



Mansoura University
Faculty of Pharmacy
Quality Assurance Unit
**Academic Reference Standards for
Postgraduate Programs**



Academic Reference Standards (ARS) For

Toxicology and Forensic Chemistry Diploma

Pharmacology and Toxicology Department



ARS

Academic Year: 2021/2022

رئيس القسم
أ.د.
منار احمد نادر



Mansoura University
Faculty of Pharmacy
Quality Assurance Unit
**Academic Reference Standards for
Postgraduate Programs**



Diploma of Toxicology and Forensic Chemistry

Academic Reference Standards (ARS)

(Department Council Approval on May 2022

Faculty Council Approval on May 2022

I. Attributes of the graduate:

The graduates of Toxicology and Forensic Chemical Analysis Diploma should be capable of:

- Applying the gained knowledge specialized in the field of toxicology and forensic Chemical analysis in his professional practice
- Identifying the problems in the areas of basic, molecular, biochemical, and clinical toxicology and suggesting their solutions.
- Mastering the professional skills and using the suitable technological tools that serve the professional practice
- Communicating and leading the teamwork through a systemic professional work.
- Making decisions in the light of the available information
- Being aware of his role in the society development and preserving the environment.
- Acting in a way that reflect integrity and credibility commitment. professional rules and accepting accountability
- Realizing the necessity of personal development and engagement in continuous learning

II. General Standards

1. Knowledge and Understanding:

Upon successful completion of the Program, graduates should be able to understand and comprehend:

- 1.1. The theories and fundamentals of toxicology and toxicity assessment



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**Academic Reference Standards for
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1.2. The legal and ethical principles for professional practicing in the field of toxicology and forensic chemical analysis

1.3. Principles and fundamentals of quality control in professional practice

1.4. Effect Of professional practicing in the field of toxicology on the environment and how to

work on preserving the environment and its maintenance

2. Intellectual Skills

Upon successful completion of the Program, graduates should be capable of:

2.1. Identifying and analyzing the problems in the field of toxicology and forensic chemical analysis and arranging them according to their priorities

2.2. Deducing solutions for the problems related to the field of toxicology and forensic chemical analysis

2.3. Analytical reading of researches and topics related to the field of toxicology and forensic chemical analysis

2.4. Evaluation Of risks in professional practice

2.5. Taking professional decisions in the light of the information available

3. Professional and Practical Skills

Upon completion of the program, graduates should be capable of:

3.1 Applying professional skills in toxicology and forensic chemical analysis related fields.

3.2 Writing professional reports

4. General and transferable skills:

Upon completion of the program, graduates should be capable of:

4.1. Effective communication by various methods

4.2 Utilizing information technology in a way the serves professional practice development.



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- 4.3 Self-assessment and identifying his personal educational needs.
 - 4.4 Using different resources to acquire information and knowledge
 - 4.5 Working in a team and manage time effectively.
 - 4.6 Leading others in various professional contexts.
 - 4.7 Self and continuous learning
 - 4.8 Showing awareness of ethics and legal issues of research and professional practice in toxicology and forensic chemical analysis

Reference:

National academic reference standard (NARS) for postgraduate studies issued by NAQAAE 2009.

Program Coordinator: Head of Department



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Quality Control Diploma Program
Biostatistics – PAD-110
Course Specification – 2021/2022



Dept. of Pharmacology & Toxicology	Course Specification	Quality Control Diploma
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Quality Control Diploma
Course Specification
Academic year: 2021/2022

البرنامج
دبلوم الرقابة

توصيف مقرر
الإحصاء الحيوي

مدير البرنامج
أ.د. مني شعبان

منسق المقرر
د. حمدي أنور غنيم



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology & toxicology
Department supervising the course	Pharmacology & toxicology
Program on which the course is given	Quality Control Diploma Program
Academic Level	Postgraduate
Academic year	2021/2022 – Spring semester
Date of course specification approval	May 2022

A. Basic information: Course data

Course Title	Biostatistics
Course Code	PAD-110
Prerequisite	-----
Teaching Hours: Lecture	2
Practical:	-----
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

- 1- Recognize, define and be aware of the different statistical tests used for analyzing scientific data.
- 2- Train the students on proper design of both experimental and clinical studies.
- 3- Train the students on extrapolating the gained information for proper assessment of quality control.

2- Intended Learning Outcomes (ILOs)

2.1. Knowledge and Understanding

After completion of the course, graduates will be able to

a1	Define the different statistical tests used for analyzing data
a2	Properly select the optimum statistical test for a required set of data
a3	Design experimental and clinical studies on scientific basis to obtain data efficient for quality assessment



2.2. Intellectual Skills

After completion of the course, graduates will be able to

b1	Properly assess quality based on statistical interpretation of the data.
b2	Arrange scientific data and out roll any potential outliers.
b3	Direct experimental and clinical designs on sequential basis.

2.3. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Apply statistical tests either manually or with the aid of software(s) on practical settings
c2	Interpret statistical information and judge practical settings for proper quality assessment

2.4. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Communicate better with health care professionals through statistical/scientific readings of data sets
d2	Practice independent learning needed for continuous professional development

3. Course Contents

Week No.	Lecture Topics	Hours
1	Designing clinical and experimental studies	2
2	Statistical arrangement of data set	2
3-4	Student T-test (part 1)	4
5-6	Student T-test (part 2)	4
7-8	ANOVA (Analysis of variance)	4
9-10	Chi- square test	4
Total 10 weeks		20



4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1	Designing clinical and experimental studies	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2
2	Statistical arrangement of data set	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2
3-	Student T-test (part 1)	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2
4	Student T-test (part 1)	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2
5	Student T-test (part 2)	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2
6	Student T-test (part 2)	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2
7	ANOVA (Analysis of variance)	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2
8	ANOVA (Analysis of variance)	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2
9	Chi- square test	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2
10	Chi- square test	a1, a2, a3	b1, b2, b3	c1, c2	d1, d2

* Knowledge and understanding

**Intellectual Skills

***Professional and Practical Skills

****General and Transferable Skills

4- Teaching and Learning Methods:

✓	Lectures using Power Point (PPT) presentations
✓	Lectures using whiteboard
✓	Video-recorded lectures, uploaded to the University Portal for Online learning
✓	Activities and tasks required to develop students' self-learning skills.
	Tutorial, Class Activity and Group Discussion to explain what has not been understood
✓	Interactive Sessions using Microsoft Teams
✓	Internet search and Research Assignments to design Formative Assignments
	Practical Training / Laboratory
	Seminar / Workshop
	Case study
	Role play

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills		90%
Assessment 2	Tutorial / or Practical	Assignments prepared by students and sent to the		0%



	assignments and Semester work	supervisor electronically for evaluation. To assess professional skills		
Assessment 3	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills		10%
				100 %

5- List of References

	Reference	Type
1.	- Aviva, P. (2005): Medical Statistics at a Glance, Blackwe Company, 2 nd ed., Philadelphia. - Murray, R. Spiegel, Gohn J. Schiller and R. Alu Srinvasan (1997): “Probability and Statistics”, Tata McGraw-Hill Publishing Company Limited, Inc., 3rd edition. - Stephen, S. (1997): Statistical issues in Drug Development John Wily and Sons Inc.	Essential Book (Textbook)
2.	- https://pubmed.ncbi.nlm.nih.gov/15810459/ - https://pubmed.ncbi.nlm.nih.gov/30131506/	Research articles
3.	http://ocw.jhsph.edu/courses/BiostatMedicalProductRegulation/biomed_1ec2_foulkes.p https://searchdatacenter.techtarget.com/definition/statistical-mean-median-mode-and-range https://www.youtube.com/watch?v=Snf6Wpn-L4c http://vassarstats.net/textbook/parametric.html http://onlinestatbook.com/2/normal_distribution/intro.html https://www.youtube.com/watch?v=TJgmOdTEL4E http://statistics-help-for-students.com/How_do_I_interpret_Z_score_data_in_SPSS.htm#.XILSQi2B0_M https://www.youtube.com/watch?v=opOE31H3uLI https://www.graphpad.com/quickcalcs/Grubbs1.cfm	websites



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Postgraduate Studies
Quality Control Diploma Program
Biostatistics – PAD-110
Course Specification – 2021/2022



8- Facilities required for teaching and learning

-Class room	Data show- Computers - Internet
- Library	With internet and free access to databases

9. Signature

Course Coordinator	Program Director	Date
Dr. Hamdy Anwar Ghoneim	Prof Dr. Mona Shaaban	May 2022

* Date of Dept. Council Approval



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic chemical analysis Diploma
Program
Basic and Clinical Toxicology - Course Specification



Dept. of Pharmacology and Toxicology	Course Specification	Toxicology and Forensic chemical analysis Diploma
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Toxicology and Forensic Analysis Diploma
Course Specification
Academic year: 2021/2022

البرنامج
دبلوم السموم والتحليل الكيميائي
الشرعي

توصيف مقرر
مبادئ السموم التشخيصية
Basic and Clinical Toxicology

رئيس القسم
أ.د. غادة محمد صديق

منسق المقرر
د/ سالى لطفى الشاعر



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic chemical analysis Diploma
Program
Basic and Clinical Toxicology - Course Specification



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology and Toxicology
Department supervising the course	----
Program on which the course is given	Toxicology & Forensic chemical analysis Diploma
Academic Level	Postgraduate
Academic year	2021/2022 - First semester
Date of course specification approval	May 2022

A. Basic Information: Course data:

Course Title	Drug Regulation
Course Code	PHD-101
Prerequisite	-----
Teaching Hours: Lecture	2
Practical:	1
Total Credit Hours	3

B. Professional Information

1- Overall Aims of Course:

This course is designed to provide pharmacists with medical and toxicological principles of selected drug classes commonly encountered in poison control centers and emergency departments. The course covers toxicity of different drug classes including antidepressants, oral hypoglycemic, antineoplastics and drugs used for heart failure and Hepatitis C virus. Toxicity of heavy metals is also discussed in addition to oral contraceptives and anabolic steroids.

