodology. Identify appropriate research topic. Select and define appropriate research problem and parameters. Prepare a project proposal. Organize and conduct research in a more appropriate manner. Write a research report and thesis. Write a research grant proposal	Workshop	MCQ SEQ
<b>Biostatistics / Clinical audit</b>	Understand and apply statistical methods for design of biomedical research and analysis of research data Plan clinical audit project and select audit topics Consider best practice in selecting measurable criteria and standards	Workshop	MCQ SEQ
<b>Behavioral sciences</b>	Discover approaches to collecting and analyzing data Determine key area for improvement	Workshop	MCQ SEQ
	Demonstrate communication and counseling skills		

## Skill Learning:

At the end of course, the candidate is able to:

- Identify, Describe and note marks of identification of an examinee.
- Record Dying Declaration
- Perform Clinical examination and prepare reports regarding:
  - Determination of age
  - Injury Case
    - Alcoholic Case
    - Poisoning Case
    - Victim / Accused of Sexual offence
    - Potency, Sterility
- Recognize and locate important bony land marks.
- Estimate age, Determine Sex and Height of a person from Bones
- Conduct examination, describe and preserve clothes as a case property.
- Identify and describe suspected stain on a fabric.
- Conduct tests for species and group identification of a suspected material.
- Prepare blood film for Microscopy.
- Determine Sex From Buccal smear.
- Perform second examination of a injured, frame opinion and write report
- Conduct autopsy
- Describe Pathology effecting Heart, Cardiac, Valves, Coronary arteries on dissection.
- Demonstrate centers of ossification in a newly born Child on autopsy.
- Draw Biological fluids (Blood, Urine, C.S.F, Vitreous Humour) from dead body.
- Perform Diatom Test
- Perform Cardiopulmonary resuscitation (C.P.R)
- Perform Gastric Lavage.
- Perform Tracheostomy.
- Insert Endotracheal tube

# REGULATIONS

## Scheme of the Assessment

A summary of four years course in **MD Forensic Medicine** is presented as under:

<u>First In Training Assessment</u> At the end of 1 <sup>st</sup> Year Training	<u>Mid-Term Assessment (MTA)</u> At the end of 2nd year Training	<u>Third In Training Assessment</u> At the end of 3rd year Training	<u>Final Term Assessment (FTA)</u> At the end of 4th year Training
<ul style="list-style-type: none"> <li>Written Paper</li> <li>(conducted in house)</li> </ul>	<ul style="list-style-type: none"> <li>Written &amp; OSCE</li> </ul>	<ul style="list-style-type: none"> <li>Written Paper</li> </ul>	<ul style="list-style-type: none"> <li>Written, Clinical, And Thesis –</li> <li>Thesis submission 06 months before completion of training.</li> <li>Internal assessment = 75% for legibility to sit in FTA</li> </ul>
<b>Total Marks= 100</b>	<b>Total Marks =300</b>	<b>Total Marks= 100</b>	<b>Total Marks= 750</b>
MCQ=100 clinically based	<b>a) Written- Two papers</b> Two papers each of 75 scenario based MCQs 75+75=150 marks <b>(Pass%=60%)-eligibility for clinical assessment</b> <b>b) OSCE</b> - 150 marks	MCQs=100 clinically based	<b>a) Written- Two papers Total 300 marks</b> <ul style="list-style-type: none"> <li>1st paper- 100 MCQs (1X100) + 05 SEQ(5x10)</li> <li>Total 150marks</li> <li>2nd paper- 100 MCQs (1X100) + 05 SEQ(5x10)</li> <li>Total 150marks</li> </ul> <b>(Pass%=60%)-eligibility for clinical assessment</b> <b>b) Clinical</b> <ul style="list-style-type: none"> <li>OSCE – 150 marks (07 Observed and 08 unobserved stations)</li> </ul> <b>c) Viva Voce- 100 marks (Pass%=60%)</b> <b>d) Thesis- 100 marks</b> <ul style="list-style-type: none"> <li>Presentation :30marks</li> <li>Discussion: 70marks</li> </ul> <b>e) Continouos internal assessment: 100 marks (10%)</b>
<b>Pass Percentage = 50%</b>	<b>Pass percentage = 60%</b>	<b>Pass percentage = 50%</b>	<b>Pass percentage = 60%</b>

