

Student Study Guide
Forensic Medicine and
Clinical Toxicology
(FMT-319)





Faculty of Medicine
Department of Forensic Medicine
and Clinical Toxicology



FORENSIC MEDICINE AND CLINICAL TOXICOLOGY

(FMT-319)

STUDENT STUDY GUIDE
2025-2026

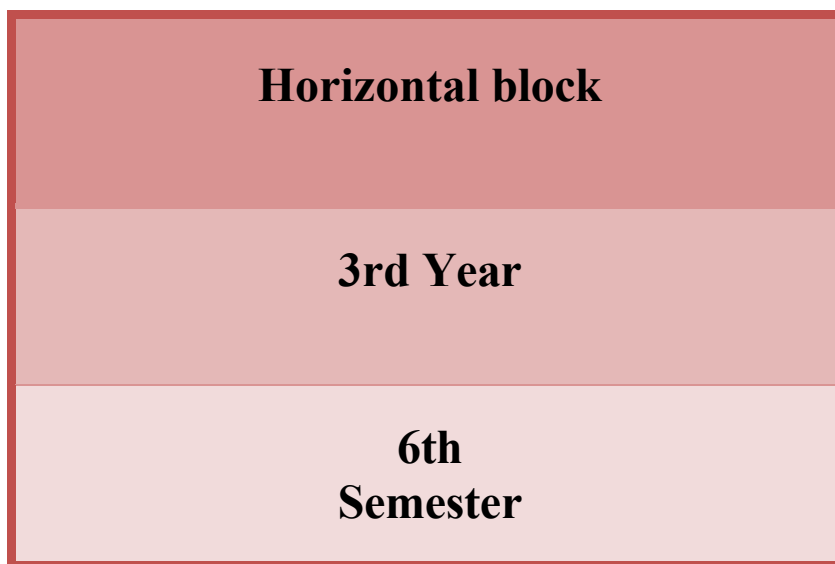
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CURRICULUM MAP



1-Block specification

A-Basic Information:

Course title: Forensic Medicine and Clinical Toxicology.

Code: FMT -319

Program on which the course is given: Bachelor of Medicine and Surgery (M B., B.Ch.).

Departments offering the course: Forensic medicine and Clinical Toxicology.

Academic year/level: 3rd year - 6th semester **Date of specification approval:** 2022-2023 / 2024-2025/ 2025-2026

Credit points: 6

Lectures: 42 hours

Practical: 32 hours

Student learning activities: (SDL self-directed learning): 90 hours.

Group discussion, seminars, formative assessment/feedback quizzes: 16 hours

Total: 180 hours

Block Map of: Forensic Medicine and Clinical Toxicology

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Head of the Department: Prof.

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Block	Points	days/week	learning activities		
			Contact hours/points	formative assessment/feedback	assignment
Forensic Medicine and Clinical Toxicology	6	4 weeks	90 hours	15 hours/.5 points	75 hours/2.5 points

B- Professional Information

1. Block aims

OVERALL AIM OF THE BLOCK

The aim of this block is to introduce medical students to the concepts of the medical science problems and its relation to law. Prepare the students to diagnose the state of death and its illegal causes. Prepare the students to diagnose the cases of poisoning and how to manage them.

2. Intended Learning Outcomes (ILOs):

A. Knowledge and understanding:

A1. Describe medicolegal aspects of personal identification and dead human bodies.

A2. Describe medicolegal aspects of examination of blood stains.

A3. Demonstrate diagnosis of death, postmortem changes and postmortem decomposition.

A4. Demonstrate medicolegal aspects of general and special types of wounds.

A5. Demonstrate medicolegal aspects of head injuries.

A6. Demonstrate medicolegal aspects of firearm injuries.

A7. Explain and define medicolegal aspects of injuries due to physical agents.

A8. Demonstrate medicolegal aspects of asphyxia.

A9. Explain and define medicolegal aspects of pregnancy and delivery.

A10. Explain and define medicolegal aspects of abortion.

A11. Explain and define medicolegal aspects of infanticide.

A12. Explain and define medicolegal aspects of child abuse.