2- Intended Learning Outcomes (ILOs)

2.1. Knowledge and Understanding

After completion of the course, graduates will be able to

a1	Review and assimilate toxicologic mechanisms and clinical presentation of toxins covered.
a2	List and discuss in details treatment of any poisoned patient.
a3	Identify specific biomarkers for toxicity of various agents discussed.



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Basic and Clinical Toxicology - Course Specification



2.2. Intellectual Skills

After completion of the course, graduates will be able to

b1	Identify and deal with different causes of poisoning and select the best treatment for various toxic agents.
b2	If presented with a case scenario of a patient exposed to a toxin discussed in class, design a comprehensive treatment plan.

2.3. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	If presented with a case scenario of a patient exposed to a toxin discussed in class, design a comprehensive treatment plan.
c2	Demonstrate adequate ability to explain/discuss toxicity cases
c3	Read/criticize scientific papers in the field of toxicology

2.4. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Presentation skills
d2	Read/criticize scientific papers in the field of toxicology
d3	Recognize different resources of toxicology (books, professional sites and scientific journals) and know how to evaluate the provided information

3. Course Contents

Theoretical topics

Week No	Topics	No. of hours
1.	Clinical toxicology -Introduction	2
2.	Clinical toxicology- Introduction	2
3.	Toxicity of cardiac glycosides and cyclic antidepressants	2
4.	Toxicity of insulin and oral hypoglycemics	2
5.	Toxicity of antineoplastics	2
6.	Toxicity of heavy metals (Iron)	2
7.	Toxicity of diuretics	2
8.	Toxicity of drugs used for Hepatitis C virus (HCV)	2
9.	Toxicity of combined oral contraceptives	2
10.	Toxicity of anabolic steroids	2
11.	Revision	



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Practical topics

Week No	Topics	No. of hours
1.	Methemoglobinemia / Poisoning of (Digitalis, Methanol) case studies	2
2.	Salicylate poisoning case studies	2
3.	Case report (Iron intoxication)	2
4.	Case study (Sofosbuvir and Ribavirin-induced hepatotoxicity)	2
5.	Oral hypoglycemics and Acetaminophen case studies	2
6.	Methotrexate and Phenytoin poisoning case studies	2
7.	Case report (Anabolic steroids abuse-induced cardiomyopathy & ischemic stroke)	2
8.	Drug-induced Lithium Toxicity in the Elderly: A Population-Based Study	2

Matrix of knowledge and skills of the course (contents versus ILOs of the course)

No	Course contents	Study Week	ILOS			
			Knowledge & understanding	Intellectual skills	Professional and practical skills	General & transferable skills
1.	Clinical toxicology - Introduction	1	a1, a2	b1, b2	c1	
2.	Clinical toxicology- Introduction	2	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
3.	Toxicity of cardiac glycosides and cyclic antidepressants	3	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
4.	Toxicity of insulin and oral hypoglycemics	4	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
5.	Toxicity of antineoplastics	5	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
6.	Toxicity of heavy metals (Iron)	6	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
7.	Toxicity of diuretics	7	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
8.	Toxicity of drugs used for Hepatitis C virus (HCV)	8	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
9.	Toxicity of combined oral contraceptives	9	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
10.	Toxicity of anabolic steroids	10	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3

* Knowledge and Understanding

**Intellectual Skills

***Professional and Practical Skills

****General and Transferable Skills



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Basic and Clinical Toxicology - Course Specification



5- Teaching and Learning Methods:

5.1	Lectures using Data Show and Power point presentation
5.2	Computers and internet searching
5.3	Lectures using white board
5.4	Discussion

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	weeks 13-14	70%
Assessment 2	Tutorial / or Practical assignments and Semester work	Assignments prepared by students and sent to the supervisor electronically for evaluation. To assess professional skills	weeks 11-12	20%
Assessment 3	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills	weeks 13-14	10%
				100 %

7- List of References

N0.	Reference	Type
1	Casarett and Doull`s Toxicology. The Basic science of Poisons. 6th and 7th editions	Book
2	Review of Forensic medicine and Toxicology including clinical and pathological aspects. 2nd edition	Book
3	Pillay. Modern Medical Toxicology. 4 th edition.	Book
4	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6189850/	Review article
5	https://www.hepatitisc.uw.edu/page/treatment/drugs/sofosbuvir-drug	Website
6	https://rootandrevel.com/birth-control-pill-side-effects/	Website



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Program
Basic and Clinical Toxicology - Course Specification



7	https://www.quora.com/What-are-the-side-effects-of-testosterone-What-happens-if-testosterone-level-is-too-high-in-a-male	Website
8	Mechanistic Toxicology, Urs A. Boelsterli, Taylor & Francis, 2003	Book
9	Biswas - Review of Forensic Medicine and Toxicology, 2 nd Edition	Book

8- Facilities required for teaching and learning

-Class room	Smart lecture rooms provided with Data show
- Library	Supplied by recent scientific books and journals.
- Others	Access to research engines for scientific periodicals.

9. Signature

Course Coordinator	Head of Department	Date
Dr. Sally L. Elshaer	Prof Dr. Manar Ahmed Nader	May 2022

* Date of Dept. Council Approval



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic chemical
analysis Diploma Program
Drug abuse Course Specification



Dept. of Pharmacology and Toxicology	Course Specification	Toxicology and Forensic chemical analysis Diploma
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Toxicology and Forensic chemical analysis Diploma
Course Specification
Academic year: 2021/2022

البرنامج
دبلوم السموم والتحليل الكيميائي
الشرعي

توصيف المقرر
الادويه المساء استخدامها
Drug abuse

رئيس القسم
أ.د. منار احمد نادر

منسق المقرر
د. محمود على الشال



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic chemical
analysis Diploma Program
Drug abuse Course Specification



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Department of Pharmacology and Toxicology
Department supervising the course	----
Program on which the course is given	Toxicology and Forensic Chemistry Diploma
Academic Level	Postgraduate
Academic year	2021/2022 - second semester
Date of course specification approval	May 2022

A. Basic Information : Course data :

Course Title	Drug Abuse
Course Code	PHD-107
Prerequisite	-----
Teaching Hours: Lecture	2
Practical:	-
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

Upon successful completion of the course, the candidate is expected to identify the impact of various examples of drug abuse on the well-being of humans, recalling the psychological and physiological changes induced by different drugs of abuse, identify the signs and symptoms of various types of drugs of abuse, and introduce the basic concepts for management of various forms of drug abuse

2- Intended Learning Outcomes (ILOs)

2.1. Knowledge and Understanding

After completion of the course, graduates will be able to

a1	Differentiate between the various forms of drug abuse
a2	List chemicals and drugs which are associated with abuse



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Drug abuse Course Specification



a3	Enumerate the various signs and symptoms associates with psychological and physiological
a4	dependence on various drugs of abuse

2.2. Intellectual Skills

After completion of the course, graduates will be able to

b1	Analyze researches and solve commonly encountered problems with drugs of abuse
b2	Interpret the scenes and features of drug abuse cases
b3	Analyze features of toxicity cases associated with various forms of drug abuse.
b4	Assess the risks of drug abuse frequently encountered in various workplaces and communities.

2.3. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Propose treatment planes for patients suffering from various forms of drug abuse
c2	Formulate the results according to collected data
c3	Apply different methods for explanation of scientific data and interpretation of data collected.

