ماجستير الفارماكولوجيا الإكلينيكية

PROGRAMME SPECIFICATION

Faculty of Medicine–Mansoura University

(A) Administrative information

(1) Programme Title& Code	MSc degree of clinical pharmacology **Cpharm 500**
(2) Department (s)	Clinical pharmacology department
(3) Coordinator	– Prof. Dr **Hussein El -Beltagy** – Prof. Dr. Mohamad–HeshamDaba – Dr.Amira Eladl
(4) External evaluator (s)	– **Prof. Dr. Magda Hagras, professor of clinical pharmacology, Suez Canal University**
(5) Date of approval by the Department`s council	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20–9–2020

(B) Professional information

(1) Programme Aims:

The broad aims of the Program are to:

1- Develop the ability to perform focused relevant history taking and accurate clinical examination in patients with different diseases affecting various body systems.

2- Optimize clinical application of drugs in medical practice.

3- Provide candidate with a basic knowledge in modern biochemistry and molecular biology and the principles of their techniques.

4- Provide the candidate with a basic knowledge about the integration of physiological functions and the human body homeostasis for better understanding of pharmacology of drugs affecting different body systems.

5- Acquire basic knowledge of various aspects of medical virology and systemic bacteriology for better understanding of chemotherapy.

6- Give the candidate the ability to understand different mechanisms of normal and abnormal immune response & relevant diseases.

7- Acquire comprehensive knowledge of commonly used and newly developed drugs through study the pharmacodynamics, kinetics, adverse effects, clinical applications & drug-drug Interactions.

8- Study classical and modern approaches to drug development.

9- Acquire skill of preparing animal model of disease for experimental drug use.

10- Gain the skill of carrying out a scientific research and an effective presentation.

11- Gain knowledge about evidence based pharmacotherapy to be able to prescribe rationally in different case scenarios.

12- Study in depth drugs acting by different mechanisms on autonomic nervous system, autacoids and immune system and recommendations of immunization.

13- Acquire comprehensive knowledge about herbal medications; their uses, precautions and interactions

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Recognize importance of different elements of history.
2. Describe pathophysiology, causes, clinical presentations and new guidelines in treatment of different medical diseases.
3. Study bacterial and viral morphology, growth curve, virulence and management of their subsequent diseases.
4. Recognize metabolic pathways and functions of carbohydrates, lipids, proteins, nucleotides, enzymes and hormones and their related metabolic disorders.
5. Identify the basics of molecular biology (structure, function & synthesis).
6. Recognize physiological properties and factor affecting functions of different body systems .
7. Describe pharmacodynamics/ pharmacokinetics of commonly used and newly developed drugs.
8. Study basis of sympathetic and parasympathetic A.N.S and autacoids.
9. Explain Indications, contraindications, side effects, interactions and dosage regimens of commonly used and newly developed drugs.
10. Categorize different pharmacotherapies used in various disorders affecting different body systems.
11. Recognize the cytokines and immunological reactions causing hypersensitivity and autoimmune diseases and their role in pharmacology
12. List immunosupressive drugs, antimetabolites, Glucocorticoids, Calcineurin inhibitors and anti-proliferative drugs and their clinical applications including organ transplantation.
13. Study pharmacological effects, uses, adverse effects and drug interactions of common herbal medicines
14. Recognize research ethics
15. Outlines the principles of designing a study, writing a proposal and articles for publication

B- Intellectual skills

1. To predict diseases that alters, the normal clinical and laboratory parameters and correlate their pathogenesis to the used pharmacotherapies.
2. Elaborate an effective antimicrobial policy and strategies of Infection prevention of different infectious diseases.
3. Predict adverse drug reactions and explain the molecular and pharmacological basis behind it.
4. Interpret the effects of age, body size, organ dysfunction and concurrent illness on drug distribution and metabolism relevant to the trainee's practice.
5. Predict the risks of treatments to be able to make decisions about treatment options.
6. Apply knowledge of pharmacotherapy in different clinical situations through case scenarios and field visits.

C- Professional/practical skills

1. Perform techniques to evaluate physiological effects of drugs like Bl.P. measurement, ECG monitoring, pulse recording, temp measurement, etc.
2. Prescribe medications rationally in different case scenarios.
3. Construct and adjust dose regimen correctly in different age groups, pregnancy, lactation, physiological change (e.g. deteriorating physiological function) and following therapeutic drug monitoring.
4. Practice experimental work on isolated animal tissues and living animals to understand principles of biological responses and to determine an unknown drug.
5. Apply animal models of disease to use them as tools in detecting effect, toxicities & pharmacokinetics of drugs.
6. Design clinical trials to a new drug to test its pharmacokinetics, side effects and toxicity.
7. Analyze case scenarios to illustrate important interactions and adverse drug effects for benefits of patients and doctors
8. Apply principles of individualization of therapy when necessary.
9. Design therapeutic plan in different clinical situations according to evidence based pharmacotherapy

D- Communication &Transferable skills

1. Work effectively within a team.
2. Access information effectively in library and midline data base.
3. Keep up to date with national reviews and guidelines of practice (e.g. NICE and SIGN).
4. Show respect and behaves in accordance with Good Medical Practice.
5. Ensure appropriate personal language and behavior.
6. Adopt the principles of medical ethics and confidentiality.

(1) 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:

1. Joint royal colleges of the physician training board (70 %) (WWW.jrcptb.org.uk or www.gmc-uk.org/CPT_3_Jul _07_Curr_0010.pdf_30543337.pdf).

2. University of Glasgow, medicine, clinical pharmacology (30%) (http://www.gla.ac.uk/postgraduate/taught/medicine/clinicalpharmacology/)

3.b- Comparison of the specification to the selected external reference/ benchmark:

The main difference is that this course specification does not include teaching through ward-based rounds.

(2) Curriculum structure and contents:

4.a- Duration of the programme (in years or months): 4 semisters

4.b- programme structure:

Candidates should fulfill a total of 45 credit hours

●4.b.1: Number of credit hours:

First part: 8 Second part: 27 Dissertation: 10

●4.b.2: Teaching hours/week:

First part: Lectures: 7 Clinical/lab: 1 Total: 8 hrs

Second part: Lectures : 15 Clinical/lab: 10 Scientific activities : 2

Total: 27 hrs

(3) Programme courses:

First part

a- Compulsory courses:

Course Title	Course Code	NO. of hours per week					Total teaching hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
1- Internal medicine (30 week)	CPHARM 510	6		1		7	120	

b- Elective courses: the student choose one of the following

Course Title	Course Code	NO. of hours per week					Total teaching hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
2- Physiology (15 week)	CPHARM 503	1					15	
3- Microbiology (15 week)	CPHARM 507	1					15	
4- Medical biochemistry (15 week)	CPHARM 504	1					15	

Second part

a- Compulsory courses :

Course Title	Course Code	NO. of hours per week					Total teaching hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Basic pharmacology (15 weeks)	**CPHARM 506 BP**	**7**		**5**		**12**	**255**	
Clinical Pharmacology &(15 weeks)	**CPHARM 506 CP**	**7**		**5**		**12**	**255**	

b- Elective courses: the student choose one of the following

Course Title	Course Code	NO. of hours per week					Total teaching hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Immuno pharmacology	**CPHARM 506 IP**	**1**					**15**	
Complementary Medicine	**CPHARM 506 CM**	**1**					**15**	

Programme-Courses ILOs Matrix

(4) Programmeadmission requirements:

●General requirements:

- Previous degree : MBBCH (very good or excellent)

- Experience : training as a demonstrator in clinical pharmacology.

(5) Regulations for progression and programme completion:

First part

Assessment rules
1- Attendance criteria:Minimum acceptance attendance in each course is 70%
2- Log book should be fulfilled and signed by Head of the department.
3- Assessment tool

Tools	Mark	Percentage of the total mark
Compulsory course		
Written exam	180	60%
Oral exam	60	20%
Practical exam	60	20%
Total Marks	300	100%
Elective course		
Written exam	50	100%

Second part

Assessment rules
1- Attendance criteria:Minimum acceptance attendance in each course is 70%
2- Log book should be fulfilled and signed by Head of the department.
3- Assessment tool.

Tools	Mark	Percentage of the total mark
Compulsory course		
Written exam	300	50%
Oral exam	150	25%
Practical exam	150	25%
Total Marks	600	100%
Elective course		
Written exam	50	100%

Classification of final result for the MSc.

- The total marks of the first part examination result represents 30% of the final MSc. result.
- The total marks of the second part examination result represents 70% of the final MSc. result.
- To qualify for the award of the MSc with distinction, candidates must pass at least 60% of the final exam.

(6) Evaluation of Programme'sintended learning outcomes (ILOs):

Evaluator	Tools*	Sample size
Internal evaluator (s) - Prof. Dr. Gamal Mohamed Maamon Dahab - Prof. Dr. Abd El – Rahman Yassin. - Prof. Dr.Mohammed Abd El-Ghany	Interview Communication	
External evaluator (s) - Prof. Dr. Magda Hagras, professor of clinical pharmacology, Suez Canal University	Questionnaire	
Senior student **(s)**		
Alumni		
Stakeholder **(s)**		
others		

* 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 is in place.	
Programme coordinators: **- Prof. Dr. Hussein Elbeltagy** **- Prof. Dr. Ali Gaball** **- Prof. Dr. Mohamad-Hesham Daba** **- Dr. Amira Eladl**	Signature & date:
Head of Department Prof. Dr. Amal Hassanin	Signature & date.
Dean: **Prof. Nesrene Salah Omar**	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع المعايير المرجعية لبرنامج الماجستير في الفارماكولوجيا الاكلينيكية

أ ــ المعرفة والفهم:

المقررات التى تحقق المعايير الأكاديمية للبرامج	ILOs مخرجات التعلم المستهدفة	(ARS) Benchmark المعايير الأكاديمية لجامعة Royal college of physicians	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الماجستير في الفارماكولوجيا الاكلينيكية)
CPHARM 506 CP CPHARM 506 BP CPHARM 506 CM	A2,7, 9,13	- Understand the processes that result in nationally applicable guidelines - Indications, contraindications, side effects, drug interactions and dosage of commonly used drugs	1- Recent advances and areas under research in the field of clinical pharmacology.
CPHARM 503 CPHARM 504 CPHARM 507 CPHARM 506 BP CPHARM 506 IP	A3,4,5,6 A8,11		2- Recent advances and areas under research in the field of clinical pharmacology
CPHARM 506 BP CPHARM 506 CP	A14,15	- Demonstrates a knowledge of research principles - Outlines the principles of formulating a research question and designing a project.	3- Scientific research ethics, research methodology & research design. Curriculum must advance knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.
CPHARM 506 BP CPHARM 506 CP	A14	- Demonstrates knowledge of the principles of medical ethics	4- Legal and medicolegal aspects in practice of clinical pharmacology as well as medical ethics.
CPHARM 510	A1	- Understands the need for a targeted and relevant clinical examination. -Recalls drugs requiring therapeutic drug monitoring and interpret results -Recalls range of adverse drug reactions to commonly used drugs, including complementary medicines -Defines the effects of age, body size, organ dysfunction and concurrent illness on drug distribution and metabolism relevant to the trainee's practice	5- Principles and basic concepts of quality in professional practice including planning, improvement of performance and control of practicing outcomes.
CPHARM 506 CP CPHARM 506 IP	A10,12	- Outlines tools to promote patient safety and prescribing, including electronic clinical record systems and other IT systems -Recognises the roles of regulatory agencies involved in drug use and licensing (e.g. National Institute for Clinical Excellence (NICE) Committee on Safety of Medicines (CSM), and Healthcare Products Regulatory Agency and hospital formulary committees	6- Knowledge related to environmental development, patient safety, safe occupational practice, serving communities and research results in improving public health outcomes.

