



**Faculty of Medicine**  
Sabaragamuwa University of Sri Lanka



**Handbook in  
Forensic Medicine & Toxicology for Medical  
Students**



**Faculty of Medicine  
Sabaragamuwa University of Sri Lanka  
2025**

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## **Introduction**

Welcome to the Department of Forensic Medicine and Toxicology.

Forensic Medicine is a challenging branch of Medicine where the medical knowledge assists in resolving matters before courts of law or other fora which could be with regard to criminal cases or civil disputes. Forensic Medicine embodies both Forensic Pathologies which deals with medico-legal management of the dead, and Clinical Forensic Medicine which deals with the living, in order to assist the administration of justice. In Sri Lanka, a medical graduate possessing an MBBS degree is considered an expert medical witness in a court of law, thus requiring all doctors who qualify, to be able to carry out routine medico-legal duties. This course would assist students to achieve that objective.

Some of the main functions of a forensic medical practitioner include conducting forensic or medico legal autopsies, examination of victims of violence which includes victims of sexual and gender-based violence and victims of torture, compiling reports to courts, and providing oral testimony. Teamwork with allied professionals like forensic scientists, police officers investigating crimes and legal professionals in the criminal justice is key to be a successful forensic medical practitioner. A basic awareness of the legal framework of the country and relevant criminal law is useful.

There are several forensic subspecialties that a doctor needs to be aware of, such as forensic toxicology, forensic genetics, forensic radiology, forensic anthropology and forensic psychiatry to name a few.

## **Academic Staff of the Department**

Dr. MGU Sampath - MBBS(Ruhuna), MD-Paed (Col), MRCPCH (UK), DCH (SL) -  
**Acting Head of the Dept.**

Prof. Sanjaya Hulathduwa - MBBS, MD, DLM, DMJ Path (Lond) DMJ Clin (Lond), Dip.  
Crim. MFLM(UK) L.LB. FCFPSL. FSASS.

Dr. Handun P. Wijewardena - MD (USSR); DLM, MD [Forensic Medicine] (Col).

Dr. M. Sivasubramaniam - MBBS (Jaffna); DLM; MD Forensic Medicine (Col).

## **Visiting Professors**

Prof. Asela Mendis - MBBS; DLM; MD For Med (Col); D-ABMDI (USA); ATHE  
(UK); SEDA UK.

Prof. Clifford Perera - MBBS; DLM; MD For Med (Col); MA (Kelaniya); LLB (OUS)L;  
DMJ Path.

## Academic programme

### Course Content

Subject Area	Teaching/Learning Method	Semester
Legal and ethical aspects of medical practice.	Lectures – 12 hours Tutorials – 2 hours	5
Introduction to forensic medicine and mechanical injuries / injury patterns	Lectures – 14 hours Tutorials – 2 hours Demonstrations – 3 hours	5
Toxicology Agrochemicals, plant poisons, heavy metals, snake bites, narcotics]	Lectures – 14 hours Tutorials – 1 hour Demonstrations – 1 hour	5/6
Deaths due to asphyxia, mechanical trauma and natural causes, and its medico-legal importance	Lectures – 20 hours Tutorials – 2 hours Demonstrations – 2 hour	6
Sexual offences, child abuse, RTA, maternal deaths and infanticide	Lectures – 18 hours Tutorials – 2 hour Demonstrations– 4 hours	7
Clinical training	2 weeks – 50 hours	6/7

### Credit Value of the course

Semester	5,6 and 7					
Year	3 and 4					
Course Code	FORMED					
Course Name	Forensic Medicine Lectures+ SGDs +Practical +assessments					
Lectures+ SGDs +Practical +assessments A	Clinical Appointment Total contact hours B	Total contact hours A+B	Independent student learning C	Total Notional hours A+B+C	Credit calculation	Credit value
120	50 2 Weeks appointment (Monday to Friday 8AM to 12 PM Saturday 8 AM to 1 PM)	120+ 50	305	425 + 50	425/50=8.5 50/100=0.5	09