2.4. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Communicate clearly by verbal and written means
d2	Manipulate computer program, online database, software and other IT to get information and analyze the obtained research data
d3	Practice self- assessment and learning needed for continuous professional development
d4	Promote critical thinking, problem-solving and decision-making capabilities
d5	Deal with obstacles and problems
d6	Work effectively in a team and offer expertise and advice to others
d7	Develop creativity and time management abilities
d8	Evaluate and criticize scientific work, literature and research data
d9	Adopt ethical, legal, professional responsibilities and safety guidelines
d10	Develop presentation skills, give seminars and defend thesis in public



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analysis Diploma Program
Drug abuse Course Specification



3. Course Contents

Week No.	Lecture Topics	Lecture Hours
1	Introduction to drug abuse	2
2	Abuse of ethanol	2
3	Abuse of methanol & ethylene glycol	2
4	Abuse of sedatives and hypnotics	2
5	Abuse of cannabis	2
6	Abuse of opiates	2
7	Abuse of cocaine	2
8	Abuse of amphetamines	2
9	Abuse of OTC	2
10-11	Student activities and seminars	4
Total: 11 weeks		22

4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Course	Program ILOs (by No.)			
	K.U*	IS**	P.P.S***	G.T.S****
1. Introduction to drug abuse	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11
2. Abuse of ethanol	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11
3. Abuse of methanol & ethylene glycol	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11
4. Abuse of sedatives & hypnotics	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11
5. Abuse of cannabis	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11
6. Abuse of opiates	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11
7. Abuse of cocaine	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11



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8. Abuse of amphetamine	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11
9. Abuse of OTC	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11
10. Student activities and seminars	a1,a2, a3,a4	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6, d7,d8,d9,d10,d11

* Knowledge and Understanding

**Intellectual Skills

***Professional and Practical Skills

****General and Transferable Skills

5- Teaching and Learning Methods:

5.1	Lectures using Power Point (PPT) presentations
5.2	Video-recorded lectures , uploaded to the University Portal for Online learning
5.3	Activities and tasks required to develop students' self-learning skills.
5.4	Tutorial, Class Activity and Group Discussion to explain what has not been understood
5.5	Interactive Sessions using Microsoft Teams
5.6	Internet search and Research Assignments to design Formative Assignments
5.7	Seminars

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills		90%
Assessment 2	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills		10%
				100 %

7- List of References

	Reference	Type
1.	A Textbook of Modern Toxicology; by Ernest Hodgson, 4 th edition, JOHN WILEY & SONS, INC., PUBLICATION (2010).	Essential Book (Text Books)
2.	Review of Forensic Medicine and Toxicology; by Gautam Biswas, 3 rd edition, Jp Medical Ltd (2015).	Essential Book (Text Books)



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analysis Diploma Program
Drug abuse Course Specification



2.	http://www.sciencedirect.com/ http://www.google scholar.com/ http://www.pubmed.com https://www.ekb.eg	Internet websites
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8- Facilities required for teaching and learning

-Class room	Data show- Computers - Internet
- Library	Supplied by recent scientific books and journals.
- Others	Access to research engines for scientific periodicals.

9. Signature

Course Coordinator	Head of Department	Date
Dr. Mahmoud Ali Elshal	Prof Dr. Manar Ahmed Nader	May 2022

* Date of Dept. Council Approval



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic Chemical Analysis Diploma
Program
Environmental and Occupational Toxicology Course
Specification



Dept. of Pharmacology and Toxicology	Course Specification	Toxicology and Forensic Chemical Analysis Diploma
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Toxicology and Forensic Analysis Diploma
Course Specification
Academic year: 2021/2022

البرنامج
دبلوم السموم والتحليل الكيميائي
الشرعي

توصيف مقرر
السموم البيئية والمهنية
Environmental and occupational toxicology

رئيس القسم
أ.د. منار احمد نادر

منسق المقرر
أ.م.د/مها هشام شعراوي



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic Chemical Analysis Diploma
Program
Environmental and Occupational Toxicology Course
Specification



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology and Toxicology
Department supervising the course	----
Program on which the course is given	Toxicology & Forensic Chemical Analysis Diploma
Academic Level	Postgraduate
Academic year	2021/2022 - Second semester
Date of course specification approval	May 2022

A. Basic Information: Course data:

Course Title	Environmental and Occupational Toxicology
Course Code	PHD-106
Prerequisite	-----
Teaching Hours: Lecture	2
Practical:	1
Total Credit Hours	3

B. Professional Information

1- Overall Aims of Course:

Upon completion of this course, the postgraduate students should have essential knowledge about environmental and occupational toxicants, how to identify them and manage the toxicities involved. He should be aware of his role in the society development and preserving the environment.

2- Intended Learning Outcomes (ILOs)

2.1. Knowledge and Understanding

After completion of the course, graduates will be able to

a1	List chemicals and toxicants that are found in the surrounding environment or different workplaces that can induce organ toxicity.
a2	Identify the health outcomes of environmental and occupational toxicants exposure and how to manage these outcomes.
a3	Identify the effect of professional practice on environment and the methods of environmental development and maintenance, how to work on preserving the environment and its conservation.
a4	Effect of professional practicing in the field of toxicology in different workplaces.



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2.2. Intellectual Skills

After completion of the course, graduates will be able to

b1	Assess professional and scientific risks in practicing toxicants and/or toxicity assessments.
b2	Participate in comprehensive scientific and professional discussions and communications based on evidence-based science.
b3	Evaluation of risk in professional practice.

2.3. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Writing professional reports.
c2	Apply professional skills in occupational and environmental toxicology.

2.4. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Using different resources to acquire information and knowledge.
d2	Effective communication in various methods and work effectively within a team.
d3	Self and continuous learning.

3. Course Contents

Week No.	Lecture Topics	Hours
1	Air pollution	2
2	Occupational toxicity of liver	2
3	Occupational toxicity of the lungs	2
4	Food toxicology	2
5	Occupational toxicity of kidney	2
6	Occupational systemic toxicity	2
7	Occupational toxicity of nervous system	2
8	Occupational developmental toxicity	2
9-10	Occupational toxicity of skin	4
Total: 10 weeks		20



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Week No.	Practical / Tutorial topics	hours
1	Asthma and Air Pollution	2
2	Cases on liver toxicity	2
3	Pulmonary tuberculosis	2
4	Histamine toxicity (scombroid poisoning)	2
5	Case on kidney injury	2
6	Case on chromate exposure	2
7	Case on nervous system toxicity	2
8	Case on reproductive and developmental toxicity	2
9	Case on skin toxicity	2
Total 9 weeks		18

4. Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1	Air pollution	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
2	Occupational toxicity of liver	a1, a2, a4	b1, b2	c1, c2, c3	d1, d2, d3
3	Occupational toxicity of the lungs	a1, a2, a4	b1, b2	c1, c2, c3	d1, d2, d3
4	Food toxicology	a1, a2, a3	b1, b2	c1, c2, c3	d1, d2, d3
5	Occupational toxicity of kidney	a1, a2, a4	b1, b2	c1, c2, c3	d1, d2, d3
6	Occupational systemic toxicity	a1, a2, a4	b1, b2	c1, c2, c3	d1, d2, d3
7	Occupational toxicity of nervous system	a1, a2, a4	b1, b2	c1, c2, c3	d1, d2, d3
8	Occupational developmental toxicity	a1, a2, a4	b1, b2	c1, c2, c3	d1, d2, d3
9-10	Occupational toxicity of skin	a1, a2, a4	b1, b2	c1, c2, c3	d1, d2, d3

* Knowledge and Understanding

**Intellectual Skills

***Professional and Practical Skills

****General and Transferable Skills



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5- Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using whiteboard or data show, powerpoint presentations b. Distance learning <ul style="list-style-type: none"> • Online learning: as Video-recorded lectures, uploaded to the Google drive of the program • Interactive session through Microsoft Teams
5.2	Lectures using whiteboard
5.3	Tutorial, Class Activity and Group Discussion to explain what has not been understood
3.4	Internet search and Research Assignments

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	weeks 13-14	70%
Assessment 2	Tutorial / or Practical assignments and Semester work	Assignments prepared by students and sent to the supervisor electronically for evaluation. To assess professional skills	weeks 11-12	20%
Assessment 3	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills	weeks 13-14	10%
Total				100 %

7- List of References

	Reference	Type
1.	Chris Winder and Neill H. Stacey: Occupational Toxicology, 2nd Edition	Textbook
2.	Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Edition	Textbook
3.	http://www.sciencedirect.com/ http://www.google scholar.com/ http://www.pubmed.com https://www.ekb.eg http://www.fda.gov https://www.who.int/	Websites



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8- Facilities required for teaching and learning

-Class room	Smart lecture rooms provided with Data show
- Library	Supplied by recent scientific books and journals.
- Others	Access to research engines for scientific periodicals.