ب ــ القدرات الذهنية :

المقررات التي تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة Royal college of physicians	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الماجستير في الفارماكولوجيا الاكلينيكية)
CPHARM 506 CP	B1, 5,6	- Makes appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function)	1. Medical data analysis, interpretation and proper therapy choice.
- CPHARM 506 CP	B 5,6	- Develops a self-management plan with the patient	2. Medical problem solving and Evidence-based medicine.
-	-	- Applies for appropriate ethical research approval	3. Participation in research development and innovation.
-	-	- Demonstrates the ability to write a scientific paper	4. Scientific paper reviewing.
- CPHARM 506 CP - CPHARM 506 BP	B3, 5	-Recognise the importance of basic science to an understanding of hypertension and cardiovascular risk - Recognises critical illness and responds with due urgency	5. Risk assessment in medical practice.
		- Shows an ability to learn from previous error - Conducts an assessment of the community needs for specific health improvement measure.	6. Planning for improvement of professional performance in the field of clinical pharmacology. Demonstrators are expected to develop skills and habits to be able to meet the following goals: (1) identify strengths, deficiencies, and limits in one's knowledge and expertise; (2) set learning and improvement goals; (3) identify and perform appropriate learning activities; (4) systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; 7. (2) Incorporate formative evaluation feedback into daily practice; (3) locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems; (4) use information technology to optimize learning; and participate in the education of patients, families, students, demonstrators and other health

			professionals.
- CPHARM 506 CP	-B5,6		8. Decision making skill.
			9. Development, innovation and medical breakthrough.
- CPHARM 506 CP - CPHARM 506 BP - CPHARM 507	B 2,3,4,5	Improves patients' and colleagues' understanding of the side effects and contraindications of therapeutic intervention Prescribes antibiotics according to local antibiotic guidelines and works with microbiological services where this is not possible -Recognises the potential for infection within patients being cared for	10. Safety culture of medical practise.

ج ــ المهارات العملية:

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة Royal college of physicians	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الماجستير في الفارماكولوجيا الاكلينيكية)
- CPHARM 506 CP	C1,3,7,8,9	- constructs and adjusts dose regimens correctly. - Uses and interprets findings adjuncts to basic examination appropriately e.g. internal examination, blood pressure measurement, pulse oximetry, peak flow -Anticipates and avoids defined drug interactions, including complementary medicines -Advises patients (and carers) about important interactions and adverse drug effects -Employs validated methods to improve patient concordance with prescribed medication	1. Professionalism and up to date practice. Providing patient care that is compassionate, appropriate, & effective for the treatment of health problems and the promotion of health. In this context; Demonstrators must demonstrate a commitment to carrying out professional responsibilities & an adherence to ethical principles. Demonstrators are expected to demonstrate: (1) compassion, integrity, and respect for others; (2) responsiveness to patient needs that supersedes self-interest; (3) respect for patient privacy and autonomy; (4) accountability to patients, society and the profession; and, (5) sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

-	-	- Works with external strategy bodies around cases that should be reported to them; collaborates with them on complex cases preparing brief statements and reports as required	2. Medical report writing and evaluation/appropriateness of patient medical report.
- CPHARM 506 CP	C1	- Aims for best clinical practice (clinical effectiveness) at all times, responding to evidence-based medicine.	3. Ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on Constant self-evaluation and life-long learning.
-	-	Uses IT prescribing tools where available to improve safety	4. Effective use of IT and healthcare information system in medical practice and patient medical records to optimize learning; and participate in the education of patients, families, students, demonstrators and other health professionals
- CPHARM 506 CP	C2,3,9,8	1. - Reviews the continuing need for, effect of and adverse effects of long term medications relevant to the trainee's clinical practice 2. Prescribes appropriately in pregnancy, and during breast feeding 3. Makes appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function) 4. Understanding of the importance of non-medication based therapeutic interventions including the legitimate role of placebos 5. Where involved in "repeat prescribing," ensures safe systems for monitoring, review and authorisation.	5. Planning for improvement of professional performance in the field of clinical pharmacology. Demonstrators are expected to develop skills and habits to be able to meet the following goals: (1) identify strengths, deficiencies, and limits in one's knowledge and expertise; (2) set learning and improvement goals; (2) identify and perform appropriate learning activities; (4) systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; (5) incorporate formative evaluation feedback into daily practice; (6) locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems; (7) use information technology to optimize learning; and participate in the education of patients, families, students,

			6. demonstrators and other health professionals
CPHARM 506 BP	C4,5,6	-Write trial protocols -Perform PD and PK studies in human volunteers	

د- مهارات الاتصال:

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة Royal college of physicians	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الماجستير في الفارماكولوجيا الاكلينيكية)
- CPHARM 506 CP	D4,6	- Demonstrates willingness to teach trainees and other health and social workers in a variety of settings to maximise effective communication and practical skills and to improve patient care	1. Interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals
- CPHARM 506 CP	D3,5	- Varies teaching format and stimulus, as appropriate to situation and subject.	2. Teaching and evaluation skills as senior staff.
- CPHARM 506 BP	D6	- Maintains honesty and objectivity during appraisal and assessment. - Demonstrates a willingness to advance own educational capability through continuous learning	3. Self-appraisal and life-long learning.
- CPHARM 506 CP - CPHARM 506 BP	D2	- Appropriate use of electronic databases (eg Medline, Embase, Toxbase, Cochrane, NeLH).	4. Accessibility to specialty-specific and other appropriate reference material in print or electronic format. Electronic medical literature databases with search capabilities.
- CPHARM 506 CP	D1	- Is aware of the importance of and takes part in multi-disciplinary teamwork, including adoption of a leadership role when appropriate but also recognising where others are better equipped to lead	5. Teamwork/leadership.
		- Outline techniques for improving time management.	6. Time management and meeting organization

COURSE SPECIFICATION

(Internal medicine)

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme offering the course:	MSc degree of clinical pharmacology
(2) Department offering the programme:	Clinical pharmacology department
(3) Department responsible for teaching the course:	Internal medicine department
(4) Part of the programme:	First part
(5) Date of approval by the Department`s council	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(7) Course title:	General medicine
(8) Course code:	**CPHARM 510**
(9) Credit hours	**6h lectures 1h practical**
(10) Total teaching hours:	**120**

(B) Professional information

(1) Course Aims:

The broad aims of the course are to:

1- Develop the ability to perform focused relevant history taking and accurate clinical examination in patients with different diseases affecting various body systems.

2- Optimize clinical application of drugs in medical practice.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Recognize importance of different elements of history taking
2. Describe clinical presentation of hypertension and ischemic heart disease, infective endocarditis and updated guidelines in their treatments.
3. Recognize hemodynamic changes in heart failure and how to treat.
4. Describe causes and how to manage gastrointestinal reflux disease (GERD), jaundice ,pancreatitis, upper gastrointestinal bleeding, inflammatory bowel disease (IBD), fulminant hepatic failure and viral hepatitis
5. Identify clinical presentation lines of management of nephritic, nephritic syndrome, acute and chronic renal failure.
6. List cause and lines of treatment of proteinuria, hypercalcemia, osteoprosis and hypoglycemia.
7. Describe clinical presentation and lines of treatment of diabetes mellitus ,thyroid dysfunction, Addison disease and Cushing syndrome
8. List causes and different types of anemia.
9. Describe clinical presentation and protocols of management of disseminated intravascular coagulation (DIC) and leukemia
10. Study the causes and management of pyrexia of unknown origin, acute abdominal pain, hypo and hyperthermia.
11. List different causes of proteinuria and how to manage

B- Intellectual skills

1. Interpret clinical features, their reliability and relevance to clinical scenarios including recognition of the breadth of presentation of common disorders.
2. Interpret results of investigations to reach a diagnosis.
3. Assess and respond to the manifestations of a patient's deterioration.

C- Professional/practical skills

1. Perform an examination relevant to the presentation and risk factors.
2. Demonstrate ECG reading and blood pressure measurement.

D-Communication & Transferable skills

1. Work effectively within a team.
2. Access information effectively in library and midline data base.
3. Keep up to date with national reviews and guidelines of practice (e.g. NICE and SIGN).
4. Show respect and behaves in accordance with Good Medical Practice.
5. Engage in effective team-working around the improvement of health

(3) Course content: 1st semesters

Subjects	Lectures	Bed side teaching
Hypertension	3	1
Myocardial infarction	3	1
Infective endocarditis	3	1
Heart failure	3	1
Diabetes mellitus (classification, diagnosis, management, complications)	3	1
hypoglycemia	3	1
Addison disease	3	1
Cushing syndrome	3	1
hyper and hypothyroidism	3	1
osteoprosis	3	1
hypercalcemia	3	1
Acute & chronic renal failure	3	1
Nephrotic syndrome	3	1
Nephritic syndrome	3	1
Proteinuria	3	1
2nd semesters (3+0.5)		

Subjects	Lectures	Bed side teaching
Viral hepatitis	3	1
Viral hepatitis(cont)	3	1
Fulminant hepatic failure	3	1
Upper GIT bleeding	3	1
Peptic ulcer	3	1
GERD	3	1
Jaundice	3	1
Inflammatory bowel disease	3	1
pancreatitis	3	1
Anemias	3	1
leukemia	3	1

DIC	3	1
Pyrexia of unknown origin	3	1
Hypo and hyperthermia	3	1
Acue abdominal pain	3	1
Total teaching hours	120 hours	

(4) Teaching methods:

4.1: Lectures

4.2: Bed side teaching

4.3: Online teaching

(https://www.youtube.com/playlist?list=PL3Eg6CF-i-MuZPkVnu-wusj1PHO1O_nlF)

(5) Assessment methods:

5.1: - **written examinations** for assessment of knowledge & intellectual ILOs

5.2: - **MCQ** exam for assessment of knowledge & intellectual ILOs

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

5.4: - **OSPE** for assessment of practical & professional ILOs & communication skills

Assessment schedule:

المقرر	الاختبار	الدرجة				إجمالي
		تحريري		شفهي	عملي	
الباطنة العامه	إختبار تحريرى مدته ثلاث ساعات + اختبار شفهي يشمل (أسئلة متعددة الإختيارات) + اختبار عملي	نظري	mcq	٦٠	٦٠	٣٠٠
		١٤٤	٣٦			

(6) References of the course:

6.1: Text books:

- Eugene Toy, John Patlan. Case Files Internal Medicine, Third Edition: McGraw Hill Professional,2009.
- Ralston, Stuart H., et al., editors. Davidson's Principles and Practice of Medicine. 23rd ed., Elsevier Health Sciences, 2018.
- Oxford hand book of gastroenterology and hepatology
- Stuart Bloom, George Webster, and Daniel Marks. Oxford Handbook of Gastroenterology and Hepatology (2 ed.): Oxford University Press,2011.
- Kumar, Parveen J, and Michael L. Clark, Edited by Adam Feather. Kumar and Clark's Clinical Medicine 9th Edition. Elsevier, 2016.