## Detailed Syllabus- Forensic Medicine and Toxicology

Unit	Topics ( <i>Lectures/Seminars/Problem Based Learning Sessions or Small Group Discussions</i> )	Duration in hours
Introductory Forensics	Introduction and overview of the course	1
	Medico legal duties of a doctor in Sri Lanka	1
	Introduction to Legal and forensic terminology	1
	The legal and judicial framework and structure of medicolegal services in Sri Lanka	1
	Documents used in medicolegal examinations and reporting	1
Clinical Forensic Medicine	Principles and procedures in clinical forensic examinations	1
	Basic injuries and mechanisms of trauma	2
	Pathophysiology and sequelae of trauma	1
	Medico legal interpretation of injuries and injury patterns	1
	Categorization of hurt following trauma	1
	Identification and differentiation of blunt and sharp force trauma	1
	Medico legal aspects of Head injuries	2
	Other regional injuries & injuries due to fall from height	1
	Road traffic and velocity related injuries	2
	Firearms and explosive injuries	2
	Thermal and corrosive burns	1
	Electrical injuries and lightning	1
	Child abuse	2
	Abortion	1
	Human Rights Violations and Torture	2
Domestic violence and spouse abuse	1	
Sexual offences	1	
Forensic Pathology	Medical and legal aspects in the management of deceased persons	1
	Inquest law and investigations into sudden and unnatural deaths	1
	Principles and procedures of conducting an autopsy	1
	Principles of estimating the time since death	1
	Postmortem changes of body and their medico legal significance	1
	Principles in reporting on the cause of death	1
	High risk autopsy: Autopsy hazards and personal protective equipment	1
	Drowning and deaths due to immersion	2

	Sudden Natural Deaths	3
	Deaths following therapeutic/investigative procedures	1
	Maternal deaths	1
	Infanticide and child deaths	1
	Deaths in custody	1
	Deaths due to Starvation and Neglect	1
	Death due to ARDS	1
	Deaths due to Asphyxia	4
	Management of deaths in Mass disasters	2
	Sudden and unexpected deaths from environmental hazards: Hypothermia & Hyperthermia	1
Forensic Toxicology	Principles and procedures of sample collection, storage and toxicological analysis	1
	Alcohol and drug abuse	3
	Medicolegal examination for drunkenness	1
	Agrochemical poisoning	1
	Medicinal drug overdose	1
	Plant and animal toxins	1
	Heavy metal poisoning	1
	Asphyxiating agents	1
Forensic Science	Principles and procedures in conducting scene of crime examinations	1
	Blood Stain Analysis	1
	Medico legal aspects of DNA in forensic investigations	1
	Forensic anthropological examinations in the living and dead	2
	Principles of forensic odontology and its role in forensic investigations	1
	Mass graves and principles of forensic archaeology	1
Medical Law and ethics	Ethical aspects of medical practice	1
	Basic Criminal Law & important sections of the Penal Code	1
	Legal aspects of Road Traffic Trauma	1
	Legal aspects of Sexual Offences	1
	Medical negligence	1
	SLMC and Professional misconduct	1
	Role of a doctor as an expert witness in court	1
	Legal and ethical aspects of euthanasia, abortion and end of life care in Sri Lanka	2
	Ethical and Legal aspects of Transplantation of Tissues	1

## **The Time Table**

You will be learning Forensic Medicine & Toxicology during the 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> semesters in the medical curriculum. Each student will learn Forensic Medicine and Toxicology during 2 to 3 hours of contact time per week with the staff in our department in these semesters. During these hours you will participate in various teaching learning activities, which are described in detail below.

This does not mean that you have to limit yourself to learning Forensic Medicine and Toxicology during these hours. The contact time you have with us is for the purpose of directing your learning and to facilitate your learning process. Therefore, you will need to devote many more hours for self-learning or learning in groups.

The approximate number of hours that are set aside for Forensic Medicine and Toxicology are as follows:

### **Year 3 Semester 5 to Year 4 Semester 7**

- Lectures -87 hours
- Tutorials/Small Group Discussions (SGD)/Problem Based Learning /Seminars/Debates -23 hours

### **Year 3 Semester 6 to Year 4 Semester 7**

Clinical Appointment - 2weeks

Semester V	Topic	Lectures	Number of Lecture hours	Tutorials/SGD	Any other tools
	Introduction and Overview of the Course	1	1	3	Clinical Clerkship-50 Hours
	Medico-legal duties of a doctor in Sri Lanka	1	1		
	Introduction to Legal and forensic terminology	1	1		
	The Legal and judicial framework and Structure of medico legal services in Sri Lanka	1	1		
	Documents used in medico legal examinations and reporting	1	1		
	Principles and Procedures in clinical forensic examinations	1	1		
	Basic Injuries and Mechanisms of Trauma	1	2		
	Pathophysiology and Sequelae of Trauma	1	1		
	Medico-legal interpretation of injuries and injury patterns	1	1		
	Categorization of hurt following trauma	1	1		
	Identification and differentiation of blunt and sharp force trauma	1	1		
	Medico-legal aspects of head injuries	1	2		
	Other regional injuries & injuries due to falls from height	1	1		
	Road traffic and velocity-related injuries	1	2		
	Firearms and explosive injuries	1	2		
	Thermal and corrosive burns	1	1		
	Electrical injuries and lightning	1	1		
	Child abuse	1	2		
	Abortion	1	1		