9. Signatures

Course Coordinator	Head of Department	Date
Dr. Maha H. Sharawy	Prof Dr. Manar Ahmed Nader	May 2022

* Date of Dept. Council Approval



Mansoura University
Faculty of Pharmacy
Clinical Pharmacy Program



Course specification
2021- 2022
Pharm D Program



Forensic toxicology (PHD-103)
(2021/2022)

Faculty	Pharmacy
Department	Pharmacology
Program(s) on which the course is given:	Toxicology & Forensic chemical analysis Diploma (Forensic toxicology)
Major or minor element of programs:	Major
Department offering the program:	Faculty of pharmacy
Department offering the course:	Pharmacology and Toxicology
Academic year / level:	Post-Graduate Level
Date of specification approval:	May 2022



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Faculty of Pharmacy
Clinical Pharmacy Program



Course specification
2021- 2022
Pharm D Program

A- Basic information

Title:	Forensic toxicology (PHD-103)	
Lecture:	2 C.H/week	Total: 4 C.H./ week
Practical:	2 CH/week	

B- Professional Information

1- Overall Aims of Course

Upon completion of this course, the PhD students should:

- 1.1 Have good knowledge of the different toxins types/mechanisms of toxicity.
- 1.2 Have good knowledge of the common food poisoning.
- 1.3 Have detailed explanation of the toxin treatments and the postmortem findings.
- 1.4 Hypersensitivity reactions and transplantation are also highlighted
- 1.5 Have good knowledge of DNA fingerprinting, hair analysis and blood stain.

2 – Intended Learning Outcomes (ILOs)

a. Knowledge and Understanding

After completion of the course, graduates will be able to:

1. Explain the clinical presentations of some poisons.
2. Demonstrate and illustrate different mechanisms of petroleum and metal toxicity.
3. Define and explain the mechanisms of the food poisoning.
4. Predict the relationship between toxins and the different organs.

b. Intellectual Skills

After completion of the course, graduates will be able to:



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Faculty of Pharmacy
Clinical Pharmacy Program



Course specification
2021- 2022
Pharm D Program

1. Analyze and interpret some toxins clinical disorders.
2. Handle different types of food poisonings.
3. Distinguish between different types of postmortem findings.

c. Professional and Practical Skills

After completion of the course, graduates will be able to:

Define and explain signs and symptoms of some poisons, advice patients and physician of the proper regimens in them. 1

d. General and Transferable Skills

After completion of the course, graduates will be able to:

1. Review and analyze relevant literatures.
2. Work effectively within a team.
3. Access information effectively.

3 – Course Contents:

General Topics	Week	Hours
Introduction to forensic toxicology and sample collection	1	2
DNA fingerprinting	2	2
Hair analysis	3	2
Blood stain analysis	4	2
Introduction to general toxicology	5	2
Corrosives (Mineral acids, Oxalic acid, Caustic Alkalis)	6	2



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Metallic irritants (Mercury poisoning) and Non-metallic irritants (Phosphorous poisoning)	7	2
Inebriant (Ethyl alcohol)	8	2
Methyl alcohol poisoning	9	2
	total	18
Practical sessions		
Signs of death (early changes)	1	2
Signs of death (Late changes)	2	2
Autopsy room hazards	3	2
Anesthetic deaths	4	2
Arsenic poisoning	5	2
Kerosene poisoning	6	2
	total	12

4- Matrix (contents versus ILOs of the course)

	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S** **
1	Introduction to forensic toxicology and sample collection	a1, a2, a3, a4	b1, b2, b3	c1	d1, d2, d3
2	Food poisoning	a1, a3, a4	b1, b2	c1	d1, d2,



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					d3
3	Arsenic toxicity	a1,a2, a4	b1, b3	c1	d1, d2, d3
4	Kerosene poisoning	a1,a2, a4	b1, b3	c1	d1, d2, d3
5	Hair analysis	a1,a2, a3, a4	b1, b3	c1	d1, d2, d3
6	bloodstain	a1,a2, a3, a4	b1, b2	c1	d1, d2, d3
7	DNA fingerprinting	a1,a2, a3, a4	b1, b2, b3	c1	d1, d2, d3
8	Anesthetic deaths	a1,a2, a3, a4	b1, b3	c1	d1, d2, d3

Knowledge and Understanding *

Intellectual Skills **

Professional and Practical Skills ***

General and Transferable Skills ****



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Course specification
2021- 2022
Pharm D Program

5 – Learning Methods

5.1	Lectures using Data Show and Power point presentation
5.2	Lectures using white board Computers and internet searching
5.3	
5.4	Discussion

6- Student Assessments

6.1 Assessment Methods	
Practical exam	To assess knowledge, understanding, and intellectual skills
Written exam	To assess understanding, transferable, and intellectual skills
Oral Exam	To assess understanding, intellectual, and transferable skills
6.2 Assessment Schedule	Final practical exam weeks 10-11 Final Written exam: weeks 14-15 Oral exam: weeks 14-15
6.3 Weighting of Assessments	Final Written exam: 70 Marks (70%) Practical exam: 20 Marks (20%) Oral exam: 10 Marks (10%)



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Course specification
2021- 2022
Pharm D Program

7 – List of References

Review of Forensic medicine and Toxicology including clinical and pathological aspects;
Editors: Gautam Biswas (2nd edition) (Text Book).

8 – Facilities Required

- Library supplied by recent scientific books and journals.
- Smart lecture rooms provided with Data show
- Access to research engines for scientific periodicals.

Course Coordinator:	Dr. Mirhan N. Makled
Head of Department	Prof.Dr. Manar Ahmed Nader

Date of Dept. Council Approval: May 2022



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic chemical analysis Diploma
Molecular and Biochemical Toxicology II Course Specification



Dept. of Pharmacology and Toxicology	Course Specification	Toxicology and Forensic chemical analysis Diploma
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Toxicology and Forensic chemical analysis Diploma
Course Specification

Academic year: 2021/2022

البرنامج
دبلوم السموم والتحليل الكيميائي
الشرعي

توصيف مقرر
Molecular and Biochemical
Toxicology II
السموم الجزيئية والحيوية 2

رئيس القسم
أ.د. منار احمد نادر

منسق المقرر
د. هدى عزت كفل



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic chemical analysis Diploma
Molecular and Biochemical Toxicology II Course Specification



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology and Toxicology Department
Department supervising the course	---
Program on which the course is given	Toxicology and Forensic chemical analysis Diploma
Academic Level	Postgraduate
Academic year	2021/2022 - second semester
Date of course specification approval	May 2022

A. Basic Information : Course data :

Course Title	Molecular Toxicology II
Course Code	PHD-105
Prerequisite	-
Teaching Hours: Lecture	2
Practical:	1
Total Credit Hours	3

B. Professional Information

1- Overall Aims of Course:

This course aims to provide students with knowledge of cell cycle, theory of carcinogenesis, genetic toxicology, cell death, mitochondrial dysfunction and others. Also, provide the student with complex methods used to assess molecular and cellular events induced by toxicants.

2- Intended Learning Outcomes (ILOs)

2.1. Knowledge and Understanding

After completion of the course, graduates will be able to

a1	Define and explain the mechanisms of cell cycle.
a2	Define and explain the theory of carcinogenesis
a3	Define and explain the mechanisms of genetic toxicology, cell death as well as mitochondrial dysfunction



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2.2. Intellectual Skills

After completion of the course, graduates will be able to

b1	Analyze and interpret clinical disorders of different toxins.
b2	Handle different molecular and cellular events induced by toxicants
b3	Distinguish between different types of molecular and cellular events induced by toxicants

2.3. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Define and explain signs and symptoms of different toxicants.
c2	Distinguish between different types of molecular and cellular events induced by different xenobiotics.

2.4. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Review and analyze relevant literatures.
d2	Access information effectively
d3	Work effectively within a team.

3. Course Contents

Week No.	Lecture Topics	Lecture Hours	Practical / Tutorial hr.
1	Cell cycle and xenobiotics affecting it (Xenobiotics inducing proliferation)	2	2
2	Cell cycle and xenobiotics affecting it (Impairment of cell proliferation and tissue repair)	2	2
3	Toxicants inducing cell death (Apoptosis)	2	2
4	Toxicants inducing cell death (Necrosis)	2	2
5	Toxicants inducing cell death (Necrosis)	2	2
6	Genetic Toxicology	2	2



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7	Genetic Toxicology	2	2
8	Chemical Carcinogenesis	2	2
9	Toxicants inducing mitochondrial dysfunction	2	2
10	Toxicants inducing mitochondrial dysfunction	2	2
11	Revision	2	2
Total: 11 weeks		22	22

Week No.	Practical Topics	Lecture Hours	Practical / Tutorial hr.
1	Toxicant-Receptor interaction (nuclear receptors)	2	2
2	Xenobiotics affecting cell proliferation	2	2
3	Toxicants inducing cell death (Apoptosis)	2	2
4	Toxicants inducing cell death (Necrosis)	2	2
5	Phototoxicity	2	2
6	Chromosomal aberrations	2	2
7	Chemicals and cancers	2	2
8	Xenobiotics affecting mitochondrial functions	2	2
9	Revision	2	2
10	Practical exam	2	2
11		2	2
Total: 11 weeks		22	22



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Postgraduate Studies
Toxicology and Forensic chemical analysis Diploma
Molecular and Biochemical Toxicology II Course Specification



4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1	Introduction (molecular toxicology)	a1	b1, b2	c1, c2	d1,d2,d3
2	Cell cycle and xenobiotics affecting it	a1	b1, b2	c1, c2	d1,d2,d3
3	Chemical carcinogenesis	a1	b1, b2	c1, c2	d1,d2,d3
4	Genetic toxicology	a2	b1, b2	c1, c2	d1,d2,d3
5	Toxicants inducing mitochondrial dysfunction	a2	b1, b2	c1, c2	d1,d2,d3
6	Toxicants inducing cell death	a3	b1, b2	c1, c2	d1,d2,d3
7	Revision	a1, a2, a3	b1, b2	c1, c2	d1,d2,d3