## Scheme Of Examination & Assessment

M.D (Forensic Medicine)

1. After completion of each session (1 & 2 years), Rawalpindi Medical University will conduct examination, as per schedule announced by the controller of Examination.

### M.D Forensic Medicine (After 1<sup>st</sup> year )

Component:

2. Theory Examination : 100 MCQs (After 1<sup>st</sup> Year) 150 MCQs (After 2<sup>nd</sup> Year)

#### Component I. Theory

Theory Scheme showing type and number of questions & Syllabus included.

Paper No.	Type of Questions	Number of Questions	Marks Reserved	Syllabus Included
01.	a) MCQ'S	100	100	1. Applied Morbid Anatomy 2. Applied Physiology 3. General Pathology 4. Special Pathology 5. Serology 6. Forensic Medicine 7. Applied Pharmacology 8. Biochemistry

**Note** Candidate who passes theory Component will be promoted to complete 3 years of thesis & Practical training.

### TOS:(Table of Specification)

#### Anatomy

Paper no	Topics	Number of questions	%age
01	General	3	3%
02	Osteology	3	3%
03	Embryology	3	3%
04	Odontology	2	2%
	Total	11	11%

#### Physiology

Paper no	Topics	Number of questions	%age
01	Body water and fluid balance General	1	1%
02	Physiology of menstrual cycle & Pregnancy	2	2%
03	Physiology of Thermoregulation	1	1%
04	Blood Sugar Regulation, Diabetic and Hypoglycemic coma	1	1%
05	Blood grouping and RH Incompatibility	2	2%
06	Physiology of Musoule-Skeletal system	1	1%
07	Physiology of Sexual and reproductive system	1	1%
	Total	9	9 %

### General Pathology

Paper no	Topics	Number of questions	%age
01	Cell Pathology	1	1%
02	Secondary Changes	1	1%
03	Body response to Trauma	2	2%
04	Physio-Pathology of Shock	1	1%
05	Inflammation, acute and Chronic	1	1%
06	Carcinogenic agents, Tumors, benign and malignant	1	1%
07	Histological/Histochemical determination	2	2%
	Total	9	9 %

### Special Pathology

Paper no	Topics	Number of questions	%age
01	Gross & Microscopic changes in Myocardial Infarction	1	1%
02	Chronic Industrial Diseases	1	1%
03	Anaphylaxis and Hypersensitivity Reaction	1	1%
04	Microbiology of cadaver	2	2%
05	Trauma of its relationship with stress phenomenon	2	2%
	Total	7	7%

### Serology

Paper no	Topics	Number of questions	%age
01	Concepts of Serology and Immunology	1	1%
02	Morphology of Human blood	2	2%
03	Blood groups of their collection	1	1%
04	D.N.A technology & its Forensic application	2	2%
05	Blood group and D.N.A in paternity tests	1	1%
06	Forensic Importance of blood stains	1	1%
07	Group Specific Substance and their unity	1	1%
	Total	9	9 %

### General toxicology

Paper no	Topics	Number of questions	%age
01	Outline of Mechanism of absorption, distribution, metabolism, Biotransformation	3	3%
02	Drug interaction and adverse drug reaction	3	3%
03	Concept of fatal dose	2	2%
	Total	8	8%

## Biochemistry

Paper no	Topics	Number of questions	%age
01	General	3	3%
02	Enzymology	1	1%
03	Acid base, balance, general, consideration buffer system of plasma	3	3%
	Total	7	7%

