COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	Master Science Degree of Industrial Medicine and Occupational Health
(2) Department offering the programme:	Public health and community medicine department
(3) Department responsible for teaching the course:	Public health and community medicine department
(4) Part of the programme:	Second Part
(5) Date of approval by the Department`s council	
(6) Date of last approval of programme specification by Faculty council	**9/8/2016**
(7) Course title:	Industrial chemistry, Toxicology and Occupational Safety
(8) Course code:	PHPM 518 IC-T-OS
(9) Credit hours	6 Cr. hours academic Lectures + 6 Cr. hours Practical
(10) Total teaching hours:	90 hrs teaching lectures **180 hrs field and practical teaching**

(B) Professional information

(1) Course Aims:

The broad aims of the course are to provide the candidate with

- The basics of industrial chemistry and industrial processes, hazards of industries and principles of prevention and control.
- The principles o industrial toxicology, routes of exposure to workers, and modalities of treatment of toxicity including antidotes.
- The principles of occupational safety to protect workers at the workplace from exposure to injuries.

(2) Intended Learning Outcomes (ILOs):

Intended learning outcomes (ILOs); Are four main categories: knowledge & understanding to be gained, intellectual qualities, professional/practical and transferable skills.

On successful completion of the course, the candidate will be able to:

(1) A- Knowledge and Understanding

A1: Discuss principles of toxicokinetics and toxicodynamics of industrial chemicals.
A2: Recognize clinical picture of acute and chronic toxicity of industrial chemicals.
A3: Describe steps of making a diagnosis of poisoning by industrial chemicals.
A4: Express good knowledge of lines of management of poisoning including antidotes.
A5: Recognize potential hazards of working in industries, and professional workplaces.
A6: Recognize prevention and control strategies tailored to industries and workplaces.
A7: Define essentials of Occupational safety including Biosafety.

2- Intellectual activities (I)

The Postgraduate Degree provides opportunities for candidates to achieve and demonstrate the following intellectual qualities:

B- Intellectual skills

B1: Interpret investigations done for diagnosis of acute and chronic toxicity.
B2: Differentiate between causes of poisoning encountered at a workplace.
B3: Organize Occupational Health Services Programs for prevention of poisoning at workplace.
B4: Illustrate guidelines for management of acute and chronic poisonings ranking them.
B5: Audit industrial processes, skilled and professional work eliciting potential hazards.
B6: Review elements of occupational safety and bio-safety in research laboratories.

C- Professional/practical skills

C1: Perform risk assessments of an industry or a workplace (occupational and environmental).
C2: Design a program for management of risks in an industry or a workplace.
C3: Provide first-aid measures to victims of poisoning.
C4: Liaise with Toxicology Centers for referrals in case of need.
C5: Evaluate and advise on bio-safety in research laboratories.

D- Communication & Transferable skills

D1: Learn teaching and learning skills.
D2: Design and deliver a teaching event/ or short course.
D3: Identify Intended learning outcomes of a teaching event.
D4: Teach large and small groups effectively.
D5: Select and use appropriate teaching resources.
D6: Give constructive effective feedback.
D7: Evaluate programs and events.
D8: Learn how to work as a team member and as a team leader.
D9: Develop critical thinking and peer-reviewing skills.

Course content:

Subjects	Lectures	Practical

Module 1 **First Topic: General Occupational Toxicology.** (1) Principles of General toxicology. (2) General management measures for occupational toxicity (Antidotes). **Second Topic : Detailed Occupational Toxicology - Toxicology of metals, metalloids and solvents (i)** (1) Lead Toxicity (2) Mercury Toxicity (3) Cadmium Toxicity (4) Phosphorus Toxicity (5) Beryllium Toxicity (6) Chromium Toxicity (7) Nickel Toxicity (8) Manganese Toxicity (9) Arsenic Toxicity. (10) Other metals toxicity. (11) Organic solvents and fuels. (12) Other subjects. Self-learning activity	**6hrs** **24 hours**	**12 hrs** **48 hours**
Module 2 **Second Topic: Detailed Occupational Toxicology - Toxicology of other chemicals (ii).** (1) Toxicology of Pesticides. (2) Gases: Simple Asphyxiants. (3) Gases: Irritants. (4) Gases: Chemical Asphyxiants. (5) Polychlorinated Biphenyls. (6) Other Industrial Chemicals. Self-learning activity. **Third Topic: Industrial chemistry (Occupational Health Hazards of Industries).** (1) Cement industries. (2) Glass industries. (3) Construction industries. (4) Iron and steel industries. (5)Petroleum and Petrochemical Industries. (6)Polypropylene Industry. (7)Pharmaceuticals Industry. (8)Electricity Generation Industries. (9) Ceramic Industries. (10) Textile industries.	**30 hrs**	**60 hrs**
Module 3 **Third Topic: Industrial chemistry (Occupational Health Hazards of Industries).** Electronics Industries Other industries.	**30 hrs**	**60 hrs**