6.2: Journals:

- British medical Journal
- New england journal of medicine(NEJM)

(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.
- Internet with a wide range of learning support material.

Programme coordinators: **- Prof. Dr. Hussein El Beltagy.** **-Prof. Dr. Ali Gaballa** **- Prof. Dr. Mohamed-Hesham Daba.** **- Ass. Lecturer. Dr. Amira El Adl.** **- Ass. Lecturer. Rania al Qatary**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

COURSE SPECIFICATION

(Medical physiology)

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme offering the course:	Postgraduate degree of clinical pharmacology (MSc)
(2) Department offering the programme:	Clinical pharmacology department
(3) Department responsible for teaching the course:	Medical physiology department
(4) Part of the programme:	First part
(5) Date of approval by the Department`s council	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(7) Course title:	Physiology
(8) Course code:	CPHARM 503
(9) CREDIT HOURS	1
(10) Total teaching hours:	15

(B) Professional information

(1) Course Aims:

The broad aims of the course are to:

Provide the candidate with a basic knowledge about the integration of physiological functions and the human body homeostasis for better understanding of pharmacology of drugs affecting different body systems

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Describe regulation of acid-base balance.
2. Review interstitial fluid formation and patho-physiology of edema
3. Recognize different cardiac properties and respiration functions of blood.
4. List gastro-intestinal hormones and their physiological function
5. Identify motor function of the gastro-intestinal tract, its relevant abnormalities
6. Describe hypothalamus pituitary axis.
7. Describe Endocrinal function of the pancreas, thyroid, suprarenal and parathyroid glands.
8. Describe factors affecting insulin secretion and glucose transport in the body
9. Identify factors affecting glomerular filtration rate (GFR).
10. Study and explain regulation of arterial blood pressure, thermoregulation and pain control mechanisms.

B-Intellectual skills

1- Distinguish changes in different clinical and laboratory parameters including; blood pressure measurement , ECG recording , Pulmonary , liver and renal function tests in individuals

2- To predict diseases that alter the normal physiological clinical and laboratory results

(3) Course content:

Subjects	Lectures
1. Respiration functions of blood.	1
2. Regulation of blood PH-acid-base balance.	1
3. Cardiac properties.	1
4. Interstitial fluid formation and pathophysiology of edema.	1
5. Regulation of Arterial blood pressure.	1
6. Gastro-intestinal Hormones and their physiological function.	1
7. Motor function of the gastro-intestinal tract, its abnormalities.	1
8. Endocrinal function of the pancreas	1
9. Anatomical connection between hypothalamus and pituitary.	1
10. Hypothalamic-pituitary-adrenal axis	1
11. Endocrine function of the thyroid, suprarenal glands and parathyroid glands.	1
12. Glucose transport in the body and Factor affecting insulin secretion.	1
13. Measurement, factors affecting glomerular filtration rate (GFR).	1
14. Thermongenesis thermo regulation.	1
15. Pain control system.	1
Total teaching hours	15

(4) Teaching methods:

4.1: Lectures

4.2: Online teaching

(https://www.youtube.com/playlist?list=PL3Eg6CF-i-MuZPkVnu-wusj1PHO1O_nlF)

(5) Assessment methods:

5.1: **written examinations** for assessment of knowledge & intellectual ILOs

5.2: - **MCQ exam** for assessment of knowledge & intellectual ILOs

Assessment schedule:

المقرر	الاختبار	الـــدرجة			إجمالي
		تحريري	شفهي	عملي	
المقرر الاختيارى	إختبار تحريرى مدته ساعة	٤٠	-		٥٠
	اختبار MCQ	١٠			

(6) References of the course:

6.1: Text books:

- Medical physiology department (student book)
- Guyton and Hall Textbook of Medical Physiology. 13th edition. Philadelphia, PA: Elsevier, 2016.
- Rhoades, David R. Bell. Medical Physiology : Principles for Clinical Medicine. Philadelphia :Wolters Kluwer Health/Lippincott Williams & Wilkins, 2009.

(7) Facilities and resources mandatory for course completion:

- Computer labs with open access to medical research databases
- Upgraded library
- Candidate's logbook.
- Internet with a wide range of learning support material.

Programme coordinators: **- Prof. Dr. Hussein El Beltagy.** **-Prof. Dr. Ali Gaballa** **- Prof. Dr. Mohamed-Hesham Daba.** **- Ass. Lecturer. Dr. Amira El Adl.** **- Ass. Lecturer. Rania al Qatary**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

COURSE SPECIFICATION

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme offering the course:	MSc degree of clinical pharmacology
(2) Department offering the programme:	Clinical pharmacology department
(3) Department responsible for teaching the course:	Medical Biochemistry Department
(4) Part of the programme:	First part
(5) Date of approval by the Department`s council	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(7) Course title:	**Biochemistry**
(8) Course code:	**CPHARM 504**
(9) Credit hours	**1**
(10) Total teaching hours:	**15**

B) Professional information

(1) Course Aims:

The broad aims of the course are to:

Provide candidate with a basic knowledge in modern biochemistry and molecular biology necessary for an understanding of the life sciences at the molecular level in addition to the principles of biochemistry and molecular biology techniques

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Define the structure, function and metabolic pathways of carbohydrates , lipids, proteins, nucleotides and their micro-molecules and their regulatory mechanisms.

2. Outline the related metabolic disorders and their clinical prints on biochemical and molecular basis

3. Recognize functions of hormones and micronutrients, their biochemical, clinical and laboratory importance and deficiency manifestations of each

4. Identify the mode of action and kinetics of enzymes and their role in the diagnosis of diseases.

5. Identify the basics of molecular biology (structure, function & synthenesis).

B- Intellectual skills

1. Distinguish clinical and biochemical laboratory findings of vitamins deficiency diseases

2. Interpret the clinical significance of determination of different laboratory markers as plasma levels of glucose, total proteins, liver function tests, lipid profile and uric acid level.

(3) Course content:

Subjects	Lectures
Carbohydrate chemistry & metabolism.	1
Lipid chemistry & metabolism	1
Physical chemistry	1
Protein chemistry & general metabolism	1
Individual amino acid Metabolism	1
Principles of Heme metabolism	1
Purine & pyrimidine chemistry & metabolism	1
Metabolic interrelation & minerals	1
Mechanism of hormonal action	1
Body Fluids	1
Basic function of Cell organelles & structure of biological membrane	1
Vitamins & enzymes	1
Basic knowledge of Cell cycle & apoptosis.	1
Molecular biology & recombinant DNA	1
Biological oxidation &Xenobiotic metabolism	1
Total teaching hours	15

(2) Teaching methods:

4.1: Lectures

4.2: Online teaching (https://www.youtube.com/playlist?list=PL3Eg6CF-i-MuZPkVnu-wusj1PHO1O_nlF)

(3) Assessment methods:

5.1: **written examin** for assessment of knowledge & intellectual ILOs

5.2: - **MCQ exam** for assessment of knowledge & intellectual ILOs

Assessment schedule:

المقرر	الاختبار	الـــدرجة			إجمالي
		تحريري	شفهي	عملي	
المقرر الاختيارى	إختبار تحريرى مدته ساعة	٤٠			٥٠
	اختبار MCQ	١٠			

(4) References of the course:

Text books:

- Medical biochemistry department (student book)
- Murray RK, Granner DK, Mayes PA, Rodwell VW. Harper's Illustrated Biochemistry: 31st edition, McGraw-Hill companies New York, 2018.
- Champe PC, Harvey RA, Ferrier. DR Lippincott's Reviews of Biochemistry, 7th edition, Lippincott William & Wilkins London, 2017.
- Chatterjea MN. and Shinde R. Textbook of Medical Biochemistry, 8th edition. JAYPEE BROTHERS. New Delhi, India, 2011.
- 6.2: Journals:
- ANNUAL REVIEW OF BIOCHEMISTRY
- NATURE STRUCTURAL & MOLECULAR BIOLOGY

(5) Facilities and resources mandatory for course completion:

- Computer labs with open access to medical research databases
- Induction course introducing study skills.
- Candidate's logbook.
- Internet with a wide range of learning support material.

Programme coordinators: **– Prof. Dr. Hussein El Beltagy.** **–Prof. Dr. Ali Gaballa** **– Prof. Dr. Mohamed–Hesham Daba.** **– Ass. Lecturer. Dr. Amira El Adl.** **– Ass. Lecturer. Rania al Qatary**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

COURSE SPECIFICATION

(Medical microbiology)

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme offering the course:	MSc degree of clinical pharmacology
(2) Department offering the programme:	Clinical pharmacology department
(3) Department responsible for teaching the course:	Medical microbiology department
(4) Part of the programme:	First part
(5) Date of approval by the Department`s council	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(7) Course title:	Microbiology
(8) Course code:	CPHARM 507
(9) Credit hours	1
(10) Total teaching hours:	15

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1. Acquire comprehensive knowledge of different mechanisms of Immune response & its relevant diseases.
2. Acquire basic knowledge of various aspects of medical virology and systemic bacteriology for better understanding of chemotherapy.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Describe the general microscopic morphology of bacteria
2. Outline different phases of bacterial growth curve
3. Recognize the antigenicity of bacteria, their virulence factors and pathogenesis.
4. Describe the humoral and cell mediated immune responses and the role of complement system.
5. Identify abnormal immune response; Hypersensitivity and autoimmunity
6. Describe the clinical picture and line of treatment of mycobacterium T.B, typhoid and bacillary dysentery
7. Describe viral structure and steps of viral replication.
8. Discuss diagnosis, prevention and treatment of viral hepatitis, HIV, Herpes viruses and orthomyxoviruses.

B- Intellectual skills

1. Elaborate an effective antimicrobial policy.
2. Propose management of gastroenteritis and food poisoning situations.
3. Predict strategies of Infection prevention and control.