## Forensic Medicine(Law related to Medical man)

Paper no	Topics	Number of questions	%age
01	Role of Medical man in solving forensic problems	2	2%
02	Historical background & Medicolegal System in Pakistan	3	3%
03	Documentation in Medical Practice	2	2%
04	Courts & their powers	3	3%
05	Law, various types, statute laws relevant to Medicolegal practice	3	3%
06	Procedure of recording ordinance in court Medical evidence and duties of doctor toward court.	3	3%
07	Qisas and Diyat ordinance 1991	3	3%
08	Zina & Hudood Ordinance 1979	3	3%
09	Workman's compensation act	3	3%
10	Medical Ethics/ Professional Misconduct	3	3%
11	Medical Negligence	3	3%
12	Confidentiality in Medical Practice/ Privileged communications	3	3%
13	Pakistan Medical & Dental Council	2	2%
14	Ethical issue related to therapeutic and human experimentation, organs transplantation, Euthanasia & obstetrical Medical practitioner	3	3%
15	Privileges & Obligation of a registered Medical practitioner	1	1%
	Total	40	40%

## M.D Forensic Medicine FTA

Examination Consists of Two Components

**Total marks: 750**

### Component I

### Allocated Marks

Theory comprising of two papers

**300 Marks** (150 marks for each paper)

### Scheme for Theory Examination

Paper No	Type of Questions	Number of Questions	Marks Reserved	Syllabus Included
01.	a) MCQ'S b) Short Essay type SEQ'S (Problem Solving)	100 05	100 50	<ul style="list-style-type: none"><li>• Forensic Science</li><li>• General Forensic Medicine</li><li>• Autopsy, Sudden Death.</li><li>• Traumatology</li><li>• Violent Asphyxial Death</li><li>• Sexual Forensic Medicine</li><li>• Pediatric Forensic Medicine</li></ul>
02.	a) MCQ'S b) Short Essay type SEQ'S (Problem Solving)	100 05	100 50	<ul style="list-style-type: none"><li>• General Toxicology</li><li>• Special Toxicology</li><li>• Forensic Psychiatry</li></ul>

### Component II

### Allocated Marks

Practical (O.S.P.E and Viva Voce)

**400 Marks**

### Scheme For Practical Examination

Type	Number	Marks Allocated
a) Slides, Spotting and Radiographs	15stations 10x15=150	150
b) Viva Voce and Discussion	.....	100
c) Continous internal Assessment	.....	100
d) Thesis Examination		100
	Total	450

## Assessment

It will consist of action and professional growth oriented student centered integrated assessment with an additional component of informal internal assessment, formative assessment and measurement-based summative assessment.

### Student-Centered Integrated Assessment

It views students as decision-makers in need of information about their own performance. Integrated assessment is meant to give students responsibility for deciding what to evaluate, as well as how to evaluate it, encourages students to 'own' the evaluation and to use it as a basis for self-improvement. Therefore, it tends to be growth oriented, student-controlled, collaborative, dynamic, contextualized, informal, flexible and action-oriented.

In the proposed curriculum, it will be based on:

- Self-Assessment by the student
- Peer Assessment
- Informal Internal Assessment by the Faculty

#### 1. Self-Assessment by the Student

Each student will be provided with a pre-designed self-assessment form to evaluate his/her level of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

#### 2. Peer-Assessment

The students will also be expected to evaluate their peers after monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non-judgmental in nature. This will enable students to become good mentors in future.

#### 3. Informal Internal Assessment by the Faculty

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknesses rather than hiding them from their instructors.

It will include:

- a. Punctuality
- b. Medico legal work
- c. Monthly assessment (written tests to indicate particular areas of weaknesses)
- d. Participation in interactive sessions

## Formative Assessment

It will help to improve the existing instructional methods and the curriculum in use.

