PROGRAMME SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme Title & Code	Neurotoxicology Fellowship (NT)
(2) Final award/degree	Diploma
(3) Department (s)	Interdepartmental
(4) Coordinator	Dr. Mohamed Salama
(5) External evaluator (s)	Prof. Mohamed B Abou Donia
(6) Date of last approval of programme specification by Faculty council	9/8/2016

(B) Professional information

(1) Programme Aims:

The broad aims of the Programme are as follows: (either to be written in items or as a paragraph)

Neurotoxicology stems from numerous biological disciplines starting from Neurobiology (or, more generally, Neuroscience) which is an attempt to understand the higher functions of the nervous system (such as memory, learning, perception, consciousness, behavior, etc.) in terms of the biology of nerve cells. It developed from several different lines of inquiry that have merged into the current diverse field which include: Neuroanatomy-the macro- and micro-scopic study of brain structure; Neurophysiology--the study of electrical and chemical signaling mechanisms of nerve cells; Neuropharmacology--the study of the effects of various drugs--psychoactive, paralytic, anesthetic, etc.—on the function of the nervous system; and neuropsychology-the study of how neurons affects behavior. In this course we will focus on the biology of nerve cells--their structure, their cell biology, their signaling mechanisms, and how they are affected by toxicants/ or drugs leading altered function. Processes of neuronal diseases (neurodegenerative, Parkinson, Alzheimer, multiple sclerosis, epilepsy etc). We will not spend much time discussing the macroscopic anatomy of the brain nor human behavior, except when these topics are necessary for us to understand the functions of neurons. I hope you will come away from the course with a conviction that studying the cell and molecular biology of small numbers of nerve cells will help us understand larger scale processes such as effects of toxicants on neuronal functions such as memory, learning, and other nervous diseases.

(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 programme, the candidate will be able to:

A- Knowledge and Understanding

A 1: To Recognize the workings of anticholinesterase insecticides and pesticides.

A 2 To recognize Consequences of metals such as mercury, lead, zinc, and polytypic byproducts of combustion on nerves functions.

A 3 Outline natural toxins - those of microbial origin (microbial, marine, clostridial, and botulilinal neurotoxins), as well as those of animal origin (snake, spider, and scorpion venoms).

A 4 To explain the characteristics of the nerves that make them a target of neurotoxicants.

A 5 To discuss the anatomy, physiology and biochemistry of the nerves, the electrophysiological properties of the nerves and generation of nervous transmission, Action potentials, and ion

2- Intellectual activities (I)

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

B- Intellectual skills

B1 To Predict sites and mechanisms of neurotoxicity, how chemicals affect the nervous system, effects of human-made neurotoxins, as well as those of natural origin.

B2. To use integrative approach in understanding neurotoxicity through introduction of students to the organization and workings of the nervous system: Central Nervous System and Peripheral Nervous System.

C- Professional/practical skills

c1- Design Animal Models for Neurotoxicity

c2- Study effect of neurotoxicants on different cell systems

c3- Evaluate clinical aspects of delayed neurotoxicity of pesticides

D1. Use Evidence Based Medicine in management decisio

D2. Work effectively within the health care te

D3. Solve problems related to patients, work management, and am

colleag

D4. Cope with a changing work environm

D5. Apply safety and infection control measures during pract

(3) Academic standards:

Academic standards for the programme are attached in Appendix I. in which **NARS** issued by the National Authority for Quality Assurance & Accreditation in Education are used. External reference points/Benchmarks are attached in Appendix II.

3.a- External reference points/benchmarks are selected to confirm the appropriateness of the objectives, ILOs and structure of assessment of the programme: Duke University NeuroToxicology Program:

3.b- Comparison of the specification to the selected external reference/ benchmark: all programme aims of the Benchmark are covered by the current programme)

Curriculum structure and contents:

4.a- Duration of the programme (in years or

4a. Program duration: 2 years (39 credit hours).

