

ZERO SEMESTER (FOUNDATION & PRACTICAL SKILLS)

for

Master of Philosophy

in

Forensic Medicine



**UNIVERSITY OF HEALTH SCIENCES,
LAHORE PAKISTAN**

ZERO SEMESTER (FOUNDATION & PRACTICAL SKILLS)

Program: M.Phil Forensic Medicine (UHS)

Duration: 3 Months (12 Weeks)

Purpose of Zero Semester: The Zero Semester is designed as a preparatory and bridging semester for incoming M.Phil Forensic Medicine students. Its primary objective is to equip students with essential practical skills, laboratory equipment handling, research orientation, medico-legal case work exposure, and professional ethics required to smoothly transition into advanced M.Phil coursework and research. Emphasis is placed on hands-on training, applied learning, and familiarity with forensic laboratory and medico-legal environments.

OVERALL LEARNING OBJECTIVES

By the end of the Zero Semester, students will be able to:

- Demonstrate basic laboratory safety, biosafety, and ethical practices in forensic settings
- Perform fundamental forensic laboratory techniques and sample handling
- Understand medico-legal workflows, documentation, and chain of custody
- Apply basic research, data handling, and scientific writing skills
- Gain introductory exposure to autopsy procedures and crime scene investigation
- Develop communication, professionalism, and academic integrity

STRUCTURE & TIME DISTRIBUTION

- **Total Duration:** 12 Weeks
- **Weekly Contact Hours:** 15 hours
- **Total Contact Hours:** 180 hours
- **Mode:** Practical-oriented with demonstrations, simulations, and supervised practice

Module No.	Module Title	Weeks	Primary Training Setting(s)
Module 1	Orientation, Biosafety & Laboratory Practices	Weeks 1–2	Department of Forensic Medicine, UHS Jinnah Campus
Module 2	Forensic Sample Handling & Chain of Custody	Weeks 3–4	Services Institute of Medical Sciences, Lahore
Module 3	Basic Forensic Laboratory Techniques	Weeks 5–6	Department of Forensic Medicine, UHS Jinnah Campus
Module 4	Introduction to Forensic Biology Tools	Weeks 7–8	Department of Forensic Medicine, UHS Jinnah Campus

Module 5	Medico-Legal Examination & Autopsy Orientation	Weeks 9–10	Lahore General Hospital (LGH), Lahore, SIMS, Lahore
Module 6	Crime Scene & Digital Forensics Introduction	Weeks 11–12	Department of Forensic Medicine, UHS Jinnah Campus

MODULE-WISE BREAKDOWN

MODULE 1: ORIENTATION, BIOSAFETY & LABORATORY PRACTICES (Weeks 1–2)

Objectives: To familiarize students with forensic laboratory environments, safety standards, and professional conduct.

Contents:

- Introduction to forensic medicine laboratories and medico-legal institutions
- Laboratory safety rules, biosafety levels, and risk assessment
- Use of Personal Protective Equipment (PPE)
- Chemical, biological, and sharp hazards management
- Waste disposal and decontamination procedures
- Laboratory documentation and record keeping
- Introduction to forensic instruments and basic maintenance

Practical Skills:

- Proper donning and doffing of PPE
- Safe handling of chemicals and biological samples
- Emergency response drills (spills, exposures)
- Maintenance of laboratory notebooks

MODULE 2: FORENSIC SAMPLE HANDLING & CHAIN OF CUSTODY (Weeks 3–4)

Objectives: To train students in evidence handling, preservation, and legal admissibility.

Contents:

- Types of forensic evidence (biological, chemical, trace, physical)
- Sample collection techniques from living and deceased
- Labelling, sealing, packaging, and transportation of samples
- Chain of custody principles and legal importance
- Evidence storage conditions and documentation
- Common errors in evidence handling

Practical Skills:

- Mock sample collection and packaging
- Chain of custody documentation exercises
- Evidence storage simulations
- Case-based discussions on evidence mishandling

MODULE 3: BASIC FORENSIC LABORATORY TECHNIQUES (Weeks 5–6)

Objectives: To provide hands-on exposure to core forensic laboratory methods.