### Feedback to the faculty by the students:

After every three months students will be providing a written feedback regarding their course components and teaching methods. This will help to identify strengths and weaknesses of the relevant course, faculty members and to ascertain areas for further improvement.

### Multisource Feedback (360 Degree Evaluation)

Assessment Records/Evaluation Performa's Shift to main <b>LOG BOOK</b>	Evidence of all available assessment records and six monthly 360 degree evaluation records should be mentioned in this section to have a reflection about resident's medical knowledge, patient care, communication skills, system based learning, practice based learning and professionalism. Copies of the result cards/assessment records should be attached as evidence
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## Monthly Written Test MCQ

### Summative assessment:

It will be carried out at the end of the programme to empirically evaluate **cognitive, psychomotor** and **affective domains** in order to award diplomas for successful completion of courses.



## Methods Of Teaching & Course Conduction

As a policy, active participation of students at all levels will be encouraged.

Following teaching modalities will be employed:

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological conferences
6. SEQ as assignments on the content areas
7. Skill teaching in forensic labs and medico-legal sections of hospitals
8. Self-study, assignments and use of internet

In addition to the conventional teaching methodologies following interactive strategies will also be introduced to improve both communication and clinical skills:

### Monthly Student Meetings

Each affiliated medical college approved to conduct training for DMJ will provide a room for student meetings/discussions such as:

- a. Journal Club Meeting
- b. Core Curriculum Meetings
- c. Skill Development

#### a) Journal Club Meeting

Two hours per month should be allocated to the presentation and discussion of a recent journal article related to Forensic Medicine & Toxicology. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in medico legal practice / services. Record of all such articles should be maintained in the relevant department of each medical college. Students of different medical colleges may be given an opportunity to share all such interesting articles with each other.

#### b) Core Curriculum Meetings

All the core topics of DMJ should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief student (elected by the students of the relevant diploma). Each student should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure.

#### c) Skill Development

Two hours twice a month should be assigned for learning and practicing clinical skills. Two hours twice a month should be assigned for learning and practicing medico-legal, autopsy conduction List of skills to be learnt during these sessions is as follows:

- i. Communication skills.
- ii. Physical Examination related to clinical examinations and medico-legal, autopsy conduction.
- iii. Practical Skills i.e., use of relevant autopsy instruments.
- iv. Presentation Skills: Power-point, lectures, small group discussions, article presentation etc.
- v. Research and Scientific Writing
- vi. Management of Toxicological Emergencies in Casualty department.
- vii. For acquisition of procedural skills (mentioned in Log book) opportunities during medicolegal and autopsy postings should be availed.

### Annual Grand Meeting

Once a year all students enrolled for DMJ should be invited to the annual meeting at RMU Rawalpindi.

One full day will be allocated to this event. All the chief students will present their annual reports. Issues and concerns related to their relevant diploma courses may be discussed during the meeting.

Feedback should be collected and also suggestions can be sought in order to involve students in decision making. The research work and their literary work may also be displayed. In the evening an informal gathering and dinner should be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

## Competency Level in Dealing with Forensic Cases

Case	Year 1 & 2	Year 3	Year 4
<b>Clinical Examination</b>			
<b>A. Forensic Cases</b>			
<b>Physical Assault</b>	2	3	4
<b>Sexual Assault</b>	2	3	4
<b>Poison/ Drug abuse</b>	2	3	4
<b>Drunkard</b>	2	3	4
<b>B. Civil Cases</b>			
<b>Age determination</b>	2	3	4
<b>Sex related problems</b>	2	3	4
<b>Physical/Mental Fitness</b>	2	3	4
<b>Disability compensation</b>	2	3	4
<b>Autopsy</b>			
<b>a. Medico-Legal</b>	1	2-3	4
<b>b. Clinical</b>	1	2-3	4
<b>c. Special Cases &amp; Exhumation</b>	-1	2	3-4
<b>d. Preservation and Transportation of dead</b>	2	3-4	4
<b>Toxicological Cases</b>			
<b>Diagnosis and Management</b>	2	4	4
<b>Documentation</b>			
<b>Medical certificates</b>	2	4	4
<b>Medical-Legal Reports</b>	2	4	4
<b>Protocol designing</b>	-	2	4
<b>Laboratory Skills</b>			
<b>Preservation of Biological Material</b>	2	3	4
<b>Serological Tests</b>	1	2	3
<b>Molecular Biology</b>	-	2	3
<b>Histopathology</b>	-	2	3
<b>Analytical techniques</b>	-	2	3
<b>Training in ancillary specialties</b>			
<b>A. Dentistry &amp; Osteology(Radiology)</b>			
<b>Nomenclature</b>	1	2	4
<b>International chattering</b>	1	2	4

