



Program Specification for Master Degree in: FORENSIC MEDICINE & CLINICAL TOXICOLOGY

Program type: Single

Program code: FMCT 800

Department offering the program: Department of Forensic Medicine & Clinical Toxicology

Total credit points: 150

Academic year: 2015/2016

Date of approval : July 2015

Program Coordinators:

Prof. Hala Saied

Prof. Hoda El-Ghamry

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External evaluators: Prof.Dr Maha Ghanem, Professor of Forensic & clinical toxicology, Alexandria university

I. Program aims

The program is a professional degree that provides a competent medical examiner that is able to perform adequate ante-mortem (AM) and post-mortem (PM) examination and interpret the different findings to give final expert opinion and formulate competent medico-legal reports to resolve different legal and ethical dilemmas. It provides also an honorable specialist practitioner who is able to diagnose and treat the acutely intoxicated patients under ethical standards. The program also aims to allow the candidates to interact with community problems, to respect ethical values according to community culture, and promote their medical standards through engaging in continuing medical education and introduce them to the basics of scientific medical research.

II. Intended learning outcomes of program (ILOs)

A. Knowledge and understanding: By the end of the program the candidate should;

1. Define and describe the main medico-legal aspects of living and dead individuals regarding recognition, personal identification, different injuries, causes & manner of death, and post-mortem changes.
2. Describe medico-legal aspects of different cases of injuries and sexual offenses.
3. Describe how to collect trace evidence in the scene of the crime.
4. Recite various medico-legal aspects of malpractice.
5. Understand the medical ethics.
6. Enumerate and describe the different classes of toxic substances and environmental pollutants.
7. Describe the circumstances of intoxication, toxic doses, pharmaco-& toxico-kinetics, clinical picture, differential diagnosis and treatment of intoxicated patients.
8. Describe the treatment of acute and emergency situations of intoxicated patients with different drugs and toxic substances.
9. Recite how to collect samples.
10. Describe the laboratory procedures done for the samples collected.

B. Intellectual skills: By the end of the program the candidate should be able to;

1. Interpret the different findings to conclude the final medico-legal expert opinion.
2. Analyze case scenario of forensic medicine and toxicology and discuss their medico-legal aspects.
3. Evaluate the medical ethics dilemmas and suggest a proper solution.
4. Discuss and analyze the circumstances of intoxication, toxic doses, pharmaco& toxico-kinetics, clinical picture and differential diagnosis of intoxicated patients including emergency cases under ethical standards.
5. Select the proper management for intoxicated patients and addicts.
6. Select the proper technique to reach the proper diagnosis
7. Identify the pathological features of the specimens and differentiate them from normal.

8. Interpret and analyze the data of different investigations in context of the clinical situation.
9. Integrate clinical information and laboratory investigations into management.

C. Professional and practical skills: By the end of the program the candidates should be able to;

1. Use different techniques and laboratory investigations to identify living and dead individuals and dead remains.
2. Apply different investigatory methods to Diagnose death.
3. Assess the post mortem changes to determine time of death.
4. Examine different injuries properly to conclude the medico-legal aspects of each case.
5. Reach the cause and manner of death properly.
6. Appraise evidences.
7. Diagnose and treat the acutely intoxicated patients under ethical standards.
8. Design the proper management for intoxicated patients and addicts under ethical standards.
9. Perform laboratory investigations needed properly and successfully.
10. Avoid faults and artifacts of the preparation and results.
11. Deal properly and safely with the equipments.
12. Design final expert opinion and formulate competent medico-legal reports.
13. Acquire the accuracy and attention during practical affairs and during reporting.
14. Realize the keenness to use evidence in the care of the patient.
15. Reflect the habit of lifelong learning.

D. General and transferable skills: By the end of the program the candidates should be able to;

1. Respond effectively to a patient's emotional and psychosocial concerns.
2. Communicate with other health care providers.
3. Appreciate team working.
4. Achieve Computer skills necessary to make use of medical data bases and use the internet for communication.

5. Show administrative skills that enable them to fulfill the research work needed.
6. Show leadership skills that enable them to organize work and lead the juniors and paramedical staff.
7. Understand different scientific methodologies and have critical reading abilities.
8. Write scientific article according to the basics of scientific research.
9. Realize the requirements of the Egyptian ministry of health and the regulations of the medical syndicate, concerning the medical ethics code.

III. Academic standards.

Academic Reference Standards:

The academic standards of Forensic medicine and Clinical Toxicology is adopted and accredited by the department Council.

External references for standards:

-Faculty of Forensic & Legal Medicine. Royal college of physicians. London.