(3) Course content:

Subjects	Lectures
Immune system & Types of immunity.	1
Antigens and immunoglobulins & complement system	1
Immune regulation and autoimmunity.	2
Hypersensitivity reactions.	1
General bacteriology (cell structure, growth curve and antimicrobial)	1
Gastroenteritis and food poisoning.	1
Enteric fever.	1
Bacillary dysentery.	1
Mycobacterium T.B.	1
General virology (Classification, structure and cell cycle)	1
Viral hepatitis.	1
HIV	1
Herpes viruses+ orthomyxoviruses.	2
Total teaching hours:	15

(4) Teaching methods:

4.1 Lectures

4.2: Online teaching

(https://www.youtube.com/playlist?list=PL3Eg6CF-i-MuZPkVnu-wusj1PHO1O_nlF)

(5) Assessment methods:

5.1. **written examinations** for assessment of knowledge & intellectual ILOs

5.2: - **MCQ exam** for assessment of knowledge & intellectual ILOs

Assessment schedule:

المقرر	الاختبار	الـدرجة			إجمالي
		تحريري	شفهي	عملي	
المقرر الاختيارى	إختبار تحريرى مدته ساعة	٤٠			٥٠
	اختبار MCQ	١٠			

(6) References of the course:

6.1: Text books:

- Medical microbiology department (student book)
- Cynthia Nau Cornelissen; Bruce D Fishe.; Richard A Harvey. Lippincott's illustrated reviews : microbiology; Philadelphia : Lippincott Williams & Wilkins, 2013.
- Alcamo. Alcamo's Fundamentals of Microbiology. Sudbury, Mass: Jones and Bartlett Publishers, 2011

6.2: Journals:

- Journal of Bacteriology & Parasitology
- International Journal of Medical Microbiology
- Annual Review of Immunology

(7) Facilities and resources mandatory for course completion:

- Computer labs with open access to medical research databases
- Upgraded library
- Candidate's logbook.
- Internet with a wide range of learning support material.

Programme coordinators: **– Prof. Dr. Hussein El Beltagy.** **–Prof. Dr. Ali Gaballa** **– Prof. Dr. Mohamed-Hesham Daba.** **– Ass. Lecturer. Dr. Amira El Adl.** **– Ass. Lecturer. Rania al Qatary**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	MSc 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 (3th semester)
(5) Date of approval by the Department`s council:	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(7) Course title:	Basic pharmacology
(8) Course code:	CPHARM 506 BP CPHARM 506 BPP
(9) Total teaching hours:	255
(10) Credit hours:	7 h Lectures 5 h Laboratory

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1. Acquire comprehensive knowledge of commonly known drugs through study the pharmacodynamics, kinetics, adverse effects, clinical applications & drug-drug Interactions.
1. Acquire skill of preparing animal model of disease for experimental drug use
2. Study classical and modern approaches to drug development.
3. Gain the skill of carrying out a scientific research and an effective presentation.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Categorize pharmacodynamics and pharmacokinetics of the drugs.
2. Describe drug interactions and adverse drug effects of commonly used and newly developed drugs.
3. Subscribe sympathetic and parasympathetic A.N.S.
4. Identify Histamine, 5HT, Eicosanoids, and peptides.
5. Identify drugs of anemia, hyperlipidemia & coagulation
6. Demonstrate renal and G.I.T. pharmacology.
7. Clarify an introduction to CNS pharmacology, hypnotic- Sedatives, opioids, general & local anesthetics.
8. Classify antipsychotics & antidepressants & anticonvulsants.
9. Subdivide antibacterial drugs, antiviral, antiparasitic and antifungal drugs.
10. Enumerate cancer chemotherapy.
11. Recognize research ethics
12. Outlines the principles of designing a study, writing a proposal and articles for publication

B- Intellectual skills

1. Anticipate all types of drug interactions.
2. Detect adverse drug reaction and detect the molecular and pharmacological basis behind it

C- Professional/practical skills

1. Perform screening for sympathomimetics.
2. Perform screening & bioassay of parasympathomimetcs & Parasympatholytics.
3. Perform screening for serotonin, analgesics, histamine, anti-histaminics and neuromuscular blockers.
4. Determine the unknown drug concentration.
5. Determine unknown substance.
6. Design clinical trials to a new drug to test its pharmacokinetics, side effects and toxicity

D- Communication & Transferable skills

1. Work effectively within a team.
2. Access information effectively in library and midline data base.

(3) Course content: 3rd semester

(Subjects	Lectures
Pharmacokinetics	7
Drug receptors & pharmacodynamics.	7
Drug interactions	7
Adverse drug effects	7
Introduction to autonomic nervous system (A.N.S) Sympathetic A.N.S Parasympathetic A.N.S	7
Histamine, 5HT, peptides Eicasanoids and NSAIDs	7
Renal pharmacology	7
Agents used in anaemia. Drugs & hyperlipidaemia Drugs &coagulation	7
Introduction to CNS Hypnotic- Sedatives.	7
Opioids	7
General & local anaesthetics	7
Introduction to chemotherapy Antibacterial drugs	7
Antifungal drugs	7
Cancer chemotherapy,	7
immunomodulators.	7
Total teaching hours:	105

Practical

topics	Laboratory Credit hours
Screening for sympathomimetics.	20
Screening for antagonists of adrenergic receptors.	20
Screening & bioassay of parasympathomimetcs.	20
Screening & bioassay of Parasympatholytics.	20
Screening for neuromuscular blockers.	10
Screening for histamine.	10
Screening for antihistaminics	10
Screening for serotonin.	10
Screening for analgesics	10
Identify unknown substance.	10
Determine the unknown drug concentration.	10
Total teaching hours:	150

(4) Teaching methods:

4.1: Lectures

4.2: Experimental (lab sessions)

4.3: Online teaching (https://www.youtube.com/playlist?list=PL3Eg6CF-i-MuZPkVnu-wusj1PHO1O_nlF)

(5) Assessment methods:

5.1: - **Written exam** for assessment of knowledge & intellectual ILOs

5.2: **MCQ exam** for assessment of knowledge & intellectual ILOs

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

5.4: - **OSPE** for assessment of communication, practical & professional ILOs

Assessment schedule:

المقرر	الاختبار	الدرجة				إجمالي
		تحريري		شفهي	عملي	
الفارماكولوجيـــــا الأساسية	إختبـــار تحريـــرى مدتـــه ثـــلاث ساعات + اختبار شفهي + اختبار عملي	نظري	MCQ	٧٥	٧٥	٣٠٠
		١٢٠	٣٠			

(6) References of the course:

6.1: Text books:

- Katzung, Bertram G. Basic & Clinical Pharmacology 14th Edition. New York: Lange Medical Books/McGraw Hill, 2017.
- Rang and Dale's pharmacology (9th edition.). Edinburgh: Elsevier, 2018.
- Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13e Eds. Laurence L. Brunton, et al. McGraw Hill, 2017
- M J Brown; Pankaj Sharma; Fraz Mir; Peter N Bennett; D R Laurence. Clinical pharmacology. Edinburgh : Elsevier, 2019

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.
- Internet with a wide range of learning support material.
- Dissertation Supervisor

Programme coordinators: -Prof. Dr. Hussein El Beltagy -Prof. Dr. Ali Gaballa -Prof. Dr. Mohamed-Hesham Daba. -Dr.Mohamed Aboelkheir Abdallah - Ass. Lecturer. Rania al Qatary	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: Prof. Nesrene Mohamed Shalaby	Signature & date:

COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	MSc 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 (4th semester)
(5) Date of approval by the Department`s council	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(7) Course title:	Clinical Pharmacology
(8) Course code:	CPHARM 506 CP CPHARM 506 CPP
(9) Total teaching hours:	255
(10) Credit hours:	7h lectures 5h practical

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1. Use knowledge of mechanisms of drug action to extrapolate likely effect of new drugs, doses and combinations
2. Understand and work within the current drug regulatory framework.
3. Gain enough knowledge about evidence based pharmacotherapy

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1- Recognize the pharmacotherapy of different cardiovascular disorders including hypertension, IHD, Arrhythmia and heart failure.
2- Outline the pharmacotherapy of blood diseases including anemia and blood coagulation disorders.
3- Describe the pharmacotherapy of bronchial asthma and cough.
4- Outline the pharmacotherapy of neurological and psychological disorders including anxiety disorders, depression, epilepsy, Parkinsonism, alzeimer, psychosis and drug abuse.
5- Outline the pharmacotherapy of endocrinal disorders including DM, Cushing, adissonian, thyroid and pituitary disorders.
6- Recognize the pharmacotherapy of obesity, osteoprosis & osteoarthritis.
7- Study the pharmacotherapy of malaria, amebiasis and TB.
8- Describe the pharmacotherapy of hepatic and gastroenterological disorders including viral hepatitis, hepatic encephalopathy, peptic ulcer, upper GIT bleeding, inflammatory bowel syndrome (IBS) and inflammatory bowel disease (IBD).
9- Describe the effect of drugs on the kidney and liver and the effect of those disorders on drug prescription.
10- Outline the geriatric and pediatric pharmacology.
11- Study the effect of drugs on pregnancy and lactation.
12- Recognize research ethics
13- Outlines the principles of designing a study, writing a proposal and articles for publication.

B- Intellectual skills

1. Interpret the effects of age, body size, organ dysfunction and concurrent illness on drug distribution and metabolism relevant to the trainee's practice
2. Interpret the risks of treatments to be able to make decisions in various situations.
3. Apply knowledge of pharmacotherapy in different clinical situations through case scenarios and field visits.
4. Analyze drug-drug interactions in different conditions

C- Professional/practical skills

1. Prescribe rationally in different case scenarios.
2. Construct and adjust dose regimen correctly in different age groups, physiological change (e.g. deteriorating physiological function) and following therapeutic drug monitoring.
3. Perform techniques to evaluate physiological effects of drugs like Bl.P. measurement, pulse recording, temp measurement, etc.
4. Design clinical trials to a new drug to test its pharmacokinetics, side effects and toxicity.
5. Analyze case scenarios to illustrate important interactions and adverse drug effects for benefits of patients and doctors.
6. Design therapeutic plan in different clinical situations according to evidence based pharmacotherapy
7. Apply principles of individualization of therapy when necessary
8. Prescribe appropriately in pregnancy, and during breast feeding.

D- Communication &Transferable skills

1. Work effectively within a team.
2. Respond appropriately to unprofessional behavior of others.
3. Ensure appropriate personal language and behavior.
4. Apply appropriately the principles, guidance and laws regarding medical ethics and confidentiality.