Semester VI	Topic	Lectures	Number of Lecture hours	Tutorials/SGD	Any other tools
	Human Rights Violations and Torture	1	2	3	Clinical Clerkship-50 Hours
	Domestic Violence and Spouse Abuse	1	1		
	Sexual Offenses	1	1		
	Medical and legal aspects in the management of deceased persons	1	1		
	Inquest law and investigations into sudden and unnatural deaths	1	1		
	Principles and procedures of conducting an autopsy	1	1		
	Principles of estimating the time since death	1	1		
	Postmortem changes in a body and their medico-legal significance	1	1		
	Principles in reporting on the cause of death	1	1		
	High-risk autopsy: Autopsy hazards and personal protective equipment	1	1		
	Drowning and deaths due to immersion	1	2		
	Sudden Natural Deaths	1	3		
	Deaths following therapeutic/investigative procedures	1	1		
	Maternal deaths	1	1		
	Infanticide and child deaths	1	1		
	Deaths in custody	1	1		
	Deaths due to Starvation and Neglect	1	1		
	Death due to Acute respiratory distress syndrome	1	1		
	Deaths due to Asphyxia	1	4		
	Management of deaths in Mass disasters	1	2		

Semester VII	Topic	Lectures	Number of Lecture hours	Tutorials/SGD	Any other tools
	Sudden and unexpected deaths from environmental hazards: Hypothermia & Hyperthermia	1	1	3	Clinical Clerkship-50 Hours
	Principles and Procedures in Sample Collection, Storage, and Toxicological Analysis	1	1		
	Alcohol and Drug Abuse	1	3		
	Medico-legal Examination for Drunkenness	1	1		
	Agrochemical poisoning	1	1		
	Medicinal Drug Overdose	1	1		
	Plant and Animal Toxins	1	1		
	Heavy Metal Poisoning	1	1		
	Asphyxiating Agents	1	1		
	Principles and Procedures in Conducting Scene of Crime Examinations	1	1		
	Bloodstain analysis	1	1		
	Medico legal aspects of DNA in forensic investigations	1	1		
	Forensic anthropological examinations in the living and dead.	1	2		
	Principles of forensic odontology and its Role in forensic investigations	1	1		
	Mass Graves and Principles of forensic archaeology	1	1		
	Ethical Aspects of medical practice	1	1		
	Basic Criminal Law & important sections of the Penal Code	1	1		
	Legal Aspects of Road Traffic Trauma	1	1		
	Medical negligence	1	1		

## **Intended Learning Outcomes (ILO) of the course in Forensic Medicine & Toxicology**

A graduate completing the forensic medicine course of the MBBS undergraduate curriculum in Sri Lanka should be able to;

### **1. Identify the basic medicolegal duties pertaining to health services in Sri Lanka**

Describe the medico-legal framework in Sri Lanka

Describe the legal and ethical responsibilities of medical officers working in different capacities

Analyse the medico-legal significance of trauma and disease in civil and criminal legal context

Discuss the legal concepts in Sri Lanka in relation to

- Offences committed against the body
- Investigation and disposal of the dead
- Offences involving intoxicants
- Medical ethics
- Medical negligence.

Discuss the roles and responsibilities of a doctor when called upon to;

- Examine a victim of trauma
- Perform an autopsy
- Examine persons referred from courts or custodial institutions
- Examine a scene of crime
- Examine unidentified human remains
- Provide expert opinion in a court of law

### **2. Perform clinical medicolegal examinations in cases of violence and trauma in a scientific, evidence-based manner**

Identify and describe different types of external and Internal injuries.

Describe the relationship between the mechanism of trauma and the nature and severity of injuries.

Identify injury patterns in relation to homicidal, suicidal and accidental circumstances of trauma.

Differentiate accidental from non-accidental (intentional) trauma based on the injury patterns

Describe the pathophysiology and sequelae of injuries in causing disability, disease and death.