## SECTION – II

### Research & Thesis Writing

Total of one year will be allocated for work on a research project with thesis writing. Project must be completed and thesis be submitted before the end of training. Research can be done as one block in 4<sup>th</sup> year of training or it can be stretched over four years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

#### Research Experience

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including publications in peer-reviewed journals. Residents must learn the design and interpretation of research studies, responsible use of informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the medical literature. Residents should be advised and supervised by qualified staff members in the conduct of research

#### Clinical Research

Each resident will participate in at least one clinical research study to become familiar with

- Research design
- Research involving human subjects including informed consent operations of the Institutional Review Board and ethics of human experimentation
- Data collection and data analysis
- Research ethics and honesty
- Peer review process

#### Details of Research Curriculum & Mandatory workshops

All mandatory workshops should be attended during first two years of training of MD forensic Medicine.

- Introduction to Computer and Internet
- Research Methodology, Biostatistics and Dissertation Writing
- Communication Skills
- Basic Life Support Course

#### Note:

- The workshops are conducted by the Department of Medical Education and the candidates are advised to get registered online. The BLS course is conducted by the Advanced Skills Department (ASD) and the registration form is to be submitted with the ASD separately.
- No candidate will be allowed to appear in examination without attending the abovementioned workshops and BLS course.

#### Research

One of the training requirements is a dissertation or two research papers on topics related to the field of specialization

- Synopsis of the dissertation must be submitted to registration & Research Cell (R&RC) by the end of first year and should be approved before starting the research work.

Topic	Learning Objectives	Learning Strategy	Assessment tool
<b>Research methodology</b>	Understand some basic concept of research and its methodology. Identify appropriate research topic. Select and define appropriate research problem and parameters. Prepare a project proposal. Organize and conduct research in a more appropriate manner. Write a research report and thesis. Write a research grant proposal	Workshop	MCQ SEQ
<b>Biostatistics / Clinical audit</b>	Understand and apply statistical methods for design of biomedical research and analysis of research data Plan clinical audit project and select audit topics Consider best practice in selecting measurable criteria and standards	Workshop	MCQ SEQ
<b>Behavioral sciences</b>	Discover approaches to collecting and analyzing data Determine key area for improvement  Demonstrate communication and counseling skills	Workshop	MCQ SEQ

## SECTION – III

### Evaluation and Assessment Strategies

#### Final Examination

All candidates admitted in MD Forensic Medicine course shall appear in Final examination at the end of structured training program (end of 4th calendar year).

#### Eligibility Criteria:

To appear in the Final Examination the candidate shall be required:

- i) To have submitted the result of passing Abridged Examination/ Mid-term assessment MTA
- ii) To have submitted the certificate of completion of training, issued by the Supervisor will be mandatory.
- iii) To have achieved a cumulative score of 75% in Continuous Internal assessments of all training years.
- iv) To have got the thesis accepted and will then be eligible to appear in Final Examination.
- v) To have submitted no dues certificate from all relevant departments including library, hostel, cashier etc.
- vi) To have submitted evidence of submission of examination fee.