A13. Explain and define medicolegal aspects of sexual crime.

A14. Describe principles of toxicology of different types of poisonous substances and drugs which operate on human body, as regard classification, mechanism of action, clinical features of toxicity, circumstances, diagnosis

and clinical management.

A15. Demonstrate the criteria, clinical features, diagnosis and general management of dependence producing substances and drugs.

C. Clinical Skills

C1. Interpret features of bone x ray for identification.

C2. Correlate between characters of wound in museum specimens and photographs to reach to proper diagnosis of type of wound, causative instrument, time of infliction, circumstances, vitality and time needed for healing of different injuries.

C3. Integrate the result of laboratory tests findings under microscope into meaningful laboratory diagnosis of hair, fibers, stains (blood and semen), and metallic poisons.

C4. Interpret the features of different parts of a firearm cartridge for proper diagnosis of firearm weapon used in injury.

C5. Interpret the features of different types of poisonous plant for proper diagnosis and management.

C6. Interpret features of a case study of wounds or construct appropriate management strategies (diagnostic and therapeutic) for a case acute or chronic poisoning to solve the problem.

C7. Analyze relevant current data and literatures using computer information technologies and library resources in order to solve a toxicological problem or a clinical problem in the field of forensic medicine.

D. General and transferable skills

D1. Examine bone and soft tissue specimens, photographs, x-rays, to write medicolegal report.

D2. Interpret the results of history and examination of patients with injuries in trauma units of different hospitals to write standard medical report about injury.

- D3.** Interpret the results of history, clinical examination and laboratory test findings of patients with poisoning with drugs and chemicals or envenomation in admission units of different hospitals to be able to write standard medical report about a case of poisoning.
- D4.** Interpret the results of some chemical tests on department laboratories to identify microscopically blood stains, seminal stains, and heavy metals poisons.
- D5.** Examine and identify microscopically hairs and fibers.
- D6.** Perform some screening tests on department laboratories to identify some drugs of abuse (such as cannabis, marijuana, opium, barbiturate, amphetamine etc.) by Triage kits, and immunoassay test on blood and urine samples.
- D7.** Examine macroscopically on department laboratories seeds, capsules and roots of poisonous plants.
- D8.** Practice the value of teamwork by acting in small group.
- D9.** Conform adequate cooperation with his/her colleagues.
- D10.** Arrange the efforts required to accomplish the tasks in specified time.
- D11.** Practice effectively using a written health record, electronic medical record, or other digital technology.
- D12.** Describe his/her work and that of others using constructive feedback.
- D13.** Present Regular reflection on and assess his/her performance using various performance indicators and information sources.
- D14.** Initiate a personal learning plan to enhance professional practice
- D15.** Identify opportunities and use various resources for learning.
- D16.** Integrate in inter-professional activities and collaborative learning to continuously improve personal practice and contribute to collective improvements in practice.
- D17.** Organize learning time and resources and set priorities.

2-NARS Competencies covered by the block

-The rotational block of Forensic Medicine and Clinical Toxicology covers the NARS competencies of 2017.

-The competency areas of the NARS Medicine competency framework are:

- The graduate as a health care provider.
- The graduate as a health promotor.
- The graduate as a professional.
- The graduate as a scholar and scientist.
- The graduate as a member of the health team and a part of the health care system.
- The graduate as a lifelong learner and researcher.

1.1 Take and record a structured, patient centered history.

1.2 Adopt an empathic and holistic approach to the patients and their problems.

1.6 Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors.

1.7 Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice.

1.11 Perform diagnostic and intervention procedure C2 in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances.

1.12 Adopt strategies and apply measures that promote patient safety.

1.14 Respect patients' rights and involve them and /or their families/carers in management decisions.

1.17 Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification.

2.4. Identify the major health risks in his/her community, including demographic, occupational and environmental risks, endemic diseases, and

prevalent chronic diseases.

2.5 Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity.

2.8 Identify vulnerable individuals that may be suffering from abuse or neglect and take the proper actions to safeguard their welfare.

3.1 Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect.

3.2 Adhere to the professional standards and laws governing the practice and abide by the national code of ethics issued by the Egyptian Medical Syndicate.