-University of Dundee, Scotland.UK.

-University of Maryland. School of Pharmacy.

IV. Program admission requirements.

According the Faculty of Medicine, Cairo University Bylaws for Post Graduate Programs (July 2009), applicants should have MB.BCh. or equivalent degree. According to Cairo University requirements, all applicants for postgraduate studies should fulfill preliminary courses on the following subjects; Medical statistics I – English language (TOEFL or equivalent degree) – Computer skills (ICDL) or equivalent computer course offered by the medical education center (MEDC). Admission to the program is open during July.

Program duration: three years.

Program structure: Total Credit points **150 credit points**

- First part: 1.5 years - (table 1) 54 credit points

Candidate should fulfill the following:

- Compulsory courses: 10 credit points
 - General Toxicology
 - Forensic Chemistry
 - Pathology
 - I. C. U
 - Pharmacology
- Elective courses 1 credit point
- Scientific activities 1 credit point
- Training program (Phase 1): 42 credit points

- Second part: 1.5 years - (table 2) 76 credit points

Candidate should fulfill the following:

- Compulsory courses. 13 credit points
- Scientific activities 3 credit points
- Training program (phase 2): 60 credit points

- Master Thesis: 20 credit points

Completed during the second part.

Table 1: First part

Courses	Course modules	Credit points	total	ILOs
Compulsory courses (One academic year)				
I. General Toxicology	1- Toxicokinetics. 2- Diagnosis and differential diagnosis of various poisons including basic principles of toxicological screen. 3- First aid and emergency treatment. 4- Principles of legal aspects of poisoning and drugs of abuse and responsibilities of the clinical toxicology laboratory. 5- Differentiation between various toxidromes. 6- Antidotes and chelators.	0.5 0.5 0.5 0.5 0.5 0.5	3	1-c,g,h,i 2-c,f,i 3-h
II. Forensic chemistry	1- Post-mortem detection of poisons. 2- Therapeutic drug monitoring. 3- Analysis of toxic substances. 4- Detection of biological stains, hairs and fibers.	0.75 0.75 0.75 0.75	3	1-c,l,,j 2-g,l 3- l, k, m 4-e, h
III. Pathology	<u>a) General pathology:</u> 1- Inflammation. 2- Repair. 3- Degeneration, necrosis, infarction and gangrene. 4- Neoplasm.	0.75	1.5	2-h

	b) Special pathology: 1- Cardiovascular system. 2- Respiratory system. 3- Gastro-intestinal tract. 4- Urinary system. 5- Central nervous system.	0.75		
IV. I.C.U	1- Diagnosis of different kinds of emergencies. 2- Emergency treatment.	0.75 0.75	1.5	1-h 2-i, j 3-g 4-a, b, c, d, h
V. Pharmacology	1-General pharmacology, including basic concepts of toxicology 2-Mode of action of drugs. 3-Drug interaction and drug resistance.	0.5 0.25 0.25	1	1-g 2-e
Elective courses				
Group A				
▪ EBM		0.5		3-n
▪ Research methodology		0.5		
▪ Medical statistics II		0.5	1	4-e, f, h, i
Group B				
▪ Principles of Biochemistry molecular biology		0.5		
▪ genetics		0.5		
Scientific activities			1	4
Training program (phase 1 basic training)			42	3 4

Table 2: Second part

Course	Credit points	ILOs.
1- Forensic Medicine	5	<p>1- a, b, d, i.</p> <p>2- a, b, c</p> <p>3- a, b, c, d, e, f, j, l, m</p> <p>4- d, e, g, h, j</p>
2- Clinical Toxicology	4	<p>1- f, g, h</p> <p>2- e, f, l, j</p> <p>3- g, h, j</p> <p>4</p>
3- Autopsy in medico-legal system	1	<p>1-e</p> <p>2-a, c, h</p> <p>3- a, c, d</p>
4- Analytical Toxicology	1	<p>2- g, i</p> <p>3- i, k</p>
5- Medical Ethics & Malpractice	1	<p>1- e</p> <p>2- c</p> <p>4- j</p>
6- Human Rights	1	<p>4- a, b</p>
Scientific activities	3	<p>4</p>

Master thesis	20	4:a-j
Practical training program	60	2 3 4

Practical Training Program

- **Basic Training:**

According to the new bylaws for postgraduate programs (effective since July 2009), all the candidates should have a basic training for 18 months. They should spend at least 6 months in poisoning control center, 6 months in ICU, 2 months in pharmacology department, 2 months in pathology department, 2 months for forensic chemistry in forensic and toxicology department. During this period the candidates should complete the elective courses.