Contents:

- Introduction to forensic serology and biology
- Presumptive and confirmatory tests for blood and body fluids
- ABO blood grouping techniques
- Microscopic adjustment
- Introduction to chromatography and spectrophotometry
- Basic drug screening tests

Practical Skills:

- Blood and semen identification tests
- Microscopy of trace evidence
- Basic spectrophotometric analysis

MODULE 4: INTRODUCTION TO FORENSIC GENETICS & MOLECULAR TOOLS (Weeks 7–8)

Objectives: To introduce students to molecular biology techniques relevant to forensic genetics.

Contents:

- DNA structure and sources of forensic DNA
- DNA extraction principles
- Quantification and quality assessment
- PCR overview and STR typing concepts
- Gel electrophoresis principles
- Ethical and legal considerations in DNA analysis

Practical Skills:

- DNA extraction (demonstration/hand-on where facilities permit)

- Agarose gel electrophoresis
- Interpretation of basic DNA profiles (software demonstration)

MODULE 5: MEDICO-LEGAL EXAMINATION & AUTOPSY ORIENTATION (Weeks 9–10)

Objectives: To familiarize students with medico-legal examinations and postmortem procedures.

Contents:

- Legal framework of medico-legal practice in Pakistan
- Inquest papers and medico-legal documentation
- Types of autopsies and their objectives
- External and internal examination overview
- Injury documentation and interpretation
- Sample collection during autopsy
- Ethical issues in postmortem practice

Practical Skills:

- Observation of medico-legal examinations
- Autopsy demonstrations (observational/assisted)
- Injury photography and documentation
- Preparation of medico-legal reports (mock cases)

MODULE 6: CRIME SCENE & DIGITAL FORENSICS INTRODUCTION (Weeks 11–12)

Objectives: To provide introductory exposure to crime scene processing and digital tools.

Contents:

- Principles of crime scene investigation
- Crime scene documentation and photography
- Fingerprint development methods
- Bloodstain pattern basics
- Introduction to digital evidence
- Use of basic forensic software and AI-assisted tools (introductory)

Practical Skills:

- Mock crime scene processing
- Fingerprint development and lifting
- Crime scene photography and sketching
- Simple digital data interpretation exercises

RESEARCH & ACADEMIC SKILLS (INTEGRATED THROUGHOUT)

- Introduction to research ethics and plagiarism
- Literature search (PubMed, Google Scholar)
- Reference management tools
- Basic biostatistics concepts
- Scientific writing fundamentals
- Research proposal orientation

ASSESSMENT STRATEGY

- Continuous practical assessment
- Laboratory logbooks
- Case-based assignments
- Objective Structured Practical Examination (OSPE)
- Attendance and professional conduct

DAILY PROGRESS REPORT (DPR)

Zero Semester – M.Phil Forensic Medicine (UHS)

Student Information

Item	Details
Student Name	
Registration No.	
Batch	
Zero Semester Week	
Date	
Training Venue	<input type="checkbox"/> LGH (Autopsy) <input type="checkbox"/> SIMS (Medico-Legal) <input type="checkbox"/> UHS Jinnah Campus

Module Details

Item	Details
Module No. & Title	
Topic / Activity	
Supervisor / Instructor	

Daily Activities & Observations

Component	Description
Practical Work Performed / Observed	
Instruments / Techniques Used	
Cases / Specimens Handled (if any)	
Safety & Ethical Practices Followed	

Skills & Competencies Gained

Category	Details
Technical Skills	
Documentation / Reporting Skills	
Professional & Ethical Skills	

Learning Reflection

Item	Description
Key Learning Outcomes	
Difficulties / Challenges Faced	
Suggestions / Questions (if any)	

Supervisor's Evaluation

Criteria	Satisfactory / Needs Improvement
Attendance & Punctuality	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs Improvement
Practical Engagement	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs Improvement
Understanding of Activity	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs Improvement
Professional Conduct	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs Improvement

Supervisor's Remarks:

Signatures

Role	Name	Signature	Date
Student			
Supervisor			