4b. Program structure: **totally unclear**
Courses, lectures and practical

	Duration	Lecture	Credit hours
1st Semester	**6 months**	**4.5hrs./w for 18 weeks &4hrs. for 6 w**	**7**

2nd Semester	**6 months**	**3hrs./w for 18 weeks & 3.5hrs for 6 w**	**9**
3rd Semester	**4 months**	**5.5hrs./w for 12w & 6hr/w for 4w**	**5**
4th Semester	**6 months**	**5.5hrs./w for 18w & 6hr/w for 6w**	**9**
Log book (includes clinical training)	**2 month**		**9**
Total	**24 months**		**39**

(4) Programme courses:

5.1. 1st semester:

a . **Compulsory**

a1- Code No. **NT1**

Course Title: **Neurobiology/physiology**

Credit hours: 7

5.2. 2nd semester :

a . **Compulsory**

a1 - Code No. **NT2**

Course Title: **PESTICIDES**

Credit hours: 9

5.3. 3rd semester :

a . **Compulsory**

a1 - Code No. **NT3**

Course Title: **NATURAL TOXINS**

Credit hours: 5

5.4. 4th semester :

a . **Compulsory**

a1 - Code No. **NT4**

Course Title: **Reviews of the neuronal impact of drugs of abuse**

Credit hours: 9

Programme-Courses ILOs Matrix

Programme ILOs are enlisted in the first row of the table (by their code number: a1, a2……etc), then the course titles or codes are enlisted in first column, and an "x" mark is inserted where the respective course contributes to the achievement of the programme ILOs in question.

P.S. All courses` specifications are attached in Appendix III.

Semester	Code	ILOs
Neurobiology/physiology	NT1	A2,3: B1: C1: D5
Pesticides	NT2	A1: B1,B2: C3: D5
Natural Toxins	NT3	A1: B1:C1:D1,2,3,4,5
Drug abuse	NT4	A2: B1: C1,2: D5

(5) Programme admission requirements:

- **General requirements:** Medical Bachelor of medicine and surgery (M.B.B.Ch) with at least good level.
  - Acceptance letter of site of work.
  - Selection criteria will be established by the Council of the MERC
- **Specific requirements (if applicable):**

(6) Regulations for progression and programme completion:

The lectures for each course will appear once at the start of the course and there will be continuous evaluation to the candidates by online cases discussions, activities, quizes and traineeship evaluation thourough the course.

-The assessment is :

Online Quiz following each semester(All represent 20% of final exam marks) and the candidate will not pass to the following semester unless he/she scores at least 75% in previous semester exam.

-log book (9 credit hours): this book will contain all the activity that will be done through the program and the clinical training which will be conducted through the courses. The candidate will not be allowed to apply to the exam of the fellowship unless completing 75% of log book activities.

-Accepted places for traineeship activities:

1. Mansoura Medical Experimental Research Center (MERC)
2. Mansoura Poisoning Unit/ Emergency Hospital
3. Toxicology Department

-The final exam(objectively-structured exam 80% of total mark) will be conducted online after the end of the 4th semester including MCQs(25%), EMQs(25%) and cases studies (30%).

(7) Evaluation of Programme's intended learning outcomes (ILOs):

7.1-Senior students:

Tool: Questionnaires-Review of assessment method

Sample: Students in the last year

7.2-Alumni

Tool: Questionnaires

Sample: Student finished diploma within 5 years

7.3-Stakeholders (Employers)

Tool: interviews

Sample: directors of nearby hospitals and hemodialysis units

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7.4-External Evaluator(s) External Examiner

Tool: Reports

Sample: External examiners in each course

* TOOLS= QUESTIONNAIRE, INTERVIEW, WORKSHOP, COMMUNICATION, E_MAIL

We certify that all information required to deliver this programme is contained in the above specification and will be implemented. All course specification for this programme are in place.	
Programme coordinator: Name:	Signature & date:
Dean: Name:	Signature & date:

Executive director of the quality assurance unit: Name:	Signature & date:

P.S. The programme specification should have attached to it all courses specifications for all courses listed in the matrix.