#### Final Examination Schedule and Fee

- a) Final examination will be held twice a year.
- b) The candidates have to satisfy eligibility criteria before permission is granted to take the examination.
- c) Examination fee will be determined and varied at periodic intervals by the University.
- d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- e) The Controller of Examinations will issue an Admittance Card with a photograph of the candidate on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee. This card will also show the Roll Number, date / time and venue of examination.

### Details of MD Forensic Medicine Examination (Written and Clinical)

#### Theory Examination

**Total marks Theory exam: 300marks**

Two papers each of three hours duration.

**Paper I:** 05 Short Essay Questions (SEQs) +  
100 MCQs Single Best Answer (MCQs)

**Total marks:** 150

**Time:** 3 hours

**Paper II:** 05 Short Essay Questions (SEQs) +  
100 MCQs Single Best Answer (MCQs)

**Time:** 3 hours

**Total marks:** 150

The candidates, who pass in theory papers, will be eligible to appear in the clinical, TOACS/OSCE & ORAL.

#### Oral / Practical Examination

**Total marks OSPE +Viva=Thesis exam: 350**

- Slides/photographs/ Spotting =15 stations  
(07 Observed interactive stations + 08 Unobserved stations)
- Total OSPE: 150 marks
- Viva Voce : 100 marks
- Thesis: 100marks(Presentation:30marks +Discussion:70marks)

#### Continuous internal Assessment:

**100marks**

## M.D Forensic Medicine FTA

Examination Consists of Two Components

### Component I

### Allocated Marks

1. Theory comprising of two papers.

**300 Marks** (150 marks for each papers)

#### Scheme For Theory Examination.

Paper No.	Type of Questions	Number of Questions	Marks Reserved	Syllabus Included
01.	a) MCQ'S b) Short Essay type SEQ'S (Problem Solving)	100 05	100 50	<ul style="list-style-type: none"><li>• Forensic Science</li><li>• General Forensic Medicine</li><li>• Autopsy, Sudden Death.</li><li>• Traumatology</li><li>• Violent Asphyxial Death</li><li>• Sexual Forensic Medicine</li></ul>
02.	a) MCQ'S b) Short Essay type SEQ'S (Problem Solving)	100 10	100 100	<ul style="list-style-type: none"><li>• Toxicology</li><li>• Pediatric Forensic Medicine</li><li>• Forensic Psychiatry</li><li>• Forensic serology</li></ul>

### Component II

### Allocated Marks

Practical (O.S.P.E and Viva Voce)

**350 Marks**

**Continuous internal Assessment:**

**100marks**

#### Scheme For Practical Examination.

Type	Number	Marks Allocated
a) Slides, Spotting and Radiographs	15stations 10x15=150	150
b) Viva Voce and Discussion	.....	100
c) Thesis Examination	.....	100
d) Continuous internal Assessment		100
	Total	450

**Total Marks FTA MD Forensic Medicine: 750**

## **MD Forensic Medicine Final Thesis Examination**

- The candidate will submit his/her thesis at least 06 months prior to completion of training.
- The Thesis along with a certificate of approval from the supervisor will be submitted to the Registrar's office, who would record the date / time etc. and get received from the Controller of Examinations within 05 working days of receiving.
- The Controller of Examinations will submit a panel of eight examiners within 07 days for selection of four examiners by the Vice Chancellor. The Vice Chancellor shall return the final panel within 05 working days to the Controller of Examinations for processing and assessment. In case of any delay the Controller of Examinations would bring the case personally to the Vice Chancellor.
- The Supervisor shall not act as an examiner of the candidate and will not take part in evaluation of thesis.
- The Controller of Examinations will make sure that the Thesis is submitted to examiners in appropriate fashion and a reminder is sent after every ten days.
- The thesis will be evaluated by the examiners within a period of 06 weeks.
- In case the examiners fail to complete the task within 06 weeks with 02 fortnightly reminders by the Controller of Examinations, the Controller of Examinations will bring it to the notice of Vice Chancellor in person.
- In case of difficulty in find an internal examiner for thesis evaluation, the Vice Chancellor would, in consultation with the concerned Deans, appoint any relevant person as examiner in supersession of the relevant Clause of the University Regulations.
- There will be two internal and two external examiners. In case of difficulty in finding examiners, the Vice Chancellor would, in consultation with the concerned Deans, appoint minimum of three, one internal and two external examiners.
- The total marks of thesis evaluation will be 100 and 60% marks will be required to pass the evaluation.
- The thesis will be considered / accepted, if the cumulative score of all the examiners is 60%.
- The clinical training will end at completion of stipulated training period but the candidate will become eligible to appear in the Final Examination at completion of clinical training and after acceptance of thesis. In case clinical training ends earlier, the slot will fall vacant after stipulated training period.