* Knowledge and Understanding

**Intellectual Skills

***Professional and Practical Skills

****General and Transferable Skills

5- Teaching and Learning Methods:

5.1	Lectures using Power Point (PPT) presentations
5.2	Lectures using whiteboard
5.3	Video-recorded lectures , uploaded to the University Portal for Online learning
5.4	Activities and tasks required to develop students' self-learning skills.
5.5	Tutorial, Class Activity and Group Discussion to explain what has not been understood
5.6	Interactive Sessions using Microsoft Teams

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	Week 14-15	70%
Assessment 2	Tutorial / or Practical assignments and Semester work	Assignments prepared by students and sent to the supervisor electronically for evaluation. To assess professional skills	Week 11-12	20%
Assessment 3	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills	Week 14-15	10%
				100 %



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Toxicology and Forensic chemical analysis Diploma
Molecular and Biochemical Toxicology II Course Specification



7- List of References

	Reference	Type
1.	Molecular and Biochemical Toxicology, 4th edition, Robert C. Smart & Ernst Hodgson, John Wiley (2008) published by John Wiley & Sons	Text book
2.	A text book of Modern Toxicology 4 th edition, Edited by Ernest Hodgson. (2010) Published by John Wiley & Sons, Hoboken, New Jersey	Text book
3.	Mechanistic Toxicology, the molecular basis of how chemicals disrupt biological targets, Boelsterli UA, 2003, Taylor & Francis	Text book

8- Facilities required for teaching and learning

-Class room	Data show, Internet.
- Laboratory facilities	Data show, Internet
- Library

9. Signature

Course Coordinator	Head of Department	Date
Dr. Hoda Ezzat	Prof Dr. Manar Ahmed Nader	May 2022

* Date of Dept. Council Approval



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic chemical analysis Diploma
Program
Target organ toxicity Course Specification



Dept. of Pharmacology and Toxicology	Course Specification	Master courses
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Toxicology and Forensic Analysis Diploma
Course Specification
Academic year: 2021/2022

البرنامج
دبلومة السموم والكيمياء الشرعية

توصيف مقرر
استهداف الأعضاء بالسموم
Target organ toxicity

رئيس القسم
أ.د. غادة محمد صديق

منسق المقرر
د/ منار جمال عبد الحميد



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic chemical analysis Diploma
Program
Target organ toxicity Course Specification



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology and Toxicology
Department supervising the course	Pharmacology and Toxicology
Program on which the course is given	Diploma courses
Academic Level	Postgraduate
Academic year	2021/2022 - First semester
Date of course specification approval	May 2022

A. Basic Information : Course data :

Course Title	Target organ toxicity
Course Code	
Prerequisite	-----
Teaching Hours: Lecture	2
Practical:	1
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

Upon successful completion of the course, the candidate is expected to:

- 1.1 Identifying the toxic effects of important therapeutic classes and toxins at cellular and systemic levels
- 1.1 Recalling the biochemical, cellular and molecular events induced by different types of toxicants.
- 1.1 Identifying organ toxicity targeted by specific agents
- 1.1 Assessing molecular and cellular events induced by toxins.

2- Intended Learning Outcomes (ILOs)

2.1. Knowledge and Understanding

After completion of the course, graduates will be able to

a1	Explain the theories of target organ toxicity
a 2	List chemicals and drugs which induce organ toxicity.



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Program
Target organ toxicity Course Specification



2.2. Intellectual Skills

After completion of the course, graduates will be able to

b1	Analyze researches and solve commonly encountered problems in target organ toxicity
b2	Interpret the scenes and features of organ targeted toxicity cases
b3	Analyze features of toxicity cases to determine type and severity.
b4	Assess the risks of professional practice with relevance to toxins commonly encountered in work

2.3. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Propose treatment planes for intoxicated patients under moral and ethical standards
c2	Formulate the results according to collected data
c3	Apply different methods for explanation of scientific data and interpretation of data collected. Formulate the results according to the collected patient data after confirming the analysis to comply with international standards of toxicological analysis.

2.4. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Communicate clearly by verbal and written means.
d2	Manipulate computer program, online database, software and other IT to get information and analyze the obtained research data.
d3	Practice self- assessment and learning needed for continuous professional development.
d4	Promote critical thinking, problem-solving and decision-making capabilities.
d5	Deal with obstacles and problems.
d6	Work effectively in a team and offer expertise and advice to others
d7	Develop creativity and time management abilities.
d8	Evaluate and criticize scientific work, literature and research data.
d9	Adopt ethical, legal, professional responsibilities and safety guidelines.

3. Course Contents

Topics	Week	Hours
1. Introduction to target organ toxicity	1	2
2. Hepatotoxicity part 1	2	2
3. Hepatotoxicity part 2	3	2
4. Nephrotoxicity	4	2
5. Nephrotoxicity part 2	5	2



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Target organ toxicity Course Specification



6. Central nervous system toxicity part 1	6	2
4. Central nervous system toxicity part2	7	2
5. Pulmonary toxicity	8-9	4
6. Immunotoxicity	10	2
7. Reproductive toxicity	11	2
8. Applied cases (practical)	1-10	20
	Total	22 h

1- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1	Introduction to target organ toxicity	a1,a2	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6,d7,d8,d9,d10,d11
2	Hepatotoxicity 1	a1,a2	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6,
3	Hepatotoxicity 2	a1,a2	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6,
4	Nephrotoxicity 1	a1,a2	b1,b2,b3,b4	c1,c2,c3	d7,d8,d9,d10,d11
5	Nephrotoxicity 2	a1,a2	b1,b2,b3,b4	c1,c2,c3	d7,d8,d9,d10,d11
6	Central nervous system toxicity part 1	a1,a2	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6,
7	Central nervous system toxicity part 2	a1,a2	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6,
	Pulmonary toxicity	a1,a2	b1,b2,b3,b4	c1,c2,c3	d7,d8,d9,d10,d11
	Immunotoxicity	a1,a2	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6,
	Reproductive toxicity	a1,a2	b1,b2,b3,b4	c1,c2,c3	d7,d8,d9,d10,d11
	Applied cases (practical)	a1,a2	b1,b2,b3,b4	c1,c2,c3	d1,d2,d3,d4,d5,d6,

* Knowledge and Understanding

**Intellectual Skills

***Professional and Practical Skills

****General and Transferable Skills

5- Teaching and Learning Methods:

	Lectures using white board.
	Lectures using power point and data show.

6- Student Assessment:

6.1 Assessment Methods	
Written exam	To assess knowledge, understanding, and intellectual skills



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic chemical analysis Diploma
Program
Target organ toxicity Course Specification



Oral Exam	To assess understanding, intellectual and transferable skills		
6.2 Assessment Schedule	Final Written exam:	weeks 14-15	
	Oral exam:	weeks 14-15	
6.3 Weighting of Assessments	Final Written exam:	70 Marks	70 %
	Practical exam	20 Marks	20%
	Oral exam:	10 Marks	10%

7- List of References

	Reference	Type
1.	A Textbook of Modern Toxicology; by Ernest Hodgson, 4th edition, JOHN WILEY & SONS, INC., PUBLICATION	book
2.	Internet websites; pubmed, medline, etc....	

8- Facilities required for teaching and learning

-Class room	Smart lecture rooms provided with Data show
- Library	Supplied by recent scientific books and journals.
- Others	Access to research engines for scientific periodicals.

9. Signature

Course Coordinator	Head of Department	Date
Dr. Manar Gamal Abd Elhamid	Prof Dr. Manar Ahmed Nader	May 2022

* Date of Dept. Council Approval



Mansoura University
Faculty of Pharmacy
Postgraduate Studies
Toxicology and Forensic Chemical Analysis Diploma
Program
Toxicity assessment Course Specification



Dept. of Pharmacology and Toxicology	Course Specification	Toxicology and Forensic Chemical Analysis Diploma
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Toxicology and Forensic Analysis Diploma
Course Specification
Academic year: 2021/2022

البرنامج
دبلوم السموم والتحليل الكيميائي
الشرعي

توصيف مقرر
تقييم السمية
Toxicity assessment

رئيس القسم
أ.د. غادة محمد صديق

منسق المقرر
أ.م.د/ رانيا رمضان عبد العزيز



Mansoura University
Faculty of Pharmacy
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Program
Toxicity assessment Course Specification



General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology and Toxicology
Department supervising the course	----
Program on which the course is given	Toxicology & Forensic Chemical Analysis Diploma
Academic Level	Postgraduate
Academic year	2021/2022 - Second semester
Date of course specification approval	May 2022

A. Basic Information: Course data:

Course Title	Toxicity assessment
Course Code	PHD-109
Prerequisite	-----
Teaching Hours: Lecture	2
Practical:	0
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

Upon completion of this course, the postgraduate students should have good knowledge of the different assessment of toxins types. Have good knowledge of the common cancer and non-cancer risk factors and detailed explanation of the toxin management. Hypersensitivity reactions and transplantation are also highlighted. Have good knowledge of DNA fingerprinting, hair analysis and blood stain.