3.3 Respect the different cultural beliefs and values in the community they serve.

3.4 Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural, ethnic backgrounds, or their disabilities.

3.5 Ensure confidentiality and privacy of patients' information.

3.6 Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors.

3.7 Recognize and manage conflicts of interest.

3.8 Refer patients to appropriate health facility at the appropriate stage.

3.9 Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety.

5.1 Recognize the important role played by other health care professions in patients' management.

5.2 Respect colleagues and other health care professionals and work cooperatively with them, negotiating overlapping and shared responsibilities and engaging in shared decision-making for effective

patient management.

5.3 Implement strategies to promote understanding, manage differences, and resolve conflicts in a manner that supports collaborative work.

5.4 Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system.

5.5 Communicate effectively using a written health record, electronic medical record, or other digital technology.

Evaluate his/her work and that of others using constructive feedback.

5.6 Recognize own personal and professional limits and seek help from colleagues and supervisors when necessary.

5.8 Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system.

5.9 Use health informatics to improve the quality of patient care.

5.10 Document clinical encounters in an accurate, complete, timely, and accessible manner, in compliance with regulatory and legal requirements.

5.11 Improve the health service provision by applying a process of continuous quality improvement.

5.12 Demonstrate accountability to patients, society, and the profession.

Regularly reflect on and assess his/her performance using various performance indicators and information sources.

6.2 Develop, implement, monitor, and revise a personal learning plan to enhance professional practice

6.3 Identify opportunities and use various resources for learning.

6.4 Engage in inter-professional activities and collaborative learning to continuously improve personal practice and contribute to collective improvements in practice.

6.5 Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions that address them.

6.6 Effectively manage learning time and resources and set priorities.

6.7 Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and
Contribute to the work of a research study.

6.8 Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability.

6.9 Analyze and use numerical data including the use of basic statistical methods.

6.10 Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry.

3-Course Content

The teaching and credit hours for each component of the course are summarized in the following table.

Course components (total contact hours and credits per semester):						
	Lectures	Practical	Group Discussion	Assignment	Quizzes & Formative	Total
Contact hours	42	32	6	6	4	90
Credit points						6

6.11 Assignments will include case studies and writing medicolegal reports. Case studies should be delivered weekly. Medicolegal reports will be discussed at the end of the block.

6.12 Quizzes will be a short question daily, while formative assessments will be on a weekly basis.

6.13 At the last day of the course, students should deliver the practical note to the teaching assistants. The notes will not be received after the specified date.

The topics that will be covered in the course are scheduled in the following timetable.

week	Lectures	Hours	practical	Hours	Group discussion	Hours
Week 1	1- Medicolegal aspects of wounds.	3	1- Wounds	2	1- Cases (1 for each topic).	1
	2- Identification.	2	2- 1 st aid in toxicology	2		
	3- Death and postmortem changes.	2	3- Death and p.m. changes	2		
	4- General toxicology.	3	4- Death certificate.	2		
	5- Corrosives.	2				
Week 2	6- Medicolegal aspects of head injuries.	3	5- Identification	2	1- Cases (1 for each topic).	1
	7- Injuries due to physical agents.	1	6- Plant	2		
	8- Examination of blood stains.	1	7- Pregnancy, abortion, infanticide	1		
	9- Plant alkaloids poisons	2	8- Burn.	1		
	10- Medicolegal aspects of pregnancy, delivery, and abortion.	2	9- Medicolegal report (wounds, head injury)	2		
	11- Infanticide and child abuse	3				
Mid term						
Week 3	12- Firearm injuries.	3	10- Head injury	2	1- Cases (1 for each topic).	1
	13- Asphyxia.	2	11- Hair and fiber	1		
	14- Sexual offences.	2	12- firearm weapons	1		
	15- Pesticides	2	13- Asphyxia	2		
	16- Toxicity of some common drugs.	3	14- Medicolegal report (fractures, burn)	2		
Week 4	17- Heavy metals.	2	15- Firearm	2	1- Cases (1 for each topic) 2- Discussion of medicolegal reports	1 2
	18- Gaseous poisoning.	1	16- Bloodstain & Seminal stain	2		
	19- Volatile poisons.	1	17- Toxicology report	2		
	20- Drug dependence.	1	18- Medicolegal report (firearm)	2		
	21- Animal poisoning	1				
					End term	