Formulate an opinion on the sequelae and outcome of trauma in relation to;

- Category of hurt
- Physical and psychological disability
- Prognosis and period of survival

Identify the limitations and challenges in conducting medicolegal examinations in complex trauma cases and initiate appropriate referrals to specialized centers.

### **3. Perform forensic autopsies in sudden and unnatural deaths in a scientifically reviewable manner**

Demonstrate the basic steps in conducting an autopsy according to scientifically and legally acceptable guidelines.

Identify the need for pre-autopsy ancillary investigations such as toxicological screening, radiology, microbiology etc. in selected cases.

Demonstrate routine dissection procedures for evisceration of organs and comprehensive examination of vital organs (brain, heart, lungs, liver and kidneys).

Identify the need and describe the procedures adopted in special dissections such as;

- Layered neck dissection
- Subcutaneous dissection
- Spinal cord dissection
- Pelvic dissection
- Regional vascular dissections (e.g., pulmonary vessels, calf veins, vertebral artery)

Apply knowledge in anatomy and pathology during autopsies in the documentation and interpretation of injuries and pathological lesions.

Demonstrate techniques for obtaining samples for further investigations including histopathology, toxicology, microbiology, serology, DNA and genetic studies

Demonstrate the recovery and preservation of evidentiary material from an autopsy in a legally admissible manner and maintaining a chain of custody.

Apply the principles of biosafety and occupational safety when conducting forensic autopsies

#### **4. Interpret the clinico- pathological findings from an autopsy and formulate relevant medicolegal opinion.**

Describe and discuss the pathophysiology of trauma and disease in causing death

Describe and discuss the changes, which take place in a body after death.

Differentiate ante mortem injuries from post-mortem injuries and artefacts.

Explain the principles used in determining

- Time since death
- Volitional activity prior to death
- Period of survival between trauma and death

Establish and report on the cause of death according to recommended, internationally acceptable guidelines

Formulate evidence-based opinions on the circumstances of death.

Establish the identity of a deceased person using scientifically acceptable forensic anthropological criteria.

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#### **5. Demonstrate effective communication skills including oral presentation skills and report writing skills**

Identify the necessary communication and interpersonal skills needed to effectively engage with;

- Victims of child abuse
- Victims of sexual abuse
- Victims of domestic violence
- Victims of torture
- Grieving relatives
- Intoxicated individuals
- Persons accused of crimes

Obtain legally valid informed consent for medicolegal examination from a trauma victim giving due consideration to age and mental capacity

Obtain a medicolegal history from a trauma victim in an impartial and empathic manner

Take an appropriate medico-legal history from the relatives of the deceased/eyewitness/police at a post mortem examination.

Collect antemortem data regarding a deceased person from relatives in a socially and culturally acceptable manner.

Document the examination and investigation findings from clinical and autopsy cases in a legally admissible and scientifically reviewable manner

Communicate the interpretation of findings to non-medical audiences clearly and accurately.

#### **6. Demonstrate effective continuing professional development with self-learning ability within the medico-legal service**

Compare and contrast the medicolegal processes and systems within Sri Lanka with other countries

### **Teaching / Learning Methods**

- Lectures, face to face and online
- Practical Demonstrations
- Tutorials/ SGDs
- Role plays
- Case Based Discussions
- Fixed Learning Modules

#### **Lectures**

The most common form of teaching learning activity will be lectures which will be given by departmental and extended staff members. Handouts can be provided for most lectures mainly to encourage active listening during the lecture. Audio-visual material from many of the lectures can be made available in digital format.

#### **Problem Based Learning (PBL) sessions / Small Group Discussions**

Students will be provided with a real-life forensic scenario commonly encountered by a medical officer which will require forensic investigation. PBLs will be held in two sessions. During the first session, students will highlight the medico-legal issues relate to the problem and will use their existing knowledge to analyse the problem. Afterwards they will identify the learning areas that they need to refer and learn further. On the second session students

present and discuss what they have learnt and review the problem and solutions they propose. During these sessions students will work in small groups and will benefit primarily from peer learning and self-directed learning.

### **Seminars**

These could be either student or staff seminars which will comprise of short presentations followed by panel discussion. Student seminars are encouraged as they will promote student centered active learning and peer learning. Staff seminars will be done by either departmental or extended staff or with external resource persons.

### **Dramas/Role play**

The use of drama and role play has been very useful in medical curricula particularly in improving professional attitudes, self-reflection and logical and analytical thinking. Dramatization of a forensic investigation will be helpful to strengthen the theoretical input students have received and also to gain some insight into the practical problems faced during medico-legal investigations.