## SECTION – IV

### LOG BOOK

The trainees must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for M.Phil examination. Log book should include adequate number of diagnostic and therapeutic procedures, routine emergency management of patients, case presentation of medico-legal, trauma, poisoning and sexual assault in CPCs, journal club meetings and literature review.

#### **Procedures:**

1. Techniques of autopsy incisions.
2. Techniques of neck dissection layer by layer.
3. Opening of body cavities.
4. Demonstration/ examination of coronary arteries by stepwise dissection of heart and check their patency.
5. Demonstration of pneumothorax, fat embolism and pulmonary embolism at autopsy table.
6. Differentiate between blackening and tattooing of the fire arm case at autopsy table.
7. Differentiate between bruise and postmortem clot at autopsy table.
8. Techniques of using stomach wash tube in case of poisoning.
9. Collection, sampling, sealing and dispatch of appropriate material in case of poisoning, rape/zina, sodomy etc. to the chemical examiner to the Govt. of Punjab Lahore.
10. Collection, sampling, sealing and dispatch of appropriate material / viscera in case of suspected disease to the Bacteriologist Govt. of Punjab Lahore.



**Sample Log Book for MD Forensic Medicine**  
**Rawalpindi Medical University**  
**Department of Forensic Medicine & Toxicology**



**SECTION-I**

**1. PARTICULARS RELATED TO THE CANDIDATE:**

Name:

.....

Father's/ Husband's Name:

.....

Date of Birth:

.....

C.N.I.C Number:

.....

Nationality:

.....

RMU Registration Number:

.....

Year of Graduation:

.....

Institution of Graduation:

.....

PMDC Registration Number:

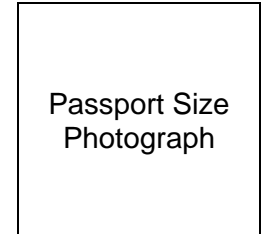
.....

Any Other Qualification:

.....

Previous Experience (Department, Institution & Duration):

<b>DESIGNATION</b>	<b>EXPERIENCE DATE (FROM-TO)</b>
House Job	
MO/Demonstrator	
Others	



## **2. OBJECTIVES OF THE LOG BOOK:**

1. This Log Book will be a part of the prerequisite for appearing in the MD Examination of Forensic Medicine.
2. It will help the trainee to maintain his/her record regarding various academic achievements.
3. It will also identify his/her deficiencies in specific areas of Forensic Medicine.
4. It will help the project director to assess the trainee.

## **3. INSTRUCTIONS TO THE STUDENTS:**

1. The candidate will maintain the Log Book during the whole period of his training.
2. He/she will fill the columns of the Log Book on the same day of the activity.
3. All the entries must be signed by the teacher.
4. Consolidated sheets will be completed and signed by the teacher.
5. The candidate shall bring the Log Book in the final examination.
6. Log Book not signed by the teacher/supervisor/ incharge will make the student ineligible for the examination.