4-Teaching and learning Methods

- 1-Lectures for knowledge and intellectual skill outcomes.
- 2-Practical sessions with demonstration of specimens, photographs, x-rays, microscope slides in department museums, and laboratories.
- 3-Group discussion.
- 4-Hospital (field) visits: to see different types of wounds to practice writing medicolegal report.
- 5-Self-directed learning (SDL) for the topics studied in lectures or related topics, including libraries, E-learning (practical photographs and questions of different topics available online for student's assessments) and consulting professors for gathering of information.

5-Student Assessment

Assessment task		Proportion of Total	Marks
Mid-block exam	At the mid of the block.	20%	24
End-block exam	OSPE exam.	30%	36
	Final 50%MCQs,,, 50% Short answer qs &modified essay Qs.	40%	48
Evaluation of assignments	Medicolegal reports.	10%	6
	Cases		3
	Attendance		3
Total mark			120
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		Wt %	
Final exam	Final 50%MCQs,,, 50% Short answer qs &modified essay Qs	60%	72
Practical Exam	OSPE exam.	40%	48
Total		100 %	120

6-List of References (Recommended books)

1-Course notes:

Book for Forensic Medicine and Clinical Toxicology, Forensic Medicine & Clinical Toxicology department, Sohag University.

2-Text Books:

- Saukko, P. and Knight, B., (2015). Knight's forensic pathology. CRC press.
- Murray, L., (2004). Goldfrank's Toxicologic Emergencies.

3-Periodicals and websites:

Forensic Science International, Egyptian Journals of Forensic Medicine and Clinical Toxicology, International Journals of Forensic Medicine and Clinical.

7-Facilities required for teaching and learning

- Appropriate teaching accommodation, including museums, laboratories, laboratory equipment (e.g., microscopes), teaching aids (photographs, x-rays, jars contain soft tissue specimens, bones, plant specimens, firearm cartridges and some instruments) used in causing wounds
- Data show for power point presentations. Computer club in the faculty with net access.
- Libraries with available textbooks for gathering of information.

8- Topic Outlines

Lecture 1: Medicolegal aspects of wounds.

Objectives

- 1- Describe definition of wounds, permanent infirmity and disfigurement.
- 2- Describe classification and circumstances of wounds
- 3- Demonstrate the medico legal importance of abrasion, bruises, contused, cut, and stab wounds.
- 4- Recognize fabricated and defense wounds.

Lecture 2: Identification

Objectives

- 1- Demonstrate value of identification of living and dead human bodies.
- 2- Describe personal identification from bone, teeth, fingerprints and DNA.
- 3- Demonstrate identification of age, sex, hair and fibers.

Lecture 3: Death and postmortem changes

Objectives

1. Define death and its phases.
2. Diagnose somatic and molecular death.
3. Describe signs of death and death certificate.
4. Describe concept and medicolegal importance of brain death.
5. Define and describe features and medicolegal importance of postmortem changes (such as hypostasis, and rigor mortis).
6. Describe features and medicolegal importance of postmortem decomposition.

7. Define sudden death and sudden infant death syndrome (SIDS) and describe their causes.

Lecture 4: General Toxicology

Objectives

- 1- Demonstrate definition, classification and mechanism of action of poisons.
- 2- Demonstrate factors affecting poisoning.
- 3- Demonstrate diagnosis of poisoning (e.g., clinical presentation, laboratory, and samples).
- 4- Demonstrate general management of poisoning.

Lecture 5: Corrosive poisons

Objectives

- 1- Demonstrate types and uses of corrosive poisons.
- 2- Demonstrate characters, toxic states, action, and clinical picture, causes of death of corrosives poisons (mineral acids and alkalis, carbolic acid, and oxalic acids,).
- 3- Demonstrate approach to clinical situations and management of corrosives poisons (mineral acids and alkalis, carbolic acid, and oxalic acids,).