2- Intended Learning Outcomes (ILOs)

2.1. Knowledge and Understanding

After completion of the course, graduates will be able to

a1	Explain the clinical presentations of some risk agents.
a2	Demonstrate and illustrate different analytical methods for some poisons.
a3	Define and explain the information necessary for laboratory.



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a4	Predict the relationship between toxins and the different organs.
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2.2. Intellectual Skills

After completion of the course, graduates will be able to

b1	Analyze and interpret toxin risks and their assessment.
b2	Handle different types of laboratory analysis.
b3	Distinguish between different types of risk factors.

2.3. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Define and explain risk of some poisons.
c2	Apply professional skills in toxicity assessment.

2.4. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Review and analyze relevant literatures.
d2	Work effectively within a team.
d3	Access information effectively.

3. Course Contents

Week No.	Lecture Topics	Hours
1	BIBLIOGRAPHY	2
1	INTRODUCTION	
1	OBJECTIVES OF LABORATORY TOXICOLOGY TESTS	
1	Food toxicology	
1	Routine tests:	
1	Confirmatory tests:	
2	INFORMATION NECESSARY FOR THE LABORATORY	
2	A- Suspected agent(s):	
2	B- Suspected dose:	



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2	C- Time of ingestion and sampling:	
2	D- Clinical presentation:	
3	SAMPLES TO BE COLLECTED	2
3	Blood	
3	Serum	
3	Urine	
3	Gastric contents	
3	Scene residues	
4	COLLECTION, AND STORAGE OF SAMPLES EXTRACTION AND CLEAN-UP Blood, serum, or plasma. Urine SELECTION OF TEST LIST PHYSICAL EXAMINATION Some possible causes of colored urine Characteristic smell associated with poisons DIRECT TESTS ON URINE, STOMACH CONTENTS AND BLOOD (OVERDOSE) SELECTION OF TEST LIST Screens tests or methods Immunoassay methods, interferences. Spot tests UV-Spectroscopy TLC HPTLC HPLC GC Confirmatory tests or method HPLC GC GC-MS	2
5	VALIDATION OF ANALYTIC METHODS DIRECT TEST ON URINE, STOMACH CONTENTS AND BLOOD (OVERDOSE) Salicylic acid (including aspirin) Phenothiazines Imipramine and related compounds Trichloro compounds	2



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	Paracetamol and phenacetin Paraquat and diquat Ethanol and aldehydes Chlorates and oxidizing agents Ferrous-ferric iron Organophosphorus Compounds other direct test on blood Reinsch test DRUGS COMMONLY TAKEN IN OVERDOSES TLC FOR BASIC DRUGS	
6	Toxicity assessment methods	2
7	Non-cancer risk assessment	2
8	Chemical mixture assessment	2
9	Cancer risk assessment	2
9 weeks	Total	18 hours

4. Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1	Introduction	a1, a2, a3	b1, b2	c1, c2	d1, d2, d3
2	INFORMATION NECESSARY FOR THE LABORATORY	a1, a2, a4	b1, b2	c1, c2	d1, d2, d3
3	Collection and storage of SAMPLES	a1, a2, a4	b1, b2, b3	c1, c2	d1, d2, d3
4	SELECTION OF TEST LIST	a1, a2, a3	b1, b2	c1, c2	d1, d2, d3
5	VALIDATION OF ANALYTIC METHODS	a1, a2, a4	b1, b2	c1, c2	d1, d2, d3
6	Toxicity assessment methods	a1, a2, a3, a4	b1, b2, b3	c1, c2	d1, d2, d3
7	Non-cancer risk assessment	a1, a2, a4	b1, b2	c1, c2	d1, d2, d3
8	Chemical mixture assessment	a1, a2, a4	b1, b2, b3	c1, c2	d1, d2, d3
9	Cancer risk assessment	a1, a2, a4	b1, b2, b3	c1, c2	d1, d2, d3

* Knowledge and Understanding

**Intellectual Skills

***Professional and Practical Skills



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**** *General and Transferable Skills*



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5- Teaching and Learning Methods:

5.1	Lectures using Power point presentation with voice
5.2	Lectures using PDF
5.3	Computers and internet searching
5.4	Discussion

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	Written Exam (Final)	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	weeks 13-14	90%
Assessment 2	Oral Exam	To assess understanding, intellectual skills, General and Transferable skills	weeks 13-14	10%
Total				100 %

7- List of References

	Reference	Type
1.	Review of Forensic medicine and Toxicology including toxicity assessment and managements; Editors: Gautam Biswas (2nd edition) (Text Book).	Textbook
2.	Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Edition	Textbook
3.	http://www.sciencedirect.com/ http://www.google scholar.com/ http://www.pubmed.com https://www.ekb.eg http://www.fda.gov https://www.who.int/	Websites

8- Facilities required for teaching and learning

-Class room	Smart lecture rooms provided with Data show
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- Library	Supplied by recent scientific books and journals.
- Others	Access to research engines for scientific periodicals.

9. Signatures

Course Coordinator	Head of Department	Date
Dr. Rania R. Abdelaziz	Prof Dr. Manar Ahmed Nader	May 2022

* Date of Dept. Council Approval



Mansoura University
Faculty of Pharmacy
Quality Assurance Unit
**Toxicology and Forensic Chemical
Analysis Diploma Program
Specification 2020/2021**
Postgraduate Studies



**Program: Toxicology and Forensic Chemical Analysis
Diploma
(Pharmacology and Toxicology)**

Pharmacology and Toxicology department



Program Specification

Academic Year: 2021/2022

رئيس القسم
أ.د/ منار احمد نادر



A-Basic Information

1	Faculty	Pharmacy
2	Program Title:	Toxicology and Forensic Chemical Analysis Diploma
3	Program Type:	Single
4	Department (s):	Department of pharmacology and toxicology
5	Final award:	Toxicology and Forensic Chemical Analysis Diploma
6	Coordinator:	Prof. Dr. Manar A. Nader
7	External Evaluator(s):	Prof. Dr. George Samir
8	Date of Program Specification Approval:	<i>Department council: May 2022, Faculty council: May 2022</i>

B-Professional Information

1-Program Aims

Upon successful completion of the program, graduates should demonstrate comprehensive knowledge, clear understanding and outstanding skills in Toxicology and Forensic Chemical Analysis.

- 1.1 Understanding the fundamental concepts of basic and clinical toxicology,
- 1.2 Identifying the toxic effects of important therapeutic classes and toxins at cellular and systemic levels.
- 1.3 Recalling the biochemical, cellular, and molecular events induced by different types of toxicants.
- 1.4 Addressing the basic principles and procedures used in forensic toxicology.
- 1.5 Identifying organ toxicity targeted by specific agents.
- 1.6 Understanding the cell cycle, the theory of carcinogenesis, genetic toxicology, cell death, mitochondrial dysfunction and others.
- 1.7 Providing essential knowledge about environmental and occupational toxicants
- 1.8 Assessing molecular and cellular events induced by toxicants.



- 1.9 Applying analytical methods in the detection, identification, and measurement of foreign compounds (xenobiotics) in biological and other specimens
- 1.10 Demonstrating specific treatment of intoxication, overdose and withdrawal symptoms due to various types of intoxications.

2-Intended Learning Outcomes (ILOs)

A- Knowledge and Understanding:

By the end of this program the graduate should be able to:

A1	Explain the theories of basic, molecular, biochemical, and clinical toxicology, teratogenicity, mutagenicity, forensic medicine, target organ toxicity and toxicity assessment.
A2	Describe principles of toxicology of different types of poisonous substances and drugs including classification, mechanism of action, clinical features complications, diagnosis and treatment of toxicity.
A3	Demonstrate the classification, criteria, clinical features, diagnosis and general management of dependence producing substances and drugs.
A4	List chemicals and drugs which induce organ toxicity.
A5	Explain medico legal aspects of pregnancy, abortion, delivery, malpractice, personal identification of living and dead human bodies.
A6	Recognize the antidotal studies and evaluation of toxicity in human subjects.
A7	Describe extraction of various drugs or poisons from body fluids and the keratinized tissues.
A8	List the general scheme for testing drugs or poisons
A9	Examine the scene of death in cases of poisoning.
A10	Differentiate between the types of traumatic injuries, their causative instruments and the cause of death.
A11	Explain of forensic serology that deals with different body fluids.
A12	List the analytical and instrumental methods used in investigating crimes.
A13	List the ethical and legal principles of professional practice in the field of forensic medicine.
A14	Identify the effect of professional practice on the environment and the methods of environmental development and maintenance

B- Intellectual Skills

By the end of this program the graduate should be able to:



B1	Analyze researches and solve problems in the areas of basic, molecular, biochemical, and clinical toxicology, teratogenicity, mutagenicity, forensic medicine, target organ toxicity and toxicity assessment.
B2	Interpret the features of the scene of the crime in the field of forensic medicine and clinical toxicology for proper diagnosis of forensic and toxicology cases.
B3	Analyze data of intoxicated patient and formulate the suitable detection technique and managements.
B4	Analyze features of injured cases to determine its type and severity.
B5	Interpret the monitoring values and significance of clinical changes for rapid and immediate therapeutic intervention using antidotes, drugs or resuscitative equipment.
B6	Assess risk in professional practices in the field of Forensic Medicine and Clinical Toxicology.
B7	Specify medical dilemmas and complexities and how to solve them.
B8	Detect the clinical and pathological changes of drug abusers and clarify them and their correlation.
B9	Integrate basic anatomical, pathological, laboratory, and radiologic findings to medico-legal evidences that Explain problems of medical claims and legal litigations.
B10	Assess professional and scientific risks in practicing toxicants and/or toxicity assessments.
B11	Participate in comprehensive scientific and professional discussions and communications based on scientific evidences and proof.