- **Special Training:**

All candidates should complete the special part of the training program in the Forensic Medicine & Toxicology department. They should spend 18 months in order to acquire the needed credit points. The student is expected to acquire skills in the following: Examination of different injuries, identifying the cause, manner and time of death, concluding the medico-legal opinion, recognizing the medical ethical dilemmas, diagnosing and managing the acutely intoxicated patients. During this period the candidates will attend the courses of the second part and will participate in the scientific activities of the department.

Master Thesis

All master-degree students should prepare a thesis in one of the two domains (forensic or clinical toxicology). The department and the ethical committees must approve the protocol of the research. The thesis should include a review part and a research part. The thesis is supervised by one or more senior staff members of the Forensic and Toxicology Department and may include other specialties according to the nature of the research. The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

Scientific Activities:

The candidates should participate in the scientific activities of the department such as:

- Journal club every two weeks.
- Seminars (including recent topics and controversial issues) once weekly. Students are expected to participate in the discussions.
- Scientific meetings arranged by the department.
- Attendance of Thesis discussions.

Each activity is monitored and given credit points registered in a special section in the training logbook. The student should collect the required points before allowed to sit for the final exam.

VI. Regulations for progression and program completion

After collecting the required credit points for the respective courses, the first phase of the training, and the scientific activities, the student will be eligible to sit for the first part examination. In case the student fails to pass the examination, he may proceed in the clinical training and can resubmit for the next examination. After passing the first part, the student submits a protocol for Master Thesis at the beginning of the second part. Before submitting to the final examination she/he should finish the thesis and get approval, complete phase 2 of special training program, and collect the required credit points. The candidate will receive her/his degree after passing this final examination. In case the student fails to pass the exam, he can resubmit for the next exam. Master degree should be obtained within a maximum of 6 years after registration date.

VII. Assessment

Supervision & Monitoring of the Training Program:

According to the Faculty of Medicine, Cairo University Bylaws for Training Programs, professors carry continuous assessment during the program. A training program logbook will be kept for each student to document all her/his clinical, and laboratory activities as well as her/his participation in different scientific activities. The head of the department should allow the students to undergo the final examination when they complete their training program and collect the credit points needed.

Assessment tools

1. Final Exam Part I

Basic sciences

- General toxicology: Two-hour written exam (including short assay , problem solving and multiple choice questions) + oral exam
- Forensic chemistry and pathology: one-hour written exam for each(including short assay and multiple choice questions) + oral exam
- Pharmacology and I.C: one-hour written exam for each (including short assay and multiple choice questions) + oral exam
- Elective course: one-hour written exam (including short assay and multiple choice questions) + oral exam

Assessment schedule

The written exam will be held in four days:

Day one: general toxicology (2 hours)

Day two: forensic chemistry and pathology (2 hours)

Day three: pharmacology and I.C (2 hours)

Day four: elective courses (1 hour)

This will be followed by the clinical and oral exams in separate days

2. Final Exam Part 2

- Forensic medicine and medical ethics: Three hours written exam (including short assay, problem solving and multiple choice questions) + oral exam +Practical exam.
- Autopsy and malpractice: Three hours written exam (including short assay, problem solving and multiple choice questions) + oral exam +Practical exam.
- Clinical toxicology: Two hours written exam (including short assay, problem solving and multiple choice questions) + oral exam +Practical exam.
- Analytical toxicology: One hour written exam + practical exam.

Assessment schedule

Written exam will be held on four days:

Day one: Forensic medicine and medical ethics.

Day two: Autopsy and malpractice.

Day three: Clinical toxicology.

Day four: Analytical toxicology.

This will be followed by the practical and oral exams in separate days

Marks allocated to courses (Each credit point = 50 marks)

Course	Written	Oral	Clinical/practical	Total
First part				525
General toxicology	60	45	45	150
Forensic chemistry	70	40	40	150
Pathology	45	15	15	75
Pharmacology	40	10	--	50
Intensive care	45	15	15	75
Elective courses	15	10	--	25
Second part				600
Forensic medicine and medical ethics	130	70	50	250
Autopsy and malpractice	60	40	---	100
Clinical toxicology	80	60	60	200
Analytical toxicology	30	--	20	50

*Passing marks in the written exam is $\geq 60\%$

VIII. Evaluation of program intended learning outcomes:

Evaluator	Tool	Sample
1. Senior Students	Questionnaire at the end of the program	All the PG students
2. External Evaluators	Review the program and courses Attending the final exam.	Once before implementation Bi-annual report
3. Quality Assurance unit	Annual program review	

Date of approval by department council :September 2016:

Signatures:

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