Lecture 6: Medicolegal aspects of head injuries

Objectives

- 1- Recognize types and complications of scalp wounds.
- 2- Describe medicolegal aspects of different types of skull fractures.
- 3- Describe medicolegal aspects of brain concussion and compression.
- 4- Describe medicolegal aspects of intracranial hemorrhage
- 5- Describe sequels of head injuries.

Lecture 7: Injuries due to physical agents

Objectives

- 1- Demonstrate different types of physical agents.
- 2- Demonstrate medicolegal aspects of burn, scald, and corrosion. (Characteristics, causative agents, vitality, complications, causes of death).
- 3- Demonstrate medicolegal aspects of heat stroke.
- 4- Demonstrate medicolegal aspects of electric injuries,

Lecture 8: Examination of blood stains

Objectives

- 1- Demonstrate examination of blood stains fresh and dry.
- 2- Illustrate medicolegal importance of examination of blood stains.
- 3- Demonstrate medicolegal importance of blood grouping.

Lecture 9: Plant alkaloids

Objectives

- 1- Demonstrate general characters of plant alkaloids poisons.
- 2- Demonstrate characters, uses, toxic state, action, clinical picture, toxic and fatal doses, causes of death and treatment of plant poisons (atropine, opium, cocaine, and cannabis).
- 3- Demonstrate management of plant alkaloids poisoning.

Lecture 10: Medicolegal aspects of pregnancy, delivery and abortion

Objectives

- 1- Demonstrate medico legal reasons necessitate diagnosis of pregnancy and delivery.
- 2- Demonstrate Egyptian law articles about abortion.
- 3- Demonstrate definition and medicolegal importance of spontaneous, therapeutic, and criminal abortion.
- 4- Define methods and complications of criminal abortion.
- 5- Demonstrate duties of medical practitioner confronted with a case of therapeutic or criminal abortion.

Lecture 11: Infanticide and child abuse

Objectives

- 1- Define infanticide, viability and maturity.
- 2- Define points of identification of an infant.
- 3- Recognize live birth and still birth.
- 4- Recognize causes of death in infanticide.

Lecture 12: Firearm weapons and injuries

Objectives

1. Describe different types of firearm weapons and cartridges.
2. Illustrate mechanism and effect of firing of cartridges.
3. Illustrate characters of firearm injury.
4. Illustrate estimation of distance and direction of firing.
5. Illustrate direction of firing and position of the assailant.
6. Illustrate estimation of circumstances of firing and vitality of firearm wounds.
7. Describe the medicolegal report of firearm wounds.

Lecture 13: Asphyxia

Objectives

- 1- Describe definition, different types, and general features of asphyxia.
- 2- Define types of violent or mechanical asphyxia (hanging, strangulation, throttling, smothering, choking, traumatic, postural and drowning).
- 3- Describe external postmortem signs, manner, and causes of death in different types of violent asphyxia.

Lecture 14: Sexual offences (crimes)

Objectives

- 1- Demonstrate law articles in Egypt about rape and other sexual offences.
- 2- Define different types of sexual offences.
- 3- Define items of consent in rape.
- 4- Demonstrate medicolegal importance of general and local examination of cases of sexual crimes.
- 5- Demonstrate medicolegal aspects of impotence.

Lecture 15: Pesticides poisoning

Objectives

- 1- Demonstrate definition, uses, and classification of pesticides.
- 2- Demonstrate classification, uses, toxic states, types, mechanism of action, clinical picture, toxic and fatal doses, causes of death of insecticides.
- 3- Demonstrate, definition, examples, action, clinical picture of herbicides, rodenticides and moth repellent.
- 4- Demonstrate diagnosis of aluminum/zinc phosphide toxicity.