C- Professional and Practical Skills

By the end of this program the graduate should be able to:

C1	Use different techniques and laboratory investigations to identify xenobiotics in biological and other specimen.
C2	Recognize the professional, moral and ethical standards required for experimental work and forensic casework including the role of the expert witness in criminal investigations.
C3	Operate standard chemical instrumentation and selected forensic science instrumentation and equipment.
C4	Participate in treatment of the acutely intoxicated patients under ethical standards.
C5	Apply different investigatory methods to Diagnose drug abuse.
C6	Examine different toxic substance to conclude the medico-legal aspects of each case.



C7	Design the proper management for intoxicated patients and addicts under ethical standards.
C8	Apply principles of medical ethics during forensic practice and handling of evidences and data.
C9	Formulate the results according to the collected patient data after confirming the analysis to comply with international standards of toxicological analysis.
C10	Use different methods to explain scientific data and interpret result obtained.

D- General and Transferable Skills

By the end of this program the graduate should be able to:

D1	Communicate effectively with the patients to gain their confidence.
D2	Communicate with other health care providers.
D3	Realize the requirements of the Egyptian ministry of health and the regulations of the medical syndicate, concerning the medical ethics code.
D4	Use information technology for personal development and professional collaboration practice.
D5	Educate the health care providers (non- toxicologist) about managing intoxicated case.
D6	Be prepared for the long life learning needs of the forensic practice.
D7	Interpret the medico-legal data in written, oral or electronic forms.
D8	Use information technology effectively in the field of legal practice.

3-Academic Reference Standards (ARS):

Approved by both the department and faculty councils

Department Council Approval Date: 15/3/2021,

Faculty Council Approval Date: 20/3/2021

3a- Academic References Standards: (Attached)

3b-Comparison of provision to External References

Achievement of academic reference standards via program Intended Learning Outcomes.



ILOs	ARS	Program
1. Knowledge and Understanding	1.1	A1, A2, A6, A10, A12
	1.2	A3, A5, A9
	1.3	A7, A8, A11, A13
	1.4	A14
2. Intellectual Skills	2.1	B1, B2, B8
	2.2	B1, B3, B4
	2.3	B5, B11
	2.4	B6, B7 B10
	2.5	B9
3. Professional and Practical Skills	3.1	C1, C2, C3, C4, C5, C6
	3.2	C7, C8, C9, C10
4. General and Transferable Skills	4.1	D1, D2
	4.2	D3
	4.3	D5
	4.4	D4, D7
	4.5	D4
	4.6	D5
	4.7	D6
	4.8	D8

4-Curriculum Structure and Contents

4A. Program duration: 1 year.

4B. Program structure:

- a- The program consists of 24 credit hours of study divided over two semesters. A graduation project is included with 2 credit hours.
- b- All courses possess the code number [100], According to Faculty By-Law.
- c- A scientific graduation project of 2 credit hours represents a main component of the program. It is achieved in a subject assigned by the academic supervisor, endorsed by the department council, the committee of graduate studies & research and the faculty council.

4C. Program Components

1- Courses according to the By-law



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Code number	Name of the course	Type	Credit Hours	Semester
PHD-101	Basic and Clinical Toxicology	Compulsory	2+1	Fall
PHD-102	Molecular and Biochemical Toxicology 1	Compulsory	2+1	Fall
PHD-103	Forensic Toxicology	Compulsory	2+1	Fall
PHD-104	Target Organ Toxicity	Compulsory	2+1	Fall
PHD-105	Molecular and Biochemical Toxicology 2	Compulsory	2+1	Spring
PHD-106	Environmental and Occupational Toxicology	Compulsory	2+1	Spring
PHD-107	Drugs of Abuse	Compulsory	2+0	Spring
PHD-108	Teratogenicity and Mutagenicity	elective	2+0	Spring
PHD-109	Toxicity Assessment	elective	2+0	Spring
PHD-1SE	Scientific Assay	Compulsory	2+0	Spring
Total (Courses)			22	
	raduation project		2	
Total			24	

2- Achievement of Program Intended Learning Outcomes by its components



Course	C.H/ week	Program ILOs (by No.)			
		K.U*	IS**	P.P.S***	G.T.S****
First Semester (12 C.H.)					
Basic and Clinical Toxicology	2+1	A1, A2, A6	B1, B2, B3 ,B9	C2, C4, C7, C11	D1, D2
Molecular and Biochemical Toxicology 1	2+1	A1, A2, A6	B1, B2, B7, B9	C1, C6, C7	D6
Forensic Toxicology	2+1	A1, A7, A9, A10, A11, A12	B1, B2, B3, B4, B9	C2, C3, C8	D3, D6, D7
Target Organ Toxicity	2+1	A1, A2, A4	B1, B7	C6, C7	D1, D2, D8
Total (courses)	12				
Second Semester (12 C.H.)					
Molecular and Biochemical Toxicology 2	2+1	A1, A2 , A6	B1, B2, B7, B9	C1, C6, C7	D1, D2, D6, D8
Environmental and Occupational Toxicology	2+1	A1, A2, A14	B1, B6, B10	C6, C7	D1, D2, D8
Drugs of Abuse	2+0	A1, A3	B7, B8	C5	D4, D9
Teratogenicity and Mutagenicity	2+0 (E)	A1, A2, A5	B1, B7	C6, C7	D1, D2
Toxicity Assesment	2+0 (E)	A1, A2, A6, A8	B1, B3	C4, C7, C8, C9, C11	D8
Scientific Assay	2+0	A1	B1, B11	C10	D7
Graduation Project	2				
Total (courses)	12				
Total	24				

- * *Knowledge and Understanding*
- ** *Intellectual Skills*
- *** *Professional and Practical Skills*
- **** *General and Transferable Skill*



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Code	Course title	K.U*														IS**											
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	
PHD-101	Basic and Clinical Toxicology	√	√				√									√	√	√						√			
PHD-102	Molecular and Biochemical Toxicology 1	√	√				√										√	√					√		√		
PHD-103	Forensic Toxicology	√						√		√	√	√	√				√	√	√	√					√		
PHD-104	Target Organ Toxicity	√	√		√												√						√				
PHD-105	Molecular and Biochemical Toxicology 2	√	√				√										√	√					√		√		
PHD-106	Environmental and Occupational Toxicology	√	√												√		√					√				√	
PHD-107	Drugs of Abuse	√		√																			√	√			
PHD-108	Teratogenicity and Mutagenicity (E)	√	√				√										√						√				



6- Student Assessment Methods

6.1- Written exam	To assess Knowledge and Understanding and Intellectual Skills
6.2- Oral exam	To assess Knowledge and Understanding, Intellectual Skills and General and transferable Skills
6.3- Practical exam	Knowledge and Understanding, Intellectual Skills, Professional and practical Skills & General and Transferable Skills
6.4- Graduation Project (Written exam)	Knowledge and Understanding, Intellectual Skills, Professional and practical Skills & General and Transferable Skills
6.5- Graduation Project (Presentation and discussion)	Knowledge and Understanding, Intellectual Skills, Professional and practical Skills & General and Transferable Skills

7- Program Admission Requirements

7.1 - The candidate should hold a bachelor degree in pharmacy from any faculty of pharmacy in Egypt recognized by the Supreme Council of Universities with minimum general grade of "Good";

7.2 The candidate should be available for study at least two days per week throughout the duration of study.

7.3-The candidate should possess at least grade "**Good**" in the subject of the specialty.

7.4- The department council starts the registration process for the candidate after his/her successful passing of the courses of the first semester.

7.5- The candidate should follow postgraduate rules of by-law (2014) of Faculty of Pharmacy- Mansoura University.

8- Regulations for progression and program completion

8.1- The minimum duration of time to gain the master degree is 24 months from the date of enrollment or 18 months from the date of registration for the degree.

8.2- The student has to pass the assigned courses included the graduation project for complete fulfilment of the diploma degree.