(3) Course content: 4th semester

Subjects	Lectures and seminars	Practical
Pharmacotherapy of hypertension. Pharmacotherapy of IHD.	7	10
Pharmacotherapy of Heart failure. Pharmacotherapy of arrhythmia.	7	10
Pharmacotherapy of bronchial asthma and cough.	7	10
Pharmacotherapy of anxiety disorders. Pharmacotherapy of depression & psychosis. Pharmacotherapy of drug abuse.	7	10
Pharmacotherapy of epilepsy. Pharmacotherapy of Parkinsonism Pharmacotherapy of Alzheimer	7	10
Pharmacotherapy of D.M. Pharmacotherapy of thyroid disoredrs.	7	10
Pharmacotherapy of pituitary disorders. Pharmacotherapy of cushing & adissonian disease	7	10
Pharmacotherapy of Obesity. Pharmacotherapy of osteoporosis.	7	10

Pharmacotherapy of osteoarthritis Pharmacotherapy of malaria. Pharmacotherapy of amebiasis.	7	10
Pharmacotherapy of viral hepatitis. Pharmacotherapy of T.B	7	10
Pharmacotherapy of IBS. Pharmacotherapy of upper GIT bleeding. Pharmacotherapy of peptic ulcer.	7	10
Pharmacotherapy of IBD. Pharmacotherapy of hepatic encephalopathy.	7	10
Drugs & kidney Drugs & liver	7	10
Geriatric and Pediatric pharmacology	7	10
Drugs & pregnancy Drugs & lactation	7	10
Total teaching hours:	105	150
	255	

(4) Teaching methods:

4.1: Lectures

4.2: Seminars

4.3. Field visits

4.5: Online teaching (https://www.youtube.com/playlist?list=PL3Eg6CF-i-MuZPkVnu-wusj1PHO1O_nlF)

(5) Assessment methods:

5.1: - **Written exam** for assessment of knowledge & intellectual ILOs

5.2: - **MCQ** exam for assessment of knowledge & intellectual ILOs

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

5.4: - **OSPE** for assessment of communication skills, practical & professional ILOs

Assessment schedule:

المقرر	الاختبار	الدرجة				إجمالي
		تحريري		شفهي	عملي	
الفارماكولوجيـــــا الاكلينكيه	إختبـــار تحريـــرى مدتـــه ثـــلاث ساعات + اختبار شفهي + اختبار عملي	نظري	MCQ	٧٥	٧٥	٣٠٠
		١٢٠	٣٠			

(6) References of the course:

6.1: Text books:

- Katzung, Bertram G. Basic & Clinical Pharmacology 14th Edition. New York: Lange Medical Books/McGraw Hill, 2017.
- Rang and Dale's pharmacology (9th edition.). Edinburgh: Elsevier, 2018.
- Craig, Charles R., and Robert E. Stitzel. Modern Pharmacology with Clinical Applications. Philadelphia: Lippincott Williams & Wilkins, 2004.
- Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13e Eds. Laurence L. Brunton, et al. McGraw Hill, 2017
- M J Brown; Pankaj Sharma; Fraz Mir; Peter N Bennett; D R Laurence. Clinical pharmacology. Edinburgh : Elsevier, 2019
- Walker, Roger, and Cate Whittlesea. Clinical Pharmacy and Therapeutics. Edinburgh: Churchill Livingstone, 2007
- Emma Baker, Daniel Burrage, Dagan Lonsdale, Andrew Hitchings. Prescribing Scenarios at a Glance: Wiley-Blackwell, 2014.

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..
- Internet with a wide range of learning support material.

Programme coordinators: **-Prof. Dr. Hussein El Beltagy** **-Prof. Dr. Ali Gaballa** **-Prof. Dr. Mohamed-Hesham Daba.** **-Dr.Amira Eladl** **- Ass. Lecturer. Rania al Qatary**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	MSc 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:	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(7) Course title:	Immunopharmacology
(8) Course code:	CPHARM 506 IP
(9) Total teaching hours:	15 h
(10) Credit hours:	1h

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1. Give the candidate the ability to understand different mechanisms of normal and abnormal immune response
2. Study in depth vaccination, immunosuppressive, anti-proliferative, anti-metabolic drugs and general recommendations in immunization.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Describe normal immune response.
2. Review abnormal immune response; Hypersensitivity, autoimmunity.
3. Describe immunopathogenesis, clinical manifestations and treatment of rheumatoid arthritis and systemic lupus erythromatosis (SLE).
4. List immunosuppressive drugs, Glucocorticoids, Calcineurin inhibitors and anti-proliferative drugs.
5. Review antimetabolites.
6. Describe immunosuppressive antibodies and immunostimulants.
7. Discuss vaccine and vaccination.
8. Outline general recommendations in immunization.
9. Describe general approach to organ transplantation therapy.

B- Intellectual skills

1. Correlate the immunopathogenesis of disease states to pharmacotherapy affecting immune system.
2. Anticipate and detect adverse drug reaction and detect the molecular and pharmacological basis behind it.
3. Anticipate and avoid defined drug interactions

(3) Course content:

(1 credit theoretical= 1 teaching hour)

Subjects	Lectures	Laboratory
Normal immune response.	1	-
Abnormal immune response; Hypersensitivity, autoimmunity	1	-
Abnormal immune response (continue)	1	-
Rheumatoid arthritis.	1	-
SLE	1	-
Immunosupressive drugs; Glucocorticoids, Calcineurin inhibitors	1	-
Immunosupressive drugs (continue)	1	-
Antiproliferative	1	-
Antimetabolites	1	-
Immunosupressive antibodies	1	-
Immunosupressive antibodies (continue)	1	-
Immunostimulant therapy.	1	-

Vaccine and vaccination.	1	-
General recommendations in immunization.	1	-
General approach to organ transplantation Therapy.	1	
Total teaching hours:	15	-

(4) Teaching methods:

4.1: Lectures

4.2: Online teaching (https://www.youtube.com/playlist?list=PL3Eg6CF-i-MuZPkVnu-wusj1PHO1O_nlF)

(5) Assessment methods:

5.1: **Written exam** for assessment of knowledge & intellectual ILOs

5.2: - **MCQ exam** for assessment of knowledge & intellectual ILOs

Assessment schedule:

المقرر	الاختبار	الدرجة			إجمالي
		تحريري	شفهي	عملي	
المقرر الاختيارى	إختبار تحريرى مدته ساعة	٤٠			٥٠
	إختبارMCQ	١٠			

(6) References of the course:

6.1: Text books:

- Katzung, Bertram G. Basic & Clinical Pharmacology 14th Edition. New York: Lange Medical Books/McGraw Hill, 2017.
- Rang and Dale's pharmacology (9th edition.). Edinburgh: Elsevier, 2018.
- M J Brown; Pankaj Sharma; Fraz Mir; Peter N Bennett; D R Laurence. Clinical pharmacology. Edinburgh : Elsevier, 2019

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.
- Internet with a wide range of learning support material.

Programme coordinators: **-Prof. Dr. Hussein El Beltagy** **-Prof. Dr. Ali Gaballa** **-Prof. Dr. Mohamed-Hesham Daba.** **- Dr.Mohamed Aboelkheir Abdallah** **- Ass. Lecturer. Rania al Qatary**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

دكتوراة الفارماكولوجيا الإكلينيكية

PROGRAMME SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme Title & Code	Ph.D.degree of clinical pharmacology CHARM600
(2) Department (s)	Clinical pharmacology department
(3) Coordinator	– Prof. Dr. Hussien M. El–Beltagi. – Prof. Dr. Mohamed–Hesham Daba – Dr.Amira Eladl Clinical pharmacology department
(4) External evaluator (s)	– **Prof. Dr. Magda Hagras, professor of clinical pharmacology, Suez Canal University**
(6) Date of approval by the Department`s council	7/7/2020
(7) Date of last approval of programme specification by Faculty council	20/9/2020

(B) Professional information

(1) Programme Aims:

The broad aims of the Programme are as follows:

1. Understand and apply principles of pharmacokinetics/pharmacodynamics to optimise drug administration and predict adverse drug and drug-drug interactions.
2. Aquire detailed knowledge of pharmacokinetics, mechanisms of action, therapeutic uses, adverse effects and drug-drug Interactions of common therapeutic drugs.
3. Rational and cost-effective use of drugs, aiming for clinical effectiveness at all times.
4. Understand and apply principles of research ethics.
5. Acquire skills related to pharmacological screening and standarization of drugs .
6. Aquire the skill to design and conduct clinical trials effectively.
7. Aquire ability to critically evaluate scientific literature related to pharmacology and therapeutics.
8. Acquire knowledge related to basics, safety & efficacy of gene therapy.
9. Study pharmacovigilance of commonly prescribed drugs.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Review pharmacokinetics/dynamics of drugs at molecular and sub-cellular levels.
2. Describe theories of drug-receptor interactions and the related concepts of agonists and antagonists.
3. Define main pharmacokinetic concepts; bioavailability, half life, area under the curve, volume of distribution and clearance.
4. Study changes in drug dyanmics, kinetics in vulnrable patients (geriatrics, pediatrics and Pregnancy).
5. List common and/or severe adverse reactions of main drugs.
6. Discuss important mechanisms of drug adverse reactions.
7. Recall narrow therapeutic index drugs, requiring therapeutic drug monitoring.
8. Discuss acute and chronic toxicity studies in animals.
9. Acquire knowledge related to bioassay of agonist and antagonist activity of drugs.
10. Describe advances in therapeutic management of common medical disorders and infections.
11. List general strategies for management of poisoned patients
12. Outline basics of evidence based therapy, lifestyle drugs and sport medicine.
13. Discuss different methods, strategies and clinical applications of gene therapy.

B- Intellectual skills

1. Interpret pharmacokinetic date of a drug; bioavailability, Half life, Volume of distribution and Clearance.
2. Construct dose regimens correctly, using pharmacokinetic principles.
3. Analyze adverse drug reactions, based on their molecular and pharmacological basis.

□□ Anticipate drug induced liver, kidney and skin diseases

5. Anticipate and avoid drug-drug interactions, including interaction with complementary medicines.

□□ Analyze guidelines for management of common medical disorders.

□□ Explain causes of failure of medical therapy, including mechanisms of bacterial and cancer resistance.

8. Interpret results of clinical trials, related to drug safety and adverse effects.
9. Apply gene sequencing, rt-PCR and gene silencing techniques in testing pharmacological effects of drugs.
10. Design clinical trials effectively.
11. Critically analyze medical literature relevant to basic and clinical pharmacology.

C- Professional/practical skills

1. Select drugs and dose regimens based on principles of individualized therapy
2. Apply latest guidelines in mangement of common medical disorders and infections.
3. Prescribe appropriatly in different pathological and physiological conditions.
4. Detect, manage and report adverse drug reactions.
5. Practice screening of drug activity on isolated tissues and living animals.
6. Develop animal models of disease to be used as tools in testing therapeutic effects of new drugs.
7. Construct clinical trials to test pharmacokinetics and toxicity of new drugs.
8. Practice therapeutic drug monitoring efficiently to avoid drug toxicity.
9. Improve drug safety, using Information Technology prescribing tools.
10. Respond appropriately with updated therapeutic alerts.
11. Manage case scenarios of various diseases.
12. Evaluate guidelines on medicines utilization and develop prescribing policies, aiming for clinical effectiveness at all times.

D– Communication & Transferable skills

1. Work effectively within a team.
2. Re-prioritize regularly personal and team work load.
3. Show willingness to act as a leader, mentor, educator and role model.
4. Access information effectively in library and midline data base.
5. Respond appropriately to unprofessional behavior of others.
6. Work in partnership with patients and members of the wider healthcare team.
7. Respond to questions honestly and seek advice if unable to answer.
8. Maintain honesty and objectivity during appraisal and assessment.
9. Ensure appropriate personal language and behavior.
10. Demonstrate effective lecture, presentation, and small group teaching sessions.

(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:

1. Joint royal colleges of the physician training board (70 %) (WWW.jrcptb.org.uk or www.gmc-uk.org/CPT_3_Jul _07_Curr_0010.pdf_30543337.pdf).