Lecture 16: Toxicity of some common drugs

Objectives

- 1- Demonstrate uses, mode of toxicity, classification, mechanism of action, clinical picture, diagnosis, causes of death of some commonly used drugs e.g., barbiturate, benzodiazepines salicylates, and paracetamol poisoning.
- 2- Demonstrate an investigatory and analytic thinking (problem solving) approach to clinical situations of management of toxicity cases of different types of benzodiazepines salicylates, and paracetamol poisoning

Lecture 17: Heavy metals poisons

Objectives

1. Demonstrate definition and general characters of irritant (heavy metals) poisons.
2. Demonstrate toxic states, action, clinical picture, and causes of death of acute and chronic arsenic, mercury, lead, and iron poisoning.
3. Demonstrate how to manage these toxic cases

Lecture 18: Gaseous poisons

Objectives

- 1- Demonstrate characters and classification of types of gaseous poisons.
- 2- Demonstrate manner of toxicity, action, clinical picture, causes of death of simple asphyxiant, chemical asphyxiant, and irritant asphyxiant gases.
- 3- Demonstrate problem solving approaches to clinical situations of management of toxicity by different types of gaseous poisons.

Lecture 19: Volatile poisons

Objectives

- 1- Demonstrate characters, uses, mode of toxicity, mechanism of action, clinical picture, toxic and fatal doses, causes of death and post mortem picture of Volatile poisons (methyl alcohol, ethyl alcohol, and kerosene).
- 2- Demonstrate approaches to clinical situations of management of toxicity cases of Volatile poisons (methyl alcohol, ethyl alcohol, and kerosene).

Lecture 20: Drug dependence

Objectives

- 1- Demonstrate definition and characters, features of dependence, tolerance, cross-tolerance, types, general clinical presentation and management of drug dependence (e.g., alcohol, opium, hallucinogen, cocaine, and amphetamine.).

Lecture 21: Animal poisoning

Objectives

- 1- Demonstrate effects, clinical picture, diagnosis, and management of scorpion and snake envenomation.

9-Blueprint

Written exams

No	Topic	Hours	weight	Marks		
				Mid	Final 50% MCQ (50% SAQs, MEQs)	Total
1	Medicolegal aspects of wounds.	3	7	2	4	6
2	Identification.	2	4.8	1	2	3
3	Death and postmortem changes.	2	4.8	2	2	4
4	General toxicology.	3	7	2	3	5
5	Corrosives.	2	4.8	2	2	4
6	Medicolegal aspects of head injuries.	3	7	2	3	5
7	Injuries due to physical agents.	1	2.4	1	2	3
8	Examination of blood stains.	1	2.4	1	1	2
9	Plant alkaloids poisons	2	4.8	2	2	4
10	Medicolegal aspects of pregnancy, delivery, and abortion.	2	4.8	-----	2	2
11	Infanticide and child abuse	3	7	2	4	6
12	Firearm injuries.	3	7.1	2	4	6
13	Asphyxia.	2	4.8	2	2	4
14	Sexual offences.	2	4.8	1	2	3
15	Pesticides	2	4.8	2	2	4
16	Toxicity of some common drugs.	3	7	-----	3	3
17	Heavy metals.	2	4.8	-----	2	2
18	Gaseous poisoning.	1	2.4	-----	1	1
19	Volatile poisons.	1	2.4	-----	2	2

20	Drug dependence.	1	2.4	-----	2	2
21	Animal poisoning	1	2.4	-----	1	1
Total		42	100%	24	48	72

OSPE exam

No.	Topic	Hours	Weight	marks
1	Wounds	2	6.25	2
2	1 st aid in toxicology	2	6.25	2
3	Death and p.m. changes	2	6.25	2
4	Identification	2	6.25	2
5	Plant	2	6.25	2
6	Pregnancy, abortion, infanticide	1	3.125	1
7	Burn.	1	3.125	2
8	Head injury	2	6.25	2
9	Hair and fiber	1	3.125	1
10	Firearm weapons	1	3.125	2
11	Asphyxia	2	6.25	2
12	Firearm	2	6.25	2
13	Bloodstain	1	3.125	2
14	Seminal stain	1	3.125	1
15	Toxicology report	2	6.25	2
16	Medicolegal reports	6	18.75	7
17	Death certificate	2	6.25	2
Total		32	100%	36

10-Declaration

Block Contributor	Name	Signature	Date
Head of the Department:	Prof. Soheir Ali Mohamad		
Coordinators:	Prof. Soheir Ali Mohamad Dr. Asmaa Mohamed Khalaf		