**Course Specification of Molecular Toxicity in Forensic Medicine &Clinical Toxicology**

**Sohag University**

**Faculty of Medicine**

#### Course Specifications

Programme (s) on which the course is given: MD degree in forensic medicine &clinical toxicology

Major or Minor element of program: Minor.

Department offering the program: **Dept. of Forensic Medicine &Clinical Toxicology**

Department offering the course: **Dept. of Forensic Medicine &Clinical Toxicology**

Academic year / Level; 1st part

Date of specification approval: Faculty council No:182, decree No (7163) dated:14/9/2009, Date of revised specification approval: Faculty council No:199, decree No (7920) dated: 27/9/2010.

**A- Basic Information**

**Title** **Molecular Toxicity in Forensic Medicine &Clinical Toxicology**

Code:

|  |  |  |  |
| --- | --- | --- | --- |
| Lectures | Practical | Tutorial | Total hours |
| 15 | - | -------- | 15 |

**B- Professional Information**

**1 – Overall Aims of Course**

Provide basic knowledge of cell injury & adaptation.

Demonstration of knowledge of mechanism of cell death; the roles of cell death &

injury in the pathophysiology of organdysfunction .

Understand implications for prevention and therapy of multiple organdysfunction

syndrome.

Understand methods of determining mechanisms of cell necrosis and lipid

peroxidation and how cells protect themselves from death and harmful exposure

to cytotoxic stress.

**2 – Intended Learning Outcomes of Course (ILOs)**

**a.Knowledge and Understanding:**

***By the end of the course, students should he able to:***

a-1 Describe recent advance in DNA repair. a-16 Demonstrate knowledge of types of electrophilic structures.  
   
a-2 Describe free radicals.  
a-3Demonstrate knowledge of reactive oxygen species.  
a-4 Describe covalent binding and their toxic implications.   
a-5 Describe principles of early screening techniques for cancer causing agents.  
   
. a-6 know the recent advance in data collection for vital statistics

a-7 Mention the principles and fundamentals of ethics and legal aspects of professional practice in the field of molecular toxicity.

a-8 Mention the principles and fundamentals of quality of professional practice in the field of molecular toxicity.

**b-Intellectual Skills**

***By the end of the course, students should he able to:***

b-1 Interpret the features of different types of toxic chemicals in the environment for proper diagnosis of molecular toxicity.

b2- Analyze the environmental protection policies and public education programs which can led to new forms of chemotherapy

b-3 select from different diagnostic tool the one that can reach problem solving

b-4 Conduct research studies on molecular toxicity that adds to knowledge.

b-5 Formulate scientific papers in the area of molecular toxicity.

b-6 Plan to improve performance in the field of molecular toxicity.

b-7 Manage scientific discussion administration based on scientific evidences and proofs

b-8Criticize researches related to the field of molecular toxicity.

c- **Professional and Practical Skills**

***By the end of the course, students should he able to:***

C-1 Master the basic and modern professional skills in the area of   
 molecular toxicity.

C-2 Write and evaluate standard medico-legal report about various classes of environmental agents that can damage the genetic material leading to mutations, cell death, or other forms of toxicity.

C-3 Evaluate and develop methods and tools existing in the area of detection of the genotoxic agents..

C-4 Perform tests showing the biochemical and cellular changes associated with toxicity.

C-5 Train junior staff through continuous medical education program.

**d-General and Transferable Skills**

***By the end of the course, students should he able to:***

d-1 Present report about molecular toxicity in accordance with the standard scientific guidelines in seminars or group meetings.

d- 2Manipulate computer programs, do web search, to write an essay   
 about recent subjects of molecular toxicity..

d-3 Teach others and evaluate their performance.

d-4 Assess himself and identify his personal needs.

d-5 use of different sources for information and knowledge

D.6 Work coherently and successfully as a part of a team and team's leadership.

D.7 Manage scientific meetings according to the available time.

**3-b Contents of the clinical toxicology course:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **No. of hours** | **Lecture** | **Practical** |
| Mechanism of cell death | **1** | **1** | **-** |
| Reactive intermediates: formation and detoxification | **2** | **2** | **-** |
| Electrophilic structures | **2** | **2** | **-** |
| Radicals | **1** | **1** | **-** |
| reactive oxygen species | **2** | **2** | **-** |
| Covalent binding and their toxic implications. | **2** | **2** | **-** |
| Oxidative interactions; oxidative stress & lipid peroxidation. | **2** | **2** | **-** |
| Establishment the level of cell necrosis. | **2** | **2** | **-** |
| Covalent binding and lipid peroxidation | **1** | **1** |  |
| **Total hours** | **15** | **15** | **-** |

**4– Teaching and Learning Methods:**

4.1- Lectures

4.2- Assigment

4.3- attending and participating in scientific conferences, work shops and discussion to aquire the general and transferable skills.

4.4 Field training

**5- Student Assessment Methods**

|  |  |
| --- | --- |
| The assessed ILOs | Method of assessment |
| - General transferable skills, intellectual skills  - Knowledge  - Knowledge  - Knowledge, intellectual skills  - Intellectual skills, General transferable skills,  - Practical skills, intellectual skills  - Knowledge | 5.1- Observation of attendance and absenteeism.  5.2-Written Exams:  -Short essay: 40%  -structured questions: 25%  -MCQs: 20%  -Commentary, Problem solving: 15%  5.3- Structured Oral Exams |

**Assessment Schedule**

**Assessment 1:** Final written exam…week (24)

**Assessment 2 :** Final oral exam…week (24-26)

**Weighting of Assessments**

Final written exam 50%

Final oral exam 50%

**Total 100%**

**6- List of References**

6.1- Course notes : Lectures notes prepared by the stuff members of the department

6.2-Essential Books:

Principles of Clinical Toxicology by Gossel, T., and Bricker

6.3-Recommended Books:

General & Applied Toxicology by Macmillan

6.4 Periodicals and websites:

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

**7- Facilities Required for Teaching and Learning**

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1-ADEQUATE INFRASTRUCTURE: including teaching places (teaching class, teaching halls, teaching laboratory), comfortable desks, good source of aeration, bathrooms, good illumination, and safety & security tools.

2- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, colour and laser printers.

3- COMPUTER PROGRAM: for designing and evaluating MCQs

**Course Coordinator: Dr. Soheir Ali Mohamed**

**Head of Department: Dr. Maha Abdel Hameed Hilal**

**Date: 12 / 9 / 2009, Revised 15/9/2010**