### **Self-study**

Self-study is strongly recommended. Books and journals in forensic medicine will be available to students in the faculty library and a list of recommended text books is given at the end of this document. In order to gain competency in identifying injuries it is important to see as many pictures and illustrations as possible. There are numerous atlases and image references that will help students gain that competence.

### **Clinical training**

Students will acquire practical skills in clinical medicolegal examinations and autopsies through clinical rotations done in small groups. Minimum duration of the clinical appointment is two-weeks.

During the appointment students are expected to perform medicolegal history taking and examination of cases of trauma in accident service and surgical casualty wards. They are expected to complete and handover medicolegal examination form and medicolegal reports of the cases that they have examined. They are expected to observe and assist in forensic autopsies and handover completed post-mortem reports. A log book will be given to each student to maintain a record of the medico legal procedures they have seen and performed and additional learning they have gained during the appointment. An assessment will be held at the end of the clinical appointment. Students who fail to meet the desired standards at this assessment will be expected to repeat the appointment.

## Assessment Strategy

### Continuous (In Course) Assessments

Exam Marks	Assessment Method	Allocated Time	Marks
End of Semester 5	20 MCQ (15 MTF type + 5 SBA)	1 hour	5 marks
End of Semester 6	OSPE 10 stations	6 min each	5 marks
End of Semester 7	Clinical forensic medicine evaluation Completion of medico legal reports of clinical cases, MLEF and MLR		10 marks
<b>Total</b>			<b>20 marks</b>

### Eligibility to appear for the End of Course Assessments (3rd MBBS Part 2 Examination)

- Satisfactory completion of clinical appointments (2 weeks)
- Satisfactory completion of Continuous Assessments

### End of Course Assessments (3rd MBBS Part 2 Examination)

Exam	Assessment Method	Allocated Time	Marks
Written Paper I	MCQ: 15 MTF Type + 3 SBA	1.5 hours	20 marks
	+ 3 EMQs with 4 scenarios each		
Written Paper II	5 SEQ	2.5 hours	30 marks
OSPE	10 stations	6 min each	25 marks
OSVE		10 min	5 marks
Contribution from Continuous (In Course) Assessments			20 marks
<b>Total</b>			<b>100 marks</b>

*\*SEQ= Structured Essay Question, MTF = Multiple True False, MCQ= Multiple Choice Questions, SBA = Single Best Answer, EMQ= Extended Matching Questions, OSPE = Objective Structured Practical Examination, OSVE = Objective Structured Viva Examination*

***The Continuous Assessment marks out of 20, will be considered only for the first attempt at the end of course assessment (3<sup>rd</sup> MBBS Part 2 Examination). For subsequent attempts the marks out of 80 will be converted to a mark out of 100.***

### **Recommended Books:**

- Simpson's Forensic Medicine 14<sup>th</sup> Edition 2019, Jason Payne-James, Richard Martin Jones, (Eds.). CRC Press
- Clinical Forensic Medicine 3<sup>rd</sup> Edition 2009, WDS McLay (Ed). Cambridge University Press
- Handbook of Forensic Pathology 2<sup>nd</sup> Edition 2006, Di Maio V.J.M., Dana S.E., CRC Press, Taylor and Francis Group.
- Lecture Notes in Forensic Medicine. Volume I, II, III, IV (2005). L.B.L. de Alwis.

### **Supplementary Reading (Optional)**

- Knight's Forensic Pathology. 4<sup>th</sup> Edition 2015, Pekka Saukko, Bernard Knight, CRC Press.
- Clinical Forensic Medicine: A Physician's Guide, 3<sup>rd</sup> Edition 2011, Margaret M Stark (Ed.). Humana Press.
- Forensic Pathology: Principles and Practice. 1<sup>st</sup> Edition 2006, David Dolinak, Evan Matshes, Emma O Lew. Elsevier Academic Press
- Forensic Pathology 2<sup>nd</sup> Edition 2001, Di Maio V.J.M., Di Maio D.J. CRC Press.
- The Pathology of Trauma 3<sup>rd</sup> Edition 2000, J.K. Mason, B.N. Purdue (Eds.), Hodder Arnold Education Publishers
- Management of Poisoning. 1st Edition 1998, Ravindra Fernando, National Poisons Information Centre Sri Lanka

*\* Latest editions are recommended*