Industrial Environmental Disasters (Bhopal, Fukushima, etc..). **Fourth Topic: Health hazards of occupations.** (1) Occupational hazards to Fire Fighters and Emergency Workers. (2) Occupational Hazards to Agricultural Workers. (3) Occupational Hazards to Health Care Workers (HCWs). (4) Occupational Hazards to Animal Breeders. (5) Occupational Hazards to Police Officers and Allied Professions. **Title of Lectures** (6) Occupational Hazards to Sewer Workers. (7) Occupational Hazards to Waste Collectors. (8) Occupational Hazards to Painters. (9) Carpenters (wood workers). (10) Occupational Hazards to Other Occupations. **Fifth Topic: Occupational Safety.** (1) Principles of Occupational Safety. (2) Bio-Safety in Research Laboratories. Self-learning activity.		

(2) Teaching methods:

4.1:… Lectures

4.2: … Seminars

4.3: … Tutorial

4.4: … Workshops

(3) Assessment methods:

5.1 Written exam for assessment of knowledge and intellectual ILOs

5.2 Oral exam for assessment of knowledge and intellectual ILOs

5.3 Practical exam for assessment of knowledge and intellectual ILOs

5.4 MCQ exam for assessment of intellectual ILOs

(4)Assessment schedule:

Assessment 1: MCQ……at the end of each semester (15th week)

Assessment 2: Written exam after 36 months of the start of the job.

Assessment 3: Oral exam 36 months of the start of the job.

Assessment 4: Practical exam 36 months of the start of the job

(5) Percentage of each Assessment to the total mark:

Written:80 Marks

MCQ 20 Marks ::

Three MCQ exams one for each module (at the end of each semester);

- Module 1; 7 Marks
- Module 2 :7 marks
- Module 3 :6 Marks

Structured Oral: 40 Marks

OSPE practical: 60 Marks

(6) References of the course:

6.1: Handouts of lectures and handbooks authorized by the department.

6.2: Text books:

- **Environmental and Occupational Medicine** (4th ed.) by William N. Rom.
- **Textbook of Clinical Occupational and Environmental Medicine** (2nd ed.) by Cullen M and Rosenstock L.
- **Pocket Consultant of Occupational Health**, UK.
- **Text book of Public Health**, Maxcy Roseneau (Wallace, 14th ed).

6.3: Journals:… Publications of national and international Occupational and Environmental Medicine Associations: Egyptian Society of Occupational and Environmental Medicine Journal, American College of Occupational and Environmental Medicine Journal (OEM), OSHA and NIOSH publications, ILO publications.

6.4:Websites:

http://www.ilo.org/safework_bookshelf/english?d&nd=170000102&nh=0

http:// www. niosh.com + http://www.acoem.com

(4) Facilities and resources mandatory for course completion:

Candidates and their learning are supported in a number of ways:

- Induction course introducing study skills

- Candidates logbook
- Programme Specification and Handbooks
- Extensive library and other learning resources
- Computer laboratories with a wide range of software
- Internet with a wide range of learning support material
- Ph.D Dissertation Supervisor
- Others

Course coordinator: Prof. Emily kamel, Prof. Adel El-Weheidi, Dr. Nabil Joseph, Dr. Hala Samir

Head of the department: Prof. Mohamed Azmy Khafagy

Date:

P.S. This specification must be done for each course.