2. UMDNJ, New Jersey Medical School, Pharmacology & Physiology Department (30%) (http://njms.umdnj.edu/departments/pharmacology/graduate_courses.cfm)

3.b- Comparison of the specification to the selected external reference/ benchmark:

The main difference is that this course specification does not include teaching through ward-based rounds.

(4) Curriculum structure and contents:

4.a- Duration of the programme: 6 semesters, 60 credit hours.

4.b- programme structure:

Candidates should fulfill a total of 60 credit hours

●4.b.1: Number of credit hours:

First part: 5 Second part: 40 Thesis: 15

●4.b.2: Teaching hours/week:

First part: Lectures: 5 Clinical/lab: - Total: 5

Second part: Lectures: 25 Clinical/lab: 15 Total: 40

(5) Programme courses:

First part

a- Compulsory courses:

Course Title	Course Code	NO. of hours per week					Total teaching hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
General pharmacology (24 weeks)	CPHARM 606	**4**				**4**	**60**	
Bioassay (24 weeks)	CPHARM 606 BA	**1**				**1**	**15**	

Second part

a- Compulsory courses:

Course Title	Course Code	NO. of hours per week					Total teaching hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Basic pharmacology (28 weeks)	CPHARM 606 BP CPHARM 606 BPP	**9**	**3**	**8**		**20**	**420**	
Clinical pharmacology (84 weeks)	CPHARM 606 CP CPHARM 606 CPP	**9**	**3**	**7**		**19**	**390**	
MD thesis							**15 credit hours**	

b- Elective courses:

Course Title	Course Code	NO. of hours per week					Total teaching hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Pharmaceutics Gene therapy	CHARM 606 PG	1				1	15	
pharmacovigilance	CHARM 606 PV	1				1	15	

Programme–Courses ILOs Matrix

Course Title/Code		Programme ILOs																									
	a1	a2	a3	a4	a5	a6	a7	a8	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	D5	D6	D7
General pharmacology		X	X		X					X	X			X		X	X				X				X	X		
Bioassay	X	X		X			X		X	X			X	X					X	X		X	X	X				
Basic pharmacology	X	X	X		X	X				X	X	X		X	X	X		X			X			X	X	X		
Clinical pharmacology	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pharmaceutics Gene therapy	X	X	X		X					X				X								X		X	X			
Pharmacovigilance					X	X					X	X		X								X		X	X			

6) Programme admission requirements:

- General requirements:

  - Previous degree: MSc clinical pharmacology (minimum good grade)

  - Experience : training as an assistant lecturer in clinical pharmacology.

(6) Regulations for progression and programme completion:

First part

Assessment rules

1- Attendance criteria: Minimum acceptance attendance in each course is 70%

2- Log book should be fulfilled and signed by head of the department.

3- Assessment tool

Tools	Mark	Percentage of the total mark
Written exam for general pharmacology course	100	50%
Written exam for bioassay course	100	50%
Total Marks	200	100%

Second part

Assessment rules

1- Attendance criteria: Minimum acceptance attendance in each course is 70%

2- Log book should be fulfilled and signed by head of the department.

3- Assessment tool.

Tools	Mark	Percentage of the total mark
Compulsory course		
Written exam	250	50%
Oral exam	100	25%
Practical exam	100	25%
Total Marks	450	100%
Elective course		
Written exam	50	100%

To qualify for the award of the MD. with distinction, candidates must pass at least 60% of the final exam in each of the items of the second part exam.

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

Evaluator	Tools*	Sample size
Internal evaluator (s) - Prof. Dr. Gamal Mohamed Maamon Dahab - Prof. Dr. Abd El – Rahman Yassin. - Prof. Dr. Mohammed Abdelghani	Interview Communication	
External evaluator (s) - Prof. Dr. Magda Hagras, professor of clinical pharmacology, Suez Canal University	Interview Communication	
Senior student (s)		
Alumni		
Stakeholder (s)		
others		

* 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 coordinators: **- Prof. Dr. Hussien M. El-Beltagi** **- Prof. Dr. Mohamed-Hesham Daba** **- Dr.Amira Eladl**	Signature & date:
Head of Department Prof. Dr. Amal Hassanin	Signature & date:
Dean: **Prof. Nesrene Salah Omar**	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع المعايير المرجعية لبرنامج الدكتوراة في الفارماكولوجيا الإكلينيكية

أ ــ المعرفة والفهم:

المقررات التى تحقق المعايير الأكاديمية للبرامج	ILOs مخرجات التعلم المستهدفة	(ARS) Benchmark لجامعة المعايير الأكاديمية Royal colleges of the physician	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الدكتوراة في الفارماكولوجيا الإكلينيكية)
CPHARM 606 BP CPHARM 606 CP CHARM 606 PG	**A1,2,3, 10, 13**	1. Understand the processes that result in nationally applicable guidelines 2. Indications, contraindications, side effects, drug interactions and dosage of commonly used drugs	1- Recent advances and areas under research in the field of clinical pharmacology
CPHARM 606 BP	**A8,9,14**	3. Demonstrates a knowledge of research principles 4. Outlines the principles of formulating a research question and designing a project.	5. Scientific research ethics, research methodology & research design. Curriculum must advance knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.
			6. Legal and medicolegal aspects in practice of clinical pharmacology as well as medical ethics.
CPHARM 606 GP CPHARM 606 BP CPHARM 606 CP CPHARM 606 PV	**A4,5,6,7**	4. Recalls drugs requiring therapeutic drug monitoring and interpret results 5. Recalls range of adverse drug reactions to commonly used drugs, including complementary medicines 6. Defines the effects of age, body size, organ dysfunction and concurrent illness on drug distribution and metabolism relevant to the trainee's practice	7. Principles and basic concepts of quality in professional practice including planning, improvement of performance and control of practicing outcomes.
CPHARM 606 BP	**A7,11,12**	8. Outlines tools to promote patient safety and prescribing, including electronic clinical record systems and other IT systems 9. Recognises the roles of regulatory agencies involved in drug use and licensing (e.g. National Institute for Clinical Excellence (NICE) Committee on Safety of Medicines (CSM), and Healthcare Products Regulatory Agency and hospital formulary committees	10. Knowledge related to environmental development, patient safety, safe occupational practice, serving communities and research results in improving public health outcomes.

ب ــ القدرات الذهنية :

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة Royal colleges of the physician	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الدكتوراة في الفارماكولوجيا الإكلينيكية)
CPHARM 606 GP CPHARM 606 BP CPHARM 606 CP	**B1,2,5,6,8, 11**	- Makes appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function)	1- Medical data analysis, interpretation and proper therapy choice.
CPHARM 606 CP	**B3,6,7**	- Develops a self-management plan with the patient	2- Medical problem solving and Evidence-based medicine.
CPHARM 606 BP	**B9,10**	- Applies for appropriate ethical research approval	3- Participation in research development and innovation.
		- Demonstrates the ability to write a scientific paper	4- Scientific paper reviewing.
CPHARM 606 GP CPHARM 606 BP CPHARM 606 CP CPHARM 606 PV	**B 4,5,8**	-Recognise the importance of basic science to an understanding of hypertension and cardiovascular risk - Recognises critical illness and responds with due urgency	5- Risk assessment in medical practice.

CPHARM 606 BP CPHARM 606 CP	**B6,8,11**	- Shows an ability to learn from previous error - Conducts an assessment of the community needs for specific health improvement measure.	6- Planning for improvement of professional performance in the field of clinical pharmacology. Residents are expected to develop skills and habits to be able to meet the following goals: (1) identify strengths, deficiencies, and limits in one's knowledge and expertise; (2) set learning and improvement goals; (3) identify and perform appropriate learning activities; (4) systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; (5) incorporate formative evaluation feedback into daily practice; (6) locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems; (7) use information technology to optimize learning; and participate in the education of patients, families, students, residents and other health professionals.
			7- Decision making skill.
CPHARM 606 CP CPHARM 606 PG	**B9,10**		8- Development, innovation and medical breakthrough.
			9- Safety culture of medical practise.

ج ــ المهارات العملية:

المقررات التي تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark لجامعة المعايير الأكاديمية Royal colleges of the physician	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الدكتوراة في الفارماكولوجيا الإكلينيكية)
CPHARM 606 BP CPHARM 606 CP CHARM 606 PV	**C1,4**	1. constructs and adjusts dose regimens correctly. 2. Uses and interprets findings adjuncts to basic examination appropriately e.g. internal examination, blood pressure measurement, pulse oximetry, peak flow 3. Anticipates and avoids defined drug interactions, including complementary medicines 4. Advises patients (and carers) about important interactions and adverse drug effects 5. Employs validated methods to improve patient concordance with prescribed medication	1- Professionalism and up to date practice. providing patient care that is compassionate, appropriate, & effective for the treatment of health problems and the promotion of health. In this context; Residents must demonstrate a commitment to carrying out professional responsibilities & an adherence to ethical principles. Residents are expected to demonstrate: (1) compassion, integrity, and respect for others; (2) responsiveness to patient needs that supersedes self-interest; (3) respect for patient privacy and autonomy; (4) accountability to patients, society and the profession; and,(5) sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.
	C11	6. Works with external strategy bodies around cases that should be reported to them; collaborates with them on complex cases preparing brief statements and reports as required	2- Medical report writing and evaluation/appropriateness of patient medical report.
CPHARM 606BP CPHARM 606 CP	**C2,4,8,10, 11,12**	7. Aims for best clinical practice (clinical effectiveness) at all times, responding to evidence-based medicine.	3- Ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning.
CPHARM 606 CP	**C9**	8. Uses IT prescribing tools where available to improve safety	4- Effective use of IT and healthcare information system in medical practice and patient medical records to optimize learning; and participate in the

			education of patients, families, students, residents and other health professionals
CPHARM 606 GP CPHARM 606 CP CPHARM 606 BP	**C2,3,9, 10,12**	9. Reviews the continuing need for, effect of and adverse effects of long term medications relevant to the trainee's clinical practice 10. Prescribes appropriately in pregnancy, and during breast feeding 11. Makes appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function) 12. Understanding of the importance of non-medication based therapeutic interventions including the legitimate role of placebos 13. Where involved in "repeat prescribing," ensures safe systems for monitoring, review and authorisation	5- Planning for improvement of professional performance in the field of clinical pharmacology. Residents are expected to develop skills and habits to be able to meet the following goals: (1) identify strengths, deficiencies, and limits in one's knowledge and expertise; (2) set learning and improvement goals; (3) identify and perform appropriate learning activities; (4) systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; (5) incorporate formative evaluation feedback into daily practice; (6) locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems; (7) use information technology to optimize learning; and participate in the education of patients, families, students, residents and other health professionals
	C5,6,7	14. Write trial protocols 15. -Perform PD and PK studies in animals and human volunteers	6-

د- مهارات الاتصال:

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark لجامعة المعايير الأكاديمية Royal colleges of the physician	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الدكتوراة في الفارماكولوجيا الإكلينيكية)
CPHARM 606 BP CPHARM 606 CP	**D5,6,7, 8,9**	1. Appreciates the role of non-medical prescribers 2. Remains open to advice from other health professionals on medication issues 3. Recognises the benefit of minimising number of medications taken by a patient to a level compatible with best care 4. Ensures prescribing information is shared promptly and accurately between a patient's health providers, including between primary and secondary care	1- Interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals
CPHARM 606 BP CPHARM 606 CP	**D10,3**	5. Varies teaching format and stimulus, as appropriate to situation and subject.	2- Teaching and evaluation skills as senior staff.
		6. Participates in adverse drug event reporting mechanisms 7. Remains up to date with therapeutic alerts, and responds appropriately	3- Self-appraisal and life-long learning.
CPHARM 606 CP CPHARM 606 BP	**D4**		4- Accessibility to specialty-specific and other appropriate reference material in print or electronic format. Electronic medical literature databases with search capabilities .
CPHARM 606 CP CHARM 606 PV	**D1,2,3**	8. Is aware of the importance of and takes part in multi-disciplinary teamwork, including adoption of a leadership role when appropriate but also recognising where others are better equipped to lead	9. Teamwork/leadership.
CPHARM 606 BP CPHARM 606 CP	**D10**	10. Recognises the importance of resources when prescribing, including the role of a Drug Formulary and electronic prescribing systems	11. Time management and meeting organization

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:	First part
(5) Date of approval by the Department`s council	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20/9/2020
(7) Course title:	General pharmacology
(8) Course code:	CPHARM 606 GP
(9) Total teaching hours:	60
(10) Credit hours	4

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1- Understand and apply principles of pharmacokinetics/pharmacodynamics to optimise drug administration and predict adverse drug and drug-drug interactions.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Describe theories of drug-receptor interactions and the related concepts of agonists and antagonists.
2. Understand principles of pharmacodynamic studies and dose response relationships.
3. Recall factors affecting rate of absorption and metabolism of drugs.
4. Define bioavailability, half life, AUC, volume of distribution and clearance.
5. Review mechanisms underlying drug adverse effects and drug-drug interactions.
6. Define Pharmacogenetics with examples.
7. Discuss drug abuse and over the counter drugs (OTC)
8. Study changes in drug dynamics, kinetics in vulnrable patients (geriatrics, pediatrics and Pregnancy).
9. Explain phases of drug development.
10. Detail how to write a prescription.

B- Intellectual skills

1. Interpret pharmacokinetic date of a drug; bioavailability, Half life, Volume of distribution and Clearance.
2. Anticipate adverse drug reaction based on available kinetic and dynamic data.
3. Anticipate and avoid drug-drug interactions, including interaction with complementary medicines.
4. Use therapeutic drug monitoring to make appropriate dose adjustments.
5. Prescribe safely in pediatrics, geriatrics & pregnancy
6. Make appropriate pharmacotherapy plan for drug dependence

(3) Course content:

Subjects	Lectures	Laboratory
Drug transport	4	–
Drug receptors	4	–
Pharmacodynamics	4	–
Pharmacokinetics (absorption and distribution)	4	–
Pharmacokinetics (metabolism and elimination)	4	–
Adverse reactions & pharmacogenetics	4	–
Drug interactions	8	–
Drugs and geriatrics	4	–
Drugs and pediatrics	4	–
Drugs and pregnancy	4	–
Drugs and diseases	4	–
Development and regulation of drugs	4	–
Principles of prescription writing	4	–
Drug abuse and over the counter drugs (OTC)	4	
Total teaching hours:	60	–

(4) Teaching methods:

4.1: Lectures

4.2: Interactive online teaching

(5) Assessment methods:

5.1: - **Written exam** for assessment of knowledge & intellectual ILOs.

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

Assessment schedule:

المقرر	الاختبار		الدرجة تحريري
الفارماكولوجيا العامة	80	اختبار تحريري مدته ثلاث ساعات	100
	20	اختبار MCQ	

(6) References of the course:

6.1: Text books:

Pharmacology and therapeutics (Goodman) [Last edition].
Basic and clinical pharmacology (Katzung) [Last edition].
Pharmacology (Rang and Dale) [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.
- Internet with a wide range of learning support material.

Programme coordinators: – Prof. Dr. Hussein El Beltagy. –Prof. Dr. Ali Gaballa – Prof. Dr. Mohamed-Hesham Daba. – Lecturer. Dr. Amira El Adl. – Lecturer. Rania al Qatary	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: Prof. Nesrene Mohamed Shalaby	Signature & date:

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:	First part
(5) Date of approval by the Department`s council	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(7) Course title:	**Bioassay**
(8) Course code:	CPHARM 606 BA
(9) Total teaching hours:	15
(10) Credit hours:	1

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1- Acquire knowledge related to drug screening and bioassay of , to enhance future drug development and clinical trials.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Summarize how to screen for agonist and antagonist activity of drugs.
2. Name physiological salt solutions, units, levers and methods of collection of blood samples
3. Describe Screening methods for serotonergic, histaminic & antihistaminic activity.
4. Study experimental models for Screening of analgesic, anti-inflammatory, antidepressant, anticonvulsant, anti-parkinsonian, anti-alzheimer activity and local anesthetic drugs.
5. Outline experimental models for Screening of anti-diabetic, anti-hypertensive and antitumor activity.
6. Discuss acute and chronic toxicity studies in animals.

B- Intellectual skills

1. Evaluate early phase studies of drug action in animals.

(3) Course content:

Topics	Lectures	Laboratory
Types, methods and conditions of bioassay (Biological variability)	1	-
Animal toxicity assay.	1	-
Physiological salt solutions, units, levers. Standard techniques of drug injection and collectio blood samples.	1	-
Bioassay of agonists and antagonists	1	-
Screening for drugs treating peptic ulcer	1	-
Screening for histamine & antihistaminics	1	-
Screening for analgesics and anti-inflammatory	1	-
Screening for antidepressants	1	-
Screening for serotonin& antipsychotics	1	-
Screening for anticonvulsants & antiparkinsonins	1	-
Screening for local anesthetics	1	-

Screening for antialzheimer	1	–
Screening for antidiabetics	1	–
Screening for Diuretics & antihypertensive	1	–
Screening for chemotherapy	1	–
Total teaching hours:	15	–

(4) Teaching methods:

4.1: Lectures.

4.2: Interactive online teaching

(5) Assessment methods:

5.1: - **Written exam** for assessment of knowledge & intellectual ILOs.

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

Assessment schedule:

الدرجة تحريري	الاختبار		المقرر
100	80	اختبار تحريري مدته ثلاث ساعات	المعايرة الحيوية
	20	اختبار MCQ	

(6) References of the course:

6.1: Text books:

Experimental pharmacology and therapeutics.

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.
- Internet with a wide range of learning support material.

Programme coordinators: **- Prof. Dr. Hussein El Beltagy.** **-Prof. Dr. Ali Gaballa** **- Prof. Dr. Mohamed-Hesham Daba.** **- Lecturer. Dr. Mohamed abo el kheir.** **- Lecturer. Hanan Eisa**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

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	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(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 including interactive online teaching

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	
القاز ماكولوجيا الأساسية	إختبار تحريري مدته ثلاث ساعات + اختبار شفهي +اختبار عملي	mcq 80 نظري 20	50	50	200

(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

Programme coordinators: - Prof. Dr. Hussein El Beltagy. -Prof. Dr. Ali Gaballa - Prof. Dr. Mohamed-Hesham Daba. - Ass. Lecturer. Dr. Mohamed Aboelkheir. - Ass. Lecturer. Nehal Ramadan	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: Prof. Nesrene Mohamed Shalaby	Signature & date:

COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	PhD 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	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20-9-2020
(7) Course title:	**Clinical pharmacology**
(8) Course code:	CPHARM 606 CP **CPHARM 606 CPP**
(9) Total teaching hours:	**390**
(10) Credit hours:	**12 h lectures** **7 h practical**

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1- Acquire knowledge and skills aiming for rational & cost effective drug use and therefore, clinical effectiveness at all times.

2- Understand basics of evidence based therapy, lifestyle drugs and sport medicine.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1- Detail latest guidelines in management of major cardiovascular diseases, including heart failure, ischemic heart disease, arrhythmia, shock , and thromboembolic states.

2- Discuss available drugs to manage neurological disorders, including epilepsy and neurodegenerative diseases.

3- Describe advances in therapeutic management of pain

4- Outline lines of treatment of common urinary diseases and erectile dysfunction.

5- Summarize lines for therapeutic management of diabetes mellitus.

6- Example the best antimicrobial options to treat bone, CNS, respiratory tract, GIT, genitourinary infectons, including infections in immunocompromised patients.

7- Recognize latest therapeutic options for treating common viral, parasitic and fungal infections.

8- Discuss the general lines of cancer management, focusing on new trends in pharmacotherapy of cancer breast, lymphoma and leukemia.

9- Recall major immunosuppresive drugs used in management of common autoimmune disorders.

10- Discuss how drugs can adversly affect liver, kidney and skin.

11- List general strategies for management of poisoned patients

12- Outline basics of evidence based therapy, lifestyle drugs and sport medicine.

B- Intellectual skills

- □□ Evaluate guidelines for management of common medical disorders and develop prescribing policies.
- □□ Anticipate drug induced liver, kidney and skin diseases
- □□ Explain causes of failure of medical therapy, including mechanisms of bacterial and cancer resistance.
4. Interpret electronic databases such as Medline, Embase and Cochrane
5. Critically evaluate relevant scientific literature.

C- Professional/practical skills

1- Apply latest clinical guidelines in case scenarios of common CVS, CNS, GIT, genitourinary and metabolic disorders.

2- Handle case scenarios of bone, CNS, respiratory, GIT, genitourinary infctions.

3- Construct a therapeutic plan for treatment of cancer breast, lymphoma and leukemia.

4- Prescribe appropriatly in different pathological (hepatic & renal patients) and physiological (pregnancy & breast feeding) conditions.

5- Manage case scenarios of drug toxicity and acid base disorders.

6- Design and conduct clinical trials of approved drugs on humans to detect toxicity, drug drug interaction & unapproved effects.

7- Improve drug safety, using Information Technology prescribing tools.

8- Respond appropriately with updated therapeutic alerts.

D- Communication & Transferable skills

1. Show willingness to act as a leader, mentor, educator and role model.
2. Work in partnership with patients and members of the wider healthcare team.
3. Respond appropriately to unprofessional behavior of others.
4. Maintain honesty and objectivity during appraisal and assessment.
5. Respond to evidence-based medicine, aiming for clinical effectiveness at all times.
6. Demonstrate effective lecture, presentation, and small group teaching sessions.
7. Ensure appropriate personal language and behavior.

