**Course Specification of Gene 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: Gene Toxicity in Forensic Medicine &Clinical Toxicology**

**Code:**

**Total hours:**

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

**B- Professional Information**

**1 – Overall Aims of Course**

Provide basic knowledge of chromosomes and their constituents, genes and DNA.

Demonstration of knowledge of different types of chemicals and environmental

agents that cause mutations and a number of cancers.

Understand how cells protect themselves from death and harmful exposure to

genotoxic stress.

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

**a.Knowledge and Understanding:**

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

a-1 Demonstrate recent advance of gene mutations and structural chromosomal aberrations.

a-2 Demonstrate the different genotoxic chemicals in the environment.

a-3Demonstrate markers of genotoxic stress that place individuals at greater risk of developing cancer.

a-4 know the recent advance in data collection for vital statistics

a-5 Mention the principles and fundamentals of ethics and legal aspects of professional practice in the field of gene toxicity..

a-6 Mention the principles and fundamentals of quality of professional practice in the field of gene 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 gene 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

b4 Conduct research studies on gene toxicity that adds to knowledge..

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

b-6 Plan to improve performance in the field of detection of geno toxic agents.

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

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

C-2 Write and evaluate standard medico-legal report about various classes of environmental agents that can damage the genetic materialleading 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 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 forensic medicine and toxicology .

d-3 Teach others and evaluate their performance.

**d**-4 use of different sources for information and knowledge

d-5 Work coherently and successfully as a part of a team and team's leadership.

d-6 Manage scientific meetings according to the available time.

-4 Assess himself and identify his personal needs.

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **No. of hours** | **Lecture** | **Practical** |
| Structure activity relationship | **6** | **2** | **-** |
| Types of mutations: gene mutations, structural chromosomal aberrations, genome mutations | **8** | **2** | **-** |
| Conversion of mutations to altered proteins | **4** | **1** | **-** |
| DNA repair | **6** | **2** | **-** |
| Mutagenicity tests | **6** | **2** | **-** |
| The threshold level for mutagenicity | **6** | **2** | **-** |
| Carcinogenicity | **5** | **2** | **-** |
| Teratogenicity | **4** | **2** | **-** |
| **Total hours** | **15** | **15** | **-** |

**4– Teaching and Learning Methods:**

4.1- Lectures

] 4.2-Assigment

4.4-3 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**