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8.3- The maximum duration of time to gain the master degree is 5 years from the date of registration, pulling in consideration the periods of enrollment suspension. It is possible to extend this period up to two years (one year at a time) based on a request from the candidate's major supervisor, a suggestion from the department council and the committee of graduate studies & research and the approval of the faculty council. The final decision should be endorsed by the university council of graduate studies & research .

8.4- The candidate should follow postgraduate rules of by-law **(2014)** of Faculty of Pharmacy- Mansoura University.

9- Facilities Required for Search:

- 9.1- Suitable halls for lectures containing computers, internet and data show.
- 9.2- Library and digital library supplied by recent scientific books and journals.
- 9.3- Laboratories with enough chemicals, apparatus and advanced instruments.
- 9.4- Access to research engines for scientific periodicals in the field of pharmacology and toxicology.
- 9.5- Sufficient number of staff members, demonstrators and technicians.

Program Coordinator: Dr. Mahmoud A. Elshal

Head of Department: Prof. Dr. Manar A. Nader

Signature

Annex 1

Attach courses specifications.



Mansoura University
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Quality Assurance Unit
Diploma of Toxicology and
Forensic Chemical Analysis
Program Report
2020/2021
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Program: Diploma in (*Toxicology and Forensic Chemical Analysis*)
Pharmacology and toxicology department



Program Report

Academic Year:
2020/2021

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Mansoura University
Faculty of Pharmacy
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Diploma of Toxicology and
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A-Basic Information

1.	Faculty	Pharmacy
2.	Program Title:	Diploma in Toxicology and Forensic Chemical Analysis
3.	Program Type:	Single - Graduate
4.	Department responsible:	Pharmacology and toxicology department
5.	Final award of the Program:	Diploma in Toxicology and Forensic Chemical Analysis
7.	External Evaluator(s):	Prof. Dr. George Samir
8.	Year of operation:	2020/2021

B-Statistical Information

1. Number of students starting the program 2020/2021: 57 students.
2. Percentage of students starting the program this year (relative to the previous year):

No. of students this year (2020/2021)	No. of students last year (2019/2020)	No. of students last year (2018/2019)
57	49	59

3. Number of students completing the program: 46 students.

Item	Number of students
Started to the program	57
Withdrawn	2
Absence	9
Attending the exam	46
Pass	44



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Failed	2
% Pass (with respect to those attending the examination)	95.65%



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4. Grades: no. and percentage of each grade

	Grade							Total
	A+	A	B+	B	C+	C	D	
No.								
Percentage								

3- Grades of students in the program courses:

Course title		A	B	C	D
First semester courses	Basic and Clinical Toxicology (PHD -101)	31	14	3	3
	Molecular and Biochemical Toxicology I (PHD -102)	18	16	12	4
	Forensic Toxicology (PHD -103)	25	18	5	2
	Target Organ Toxicology (PHD -104)	44	6	1	0
Second semester courses	Molecular and Biochemical Toxicology II (PHD -105)	30	7	3	1
	Environmental and Occupational Toxicology (PHD -106)	29	12	4	1
	Drugs of Abuse (PHD – 107)	17	13	9	5
	Teratogenicity and Mutagenicity (PHD -108)	-	-	-	-
	Toxicity Assessment (PHD -109)	16	10	9	6
	Graduation project	32	10	6	0



C. Professional information

Academic standards

- 1. Reference academic standards:** Academic reference standards (ARS) for graduate studies.
- 2. Achievement of program Intended Learning Outcomes (ILOs):**

Course Title	ILOs covered
Basic and Clinical Toxicology (PHD -101)	a1,a2,a3,b1,b2,b3,c1,c2,d1,d2,d3
Molecular and Biochemical Toxicology I (PHD -102)	a1,a2,a3,a4,b1,b2, ,c1,c2,d1, ,d3
Forensic Toxicology (PHD -103)	a1,a2,a3,a4,b1,b2,b3,c1,c2,d1,d2
Target Organ Toxicology (PHD -104)	a1,a2,a3,a4,b1,b2,b3,c1,c2,d1,d2,d3
Molecular and Biochemical Toxicology II (PHD -105)	a1,a2,a3, ,b1,b2,b3,c1,d1,d2,d3
Environmental and Occupational Toxicology (PHD -106)	a1,a2,a3,a4,b1,b2,b3,c1,c2,d1,d2,d3
Drugs of Abuse (PHD – 107)	a1,a2,a3,a4 ,b2,b3,c1,c2,d1,d2,d3
Teratogenicity and Mutagenicity (PHD -108)	a1,a2,a3,a4,b1,b2,b3,c1,c2,d1,d2,d3
Toxicity Assessment (PHD -109)	a1,a2,a3,a4,b1,b2 ,c1,c2,d1,d2,d3
Graduation project	

3. Assessment methods:

Assessment Method	ILOs assessed
Written Assessment (written exam, Thesis writing)	
Oral Assessment Oral exam, oral presentation of the project)	
Practical Assessment (practical exam of general courses)	



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4. Learning resources:

A-Adequacy of the specialties of the faculty members to the requirements of the program:

The specialties of the faculty members involved in teaching are adequate for the requirements of the program

B-Availability and adequacy of program handbook.

Course handbook is available for the students as the staff member share the theoretical and the practical handout on a google drive with the students. In addition to other resources such as:

- **Books: Text books as**

Review of Forensic medicine and Toxicology including toxicity assessment and managements; Editors: Gautam Biswas (2nd edition) (Text Book).

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Edition

- **References:** Scientific papers taken from international journals in the field of pharmacology and toxicology
- **Others: web sites:**
- <https://www.ekb.eg/>
 - [www.biomed central.com](http://www.biomedcentral.com)
 - www.science direct.com
 - www.medscape.com.
 - www.Pubmed.com

5. The basis of formation of committees' examiners:

For courses and graduation project: Teaching members and the head of department.



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6. System of external examiners: Available Not available

Department response to student and external evaluation system:

Department staff members usually respond to the interests of postgraduate students if they prefer to go deep in specific fields.

The system of external evaluation of the program has been established by Prof. Dr. George Samir, Faculty of pharmacy, Delta University. The comments of external evaluator will be taken into consideration in the next action plan.

7. Proposals for program development

a- Program structure

- **Program duration:** 1 Year.
- **Program level:** Graduate
- **Structure of program hours:**

	Code	Course Title	Lecture	Practical	Total Credit Hours
Semester 1	(PHD -101)	Basic and Clinical Toxicology	2	1	3
	(PHD -102)	Molecular and Biochemical Toxicology I	2	1	3
	(PHD -103)	Forensic Toxicology	2	1	3
	(PHD -104)	Target Organ Toxicology	2	1	3
Semester 2	(PHD -105)	Molecular and Biochemical Toxicology II	2	1	3
	(PHD -106)	Environmental and Occupational Toxicology	2	1	3
	(PHD -107)	Drugs of Abuse	2	0	2
	(PHD -109)	Toxicity Assessment	2	0	2



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			16	6	22
Total (courses)					
		Graduation project	2		2
Total			18		24

b. Distribution of program courses:

Course title	Credit hours	Degree				
		Written	Oral	Practical	Total	Exam time
1st semester						
Basic and Clinical Toxicology (PHD -101)	3	70	10	20	100	4
Molecular and Biochemical Toxicology I (PHD -102)	3	70	10	20	100	4
Forensic Toxicology (PHD -103)	3	70	10	20	100	4
Target Organ Toxicology (PHD -104)	3	70	10	20	100	4
2nd semester						
Molecular and Biochemical Toxicology II (PHD -105)	3	70	10	20	100	4
Environmental and Occupational Toxicology (PHD -106)	3	70	10	20	100	4
Drugs of Abuse (PHD - 107)	2	90	10	---	100	2
Teratogenicity and Mutagenicity (PHD -108)	2	90	10	---	100	2
Toxicity Assessment (PHD -109)	2	90	10	---	100	2
Graduation project	2	50	---	---	50	---

c. Course, deletions, additions and modifications

e. Staff development requirements:

- More advanced text books are needed.
- Improvement of IT facilities.

8. Action plan



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The following action plan will be acted upon throughout year (2021/2022)

Action	Completion date	Responsible party
Encourage the online learning and questions bank	2020/2021	Head of the department

8. Action plan for improvement:

Action	Person responsible	Completion date
Completion of the quality management process of the program including internal & external program evaluation in addition to program evaluation by the employers	<ul style="list-style-type: none">• Program coordinator• quality management coordinator	2018 - 2019
Proper selection of qualified staff members	<ul style="list-style-type: none">• Vice dean of postgraduate studies• Program coordinator	2018 - 2019
Contact the biochemistry department for refining the course content according to the determined theoretical hours	<ul style="list-style-type: none">• Vice dean of postgraduate studies• Program coordinator	2018 - 2019

Program coordinator / head of the department

Prof. Dr. Manar Ahmed Nader

Vice dean of graduate studies and research

Prof. Dr. Khaled B. Selim