## **4. AIMS AND OBJECTIVES OF THE TRAINING PROGRAM:**

1. The student accepts subject of Forensic Medicine in its full sense as a lifelong activity and that he/she is prepared to invest time and effort to acquire, maintain and further improve his/her own knowledge and skill.
2. A critical appreciation of techniques, procedures is carried out in the subject of Forensic Medicine and an understanding of scientific methods is acquired for reliability and validity of observations and the testing of hypothesis.
3. The ability and willingness to adopt a problem solving approach to manage medico-legal issues.
4. The ability to plan and interpret a management program with due regard to the patient's comfort and economic factors related with compensation and justice.
5. Awareness of the role of Medical Jurist in health/rehabilitation/welfare teams and his/her willingness to work cooperatively within such teams.
6. Awareness of the fact that he/she has to create his/her own professional impact as a capable specialist.
7. To pursue and develop the basic scientific pursuits and guidelines for scientific discoveries to strengthen knowledge further about medico-legal issues.
8. The candidate should recognize the importance of team work and function as effective member/leader of the team.



















### Forensic Serology Laboratory

Sr. No.	Date	Practical		Signature of Teacher
		Physical examination of blood	Naked eye examination, Examination by hand lens.	
		Physiochemical examination of blood	Spectroscopic examination	
		Chemical examination of blood	Preliminary chemical test, i.e., Benzidine & Phenolphthalein	
		Chemical examination of blood	Confirmatory chemical tests, i.e., Takayama's & Teichmann's test	
		Species specific examination of blood	Precipitin test Microscopic examination of blood	
		Blood grouping	Forwarded & Reverse grouping	

**Signature of Supervisor**

**CPC/SEMINARS/JOURNAL CLUB/PRESENTATION ATTENDED**

<b>S/N</b>	<b>Date</b>	<b>Topic</b>	<b>Teacher's Signature</b>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

**Signature of Supervisor**

**INDIVIDUAL STUDENT PRESENTATIONS (JOURNAL CLUB)**

<b>S/N</b>	<b>Date</b>	<b>Topic</b>	<b>Teacher's Signature</b>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

**Signature of Supervisor**

**TEST EVALUATION RECORD OF STUDENT**

<b>S/N</b>	<b>Date</b>	<b>Method of Evaluation (Oral, Practical, Theory)</b>	<b>Rating</b>	<b>Teacher's Signature</b>
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

**Remarks of Supervisor**

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**Rawalpindi Medical University  
Department of Forensic Medicine & Toxicology**

**Record of Compulsory Training Components of MD Forensic Medicine FTA**

S/N	Training	Compulsory Period	Attended From - To	Center	Signature of Trainer
01.	Forensic medicine & Basics Departments	12 Months	Basics Departments <b>6-8months</b>		
			Forensic serology & Analytical Toxicology <b>03 Months</b>		
			Ballistics / Punjab Forensic Science lab <b>02 Months</b>		
			Radio imaging <b>01 Month</b>		
02.	Autopsy Conduction*	12 Months			
03.	Medico-legal Examination*	12 Months			
04.	Research Methodology, Biostatics & Medical writing.	12 Months			

**Signature of Supervisor**

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\* No. 2 & 3 may start simultaneously.  
Cases observed since admission may be counted.  
(50 autopsies & 100 medico-legal cases)



**Rawalpindi Medical University  
Department of Forensic Medicine & Toxicology**

**Supervisor Certificate**

It is certified that Dr. \_\_\_\_\_ son/ daughter/ of \_\_\_\_\_ student **MD Forensic Medicine** has completed theoretical, practical and all scheduled availing training programs.

He/ she have attended all required Journal Club/ Seminars has presented \_\_\_\_\_ topics in journal club, and has completed all assignments allocated to his/her account. He appeared in \_\_\_\_\_ tests, out of \_\_\_\_\_ his/her tests score is graded as \_\_\_\_\_.

**Name of the Supervisor**