(3) Course content:

(Clinical pharmacology Module 1)

(3+1)

Topics	Lectures	Seminars
New trends in pharmacotherapy of ischemic heart disease New trends in pharmacotherapy of heart failure	**1** **2**	**1**
New trends in pharmacotherapy of arrhythmia	**3**	**1**
New trends in pharmacotherapy of pulmonary hypertensio Pharmacotherapy of shock and cardiopulmonary arrest	**2** **1**	**1**
Management of pain	**3**	**1**
New trends in pharmacotherapy of epilepsy	**3**	**1**
New trends in pharmacotherapy of parkinsonism New trends in pharmacotherapy of Alzheimer	**2** **1**	**1**
New trends in pharmacotherapy of stroke	**3**	**1**
Pharmacotherapy of multiple sclerosis	**3**	**1**
Pharmacotherapy of acute renal failure Pharmacotherapy of chronic kidney disease	**1** **2**	**1**
New trends in pharmacotherapy of erectile dysfunction Pharmacotherapy of urinary incontinence	**2** **1**	**1**
New trends in pharmacotherapy of headache	**3**	**1**
Drug dosing in renal insufficiency	**3**	**1**
Pharmacotherapy of venous thromboembolism	**3**	**1**
Pharmacotherapy of pulmonary embolism	**3**	**1**
Pharmacotherapy of hyperlipidemia	**3**	**1**
Total teaching hours:	**45**	**15**
	60 hours	

(Clinical pharmacology Module 2)

(3+1)

Topics	lectures	Seminars
Metabolic syndrome Diabetes mellitus	**2** **1**	 **1**
Contraception	**3**	**1**
Respiratory tract infections GIT infections	**2** **1**	 **1**
Parasitic diseases	**3**	**1**
Osteomyelitis Meningitis Endocarditis	**1** **1** **1**	 **1**
Sexual transmitted infections	**3**	**1**
AIDS	**3**	**1**
Viral hepatitis	**3**	**1**
Superficial & invasive fungal infections	**3**	**1**
Medical & surgical antimicrobial prophylaxis	**3**	**1**
Infections in immunocompromised patients	**3**	**1**
General management of Cancer	**3**	**1**
Cancer breast	**3**	**1**
Lymphoma	**3**	**1**
Leukaemia	**3**	**1**
Total teaching hours:	**45**	**15**
	60 hours	

(Clinical pharmacology Module 3)

(3+1)

Topics	lectures	Seminars
Evidence based medicine	**3**	**1**
Regenerative medicine & stem cell medicine	**3**	**1**
Irritable bowel syndrome Inflammatory bowel disease	**1** **2**	**1**
Perscriping in hepatic patients Drug induced liver diseases	**2** **2**	**1**
Prescribing in renal patients	**2**	**1**
Acid base disorders	**3**	**1**
Management of poisoned patients	**2**	**1**
Alcohol toxicity	**3**	**1**
Rheumatoid arthritis and osteoarthritis	**3**	**1**
Systemic lupus	**3**	**1**
NASH and NAFLD Peptic ulcer and upper GIT bleeding	**2** **2**	**1**
Psoriasis and acne	**3**	**1**
Drug induced skin disease	**3**	**1**
Parenteral nutrition	**3**	**1**
Life style drugs &drugs in sport	**3**	**1**
Total teaching hours:	**45**	**15**
	60 hours	

Practical

Topics	Case scenario
Ischemic heart disease Heart failure Arrhythmia	**14**
Pulmonary hypertension Shock and cardiopulmonary arrest	**7**
Chronic pain and Headache Epilepsy Parkinsonism Alzheimer Cerebral stroke Multiple sclerosis	**21**
Acute and Chronic renal failure Drug dosing in renal insufficiency Urinary incontinence	**14**
Erectile dysfunction Venous thromboembolism Pulmonary embolism	**14**
Hyperlipidemia Metabolic syndrome Diabetes mellitus	**21**
Contraception	**7**
Respiratory tract infections GIT infections Parasitic diseases Osteomyelitis Meningitis	**28**

Endocarditis	
Sexual transmitted infections AIDS Viral hepatitis Superficial & invasive fungal infections Medical & surgical antimicrobial prophylaxis Infections in immunocompromised patients	**28**
Cancer breast Lymphoma Leukaemia	**14**
Peptic ulcer and upper GIT bleeding Irritable bowel syndrome Inflammatory bowel disease NASH and NAFLD	**14**
Management of poisoned patients Alcohol toxicity	**7**
Rheumatoid arthritis and osteoarthritis Systemic lupus Psoriasis and acne	**7**
Drug induced Renal disease Perscriping in hepatic patients Drug induced liver diseases Drug induced skin disease	**14**
Total teaching hours:	**210**

(4) Teaching methods:

4.1: Lectures including interactive online teaching

4.2: Seminars

4.3: Field training

(5) Assessment methods:

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

5.2: - **written exam** for assessment of knowledge & intellectual ILOs. 5.3 - 5.3:**Oral examinations** for assessment of knowledge, intellectual & communication ILOs

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

Assessment schedule:

المقرر	الاختبار	الدرجة			إجمالي
		تحريري	شفهي	عملي	
الفارماكولوجيا الاكلينيكية	إختبار تحريري مدته ثلاث ساعات + اختبار شفهي + اختبار عملي	نظري MCQ 80 / 20	50	50	200

(6) References of the course:

6.1: Text books:

Pharmacology and therapeutics (Goodman) [Last edition].
Pharmacotherapy (A pathophysiologic approach) seventh edition
Pharmacotherapy principles & practice (2nd 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.
- Internet with a wide range of learning support material.

Programme coordinators: **- Prof. Dr. Hussein El Beltagy.** **-Prof. Dr. Ali Gaballa** **- Prof. Dr. Mohamed-Hesham Daba.** **- Ass. Lecturer. Dr. Mohamed Aboelkheir.** **- Ass. Lecturer. Nehal Ramadan**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	Ph.D Postgraduate 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	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20/9/2020
(7) Course title:	Pharmacovigilance
(8) Course code:	CPHARM 606 PV
(9) Total teaching hours:	15
(10) Credit hours:	1

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1. Aquire knowledge that helps in detection, assessment, monitoring and prevention of important adverse reactions related to drug overdose and toxicity.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. List phases of drug development
2. Outline basics of therapeutic drug monitoring.
3. Recall commonly prescribed drugs with narrow therapeutic index, that should be monitored routinely.
4. Outline general methods of management of drug poisoning.
5. List specific antidotes of important drugs.
6. Define drug dependence with its physical and psychological aspects.

B- Intellectual skills

1. Interpret results of clinical trials, related to drug safety and adverse effects.
2. Illusterate the role of therapeutic drug monitoring in minimizing adverse reactions relatd to medications.
3. Anticipate cases of drug toxicity, and how to manage.
4. Predict possible drug dependence, and how to prevent.

(3) Course content:

Topics	Lectures	Laboratory
▪ **Drug discovery and develpment.**	**2**	**-**
▪ **Ethical consideration.**	**1**	**-**
▪ **Therapeutic drug monitoring (TDM)**	**2**	**-**
▪ **Drug involved in TDM**	**2**	**-**
▪ **Drug overdose/ poisoning**	**2**	**-**
▪ **Spesific antidotes and common poisonings**	**2**	**-**
▪ **Preventing adverse effects from occuring**	**2**	**-**
▪ **Pharmacological aspects of drug depedence.**	**2**	**-**
Total hours:	**15**	

(4) Teaching methods:

4.1. Lectures including interactive online teaching

(5) Assessment methods:

5.1. - **Written exam** for assessment of knowledge & intellectual ILOs.

5.2. **MCQ exam** at the end of the semester for assessment of knowledge & intellectual ILOs.

Assessment schedule:

المقرر	الاختبار	الدرجة	المجموع
الحذر الدوائ	اختبار تحريري	40	50
	اختبار MCQ	10	

References of the course:

(6) 6.1. Text books:

Pharmacology and therapeutics (Goodman) [Last edition].
Instant clinical pharmacology (Evan J. Begg)
Clinical pharmacology (Bennet et al) [11th 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.
- Computer laboratories with a wide range of software.
- Internet with a wide range of learning support material.

Programme coordinators: **- Prof. Dr. Hussein El Beltagy.** **-Prof. Dr. Ali Gaballa** **- Prof. Dr. Mohamed-Hesham Daba.** **-Lecturer Dr. Hossam Eldin Abdelmonem**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
Dean: Prof. Nesrene Salah Omar	Signature & date:
Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date:

COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	Ph.D Postgraduate 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	7/7/2020
(6) Date of last approval of programme specification by Faculty council	20/9/2020
(7) Course title:	Pharmaceutics & Gene therapy
(8) Course code:	CPHARM 606 PG
(9) Total teaching hours:	15
(10) Credit hours	1

(B) Professional information

(1) Course Aims:

The broad aims of the course are:

1- Acquire knowledge related to strategies, safety & efficacy of gene therapy in different diseases.

2- Understand challenges facing development of this new era of therapy.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

1. Discuss different methods, strategies of gene therapy.
2. Describe gene silencing techniques & their applications
3. Detail mechanisms of DNA repair.
4. Characterize contributions of gene sequencing to prescision medicine.
5. Outline current clinical applications of gene therapy.
6. Discuss cancer management using gene therapy, including Immuno-stimulatory gene therapy and oncolytic virotherapy.

B- Intellectual skills

1. Explain different obstacles facing development of gene therapy.
2. Apply gene sequencing, rt-PCR and gene silencing techniques in testing pharmacological effects of drugs.
3. Use known genetic defects related to common diseases for individualizing therapy.

□□ Predict disease amenable to be treated with gene suppression, addition & repair.

(3) Course content:

Topics	Lectures	Laboratory
Goals of Gene therapy		-
◦ **Tissue engineering.**	**2**	-
◦ **Antiproliferative gene therapy.**	**2**	-
◦ **Immunostimulatory therapy.**	**2**	-
Gene addition.		-
◦ **Genes as drugs.**	**2**	-
◦ **Pharmacokinetics and pharmacodynamics.**	**2**	-
Gene Suppression.	**1**	-
Gene Repair.	**1**	-
Oncolytic virotherapy.	**1**	-
Clinical status and prospects	**2**	-
Total teaching hours:	**15**	

(4) Teaching methods:

4.1: Lectures including interactive online teaching

(5) Assessment methods:

5.1: - **Written exam** for assessment of knowledge & intellectual ILOs.

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

Assessment schedule:

المقرر	الاختبار	الدرجة	المجموع
الادويه و العلاج الجيني	اختبار تحريري (مدته ساعة)	40	50
	اختبار MCQ	10	

(6) References of the course:

6.1: Text books:

Pharmacology and therapeutics (Goodman) [Last edition].
Pharmacology (Rang and Dale) [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.
- Computer laboratories with a wide range of software.
- Internet with a wide range of learning support material.

Programme coordinators: **– Prof. Dr. Hussein El Beltagy.** **–Prof. Dr. Ali Gaballa** **– Prof. Dr. Mohamed–Hesham Daba.** **–Lecturer Dr. Hossam Eldin Abdelmonem**	Signature & date:
Head of Department: Prof. Dr. Amal Hassanin	Signature & date.
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Executive director of the quality assurance unit: **Prof. Nesrene Mohamed Shalaby**	Signature & date: