COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	Ph.D degree of clinical pharmacology
(2) Department offering the programme:	Clinical pharmacology department
(3) Department responsible for teaching the course:	Clinical pharmacology department
(4) Part of the programme:	Second part
(5) Date of approval by the Department`s council	10/7/2016
(6) Date of last approval of programme specification by Faculty council	9-8-2016
(7) Course title:	**Basic pharmacology**
(8) Course code:	CPHARM 606 BP **CPHARM 606 BPP**
(9) Total teaching hours:	**420**
(10) Credit hours:	**12 h lectures** **8 practical**

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1. Aquire detailed knowledge of pharmacokinetics, mechanisms of action, therapeutic uses, adverse effects and drug-drug Interactions of common therapeutic drugs.
2. Acquire skills related to pharmacological screening and standarization of drugs.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Review pharmacokinetics, pharmacogenetics of commonly used drugs.
2. Recall main therapeutic drugs affecting CVS, GIT, CNS, haemostasis and haemopiotic system.
3. Describe mechanisms of action & pharmacological effects of main drugs affecting CVS, GIT, CNS, haemostasis and haemopiotic system.
4. List common and/or severe adverse reactions of main drugs affecting CVS, GIT, CNS, haemostasis and haemopiotic system.
5. Discuss mechanisms whereby drugs cause adverse effects.
6. Outline different designs of pharmacological preclinical and clinical studies.
7. Recognize main mechanisms controlling energy balance and fluid & electrolyte homeostatis.
8. Explain the role of major transmitters, peptides, cytokines and ions.
9. Characterize biochemical pathways cell proliferation, apoptosis, repair & regeneration

2- Intellectual activities (I)

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

B- Intellectual skills

1. Use principles of individualized therapy to optimise drug administration and effect.
2. Anticipate and hence minimize cases of drug toxicity and drug-drug interaction.
3. Analyse adverse drug reactions, based on their molecular and pharmacological basis.
4. Design preclinical trials effectively, including selection of appropriate statistical methods for planned trials.
5. Critically analyze medical literature relevant to basic pharmacology & toxicology.
6. Effectively use electronic databases such as Medline, Embase and Cochrane

C- Professional/practical skills

1. Construct dose regimens correctly, using all available techniques for pharmacokinetics study.
2. Detect, manage and report adverse drug reactions.
3. Practice pharmacological screening of drugs on isolated tissues and living animals.
4. Develop animal models of disease to be used as tools in testing effects, toxicities & pharmacokinetics of new drugs.
5. Conduct preclinical studies to test pharmacokinetics, side effects and toxicity of new drugs.
6. Practice therapeutic drug monitoring efficiently to avoid drug toxicity especially for narrow therapeutic drugs.

D- Communication & Transferable skills

1. Work effectively within a team.
2. Access information effectively in library and midline data base.
3. Maintain honesty and objectivity during appraisal.

(3) Course content:

Module 1 (3+1)

Topics	Lectures	Seminar
Drugs affecting the rennin angiotensin system Nitrates, beta blockers Newer drugs modulating cardiac ischemia	**3**	**1**
Drugs affecting transmembrane ion calcium transport Cardiotonic drugs	**3**	**1**
Antiarrhythmic drugs	**3**	**1**
Drugs affecting platelet function	**3**	**1**
Anticoagulant drugs	**3**	**1**
Thrombolytic drugs	**3**	**1**
Drugs affecting the haemopoitic system	**3**	**1**
Drugs affecting CNS synapses and neurotransmitters	**9**	**3**
Opoid analgesics	**3**	**1**
Purines and cannabinoids	**3**	**1**
Drugs affecting urine formation	**3**	**1**
Drugs affecting renal transporters	**3**	**1**
Drugs affecting acid base balance and Electrolyte homeostasis	**3**	**1**
Total teaching hours	**45**	**15**
	60 hours	

Module 2 (3+1)

Topics	lectures	seminar
The haemostatic mechanisms controlling energy balance	**3**	1
Drugs affecting the reproductive system	**3**	1
Antibacterial drugs	**6**	2
Antiparasitic drugs	**3**	1
Antiprotozoal drugs	**3**	1
Antiviral drugs	**6**	2
Antifungal drugs	**3**	1
Membrane transporters & drug response	**3**	1
Cell proliferation , apoptosis, repair & regeneration	**3**	1
Cancer chemotherapy	**9**	3
Anti-hormones	**3**	1
Total teaching hours:	**45**	15
	60 hours	

(Module 3)

(3+1)

Topics	lectures	seminar
Pharmacological studies in humans & clinical trials	**3**	1
Pharmacogenetics , genomics & personalized medicine	**3**	1
Calcium & phosphorus hemostasis	**3**	1
Local hormones: cytokines, peptides & Nitric oxide	**3**	1
Drug induced renal disease	**3**	1
Drug induced sexual dysfunction	**3**	1
Recent advances in Drugs affecting the GIT	**3**	1
Fluids & electrolytes	**3**	1
Medical toxicology & antidotes	**6**	2
Immunosuppressive drugs	**6**	2
Dermatological pharmacology	**3**	1
Dietary supplement & herbal medications	**6**	2
Total teaching hours:	**45**	15
	60 hours	

Practical

Topics	Lab
Screening for anti-hypertensive drugs Screening for cardiac glycosides Guinea pig atria Screening for anti-arrthythmic drugs Epinephrine induced arrhythmia	**16**
Screening for anxiolytic activity Screening for anti-parkinsonian drugs Screening for anti-alzheimer drugs Screening for anti-deprssant drugs Screening for anti-convulsant drugs Forced swimming test Tail suspension test Leptal/PTZ seizure method Antagonism of perphenazine induced catatonia in rat	**32**
Screening for analgesic activity Hot plate method Tail clip method Paw compression method Paw edema method Adjuvant induced arthritis Immobilization stress induced ulcer Indomethacin induced ulcer	**32**
Guinea pig ileum Guinea pig tracheal chain Rat uterus Screening for anti-coagulant activity	**16**

Screening for antidiabetics Streptozotocin induced DM Alloxan induced DM	**16**

Screening for antibacterial drugs	**16**
Screening for antibilharzial drugs	**16**
Screening for antiviral drugs	**16**
Screening for teratogenicity	**16**
Screening for cancer chemotherapeutic drugs	**16**
Screening for drug toxicity	**16**
Screening for immunosuppressive drugs	**16**
Radioimmunoassay	**16**
Total teaching hours:	**240**

(4) Teaching methods:

4.1: Lectures

4.2: Lab

(5) Assessment methods:

5.1: – **MCQ exam** at the end of each semester for assessment of knowledge & intellectual ILOs.

5.2: - **written examin** for assessment of knowledge & intellectual ILOs. 5.3 -

5.3: - **Oral examinations** for assessment of knowledge, intellectual & communication ILOs

5.4 - **OSPE** for assessment of practical & communication ILOs

Assessment schedule:

المقرر	الاختبار	الدرجة				إجمالي
		تحريري		شفهي	عملي	
الفارماكولوجيا الأساسية	إختبار تحريرى مدته ثلاث ساعات + اختبار شفهي +اختبار عملي	نظري	mcq	٥٠	٥٠	٢٠٠
		٨٠	٢٠			

(6) References of the course:

6.1: Text books:

Pharmacology (Rang and Dale) [last edition].
Pharmacology and therapeutics (Goodman) [Last edition].
Fundamentals of experimental pharmacology (MN Gosh) [Last edition].

6.2: Journals:

Pharmacological reviews, etc

(7) Facilities and resources mandatory for course completion:

- Computer labs with open access to medical research databases
- Upgraded library
- Induction course introducing study skills.
- Candidate's logbook.
- Well equipped laboratories for experimental medical research
- Internet with a wide range of learning support material.
- Dissertation Supervisor

Course coordinators:

- Prof. Dr. Hussien M. El-Beltagi
- Prof. Dr. Ali Gaballa
- Prof. Dr. Mohamad-Hesham Daba
- Assistant lecturer. Mohamed Aboelkheir Abdallah
- Assistant lecturer. Nehal Ramadan

Head of the department:

Prof. Dr. Hussien M. El-Beltagi