Level 3

Semester (5)

Course Title	Course code
Pharmacology-I	PO 501
Clinical microbiology	PM 502
Pharmaceutical dosage forms-II	PT 505
Biochemistry-II	PB 502
Phytochemistry-II	PG 505
Pathophysiology	MD 507
Pharmacy Administration	PT 506

Semester (6)

Course Title	Course code
Medicinal Chemistry-I	PC 609
Pharmaceutical technology	PT 607
Community pharmacy practice	PT 608
Biopharmaceutics and pharmacokinetics	PT 609
Quality Control of Herbal Drugs	PG 606
Pathology	MD 608
Tromas and First Aid	MD 609

Course specification
2023/2024
Clinical Pharmacy Program
Faculty of Pharmacy
Mansoura University

Third Level

Course Specification Pharmacology 1

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacology & Toxicology
Course title: Pharmacology 1
Course code: PO 501

Program on which the course is given	**B. Pharm (Cerdit hours of Clinical Pharmacy Program)**
Academic Level	Level 3, First semester, 2023/2024
Date of course specification approval	18/9/2023

1. Basic Information: Course data:

Course title:	**Pharmacology 1**	**Code:** PO 501
Specialization:	**Medical sciences**	
Prerequisite:	**Physiology**	
Teaching Hours:	**Lecture: 2**	**Practical: 1**
Number of units: (credit hours)	**3**	

2. Course Aims:

2.1. Provide knowledge and understanding of the basic principles of pharmacology (pharmacokinetics and pharmacodynamics).

2.2. Introduce concepts of drug action at cell, tissue and system levels.

2.3. Provide fundamental pharmacological knowledge of the principles of drug action.

2.4. Provide comprehensive coverage of the major drug groups affecting different body systems; autonomic nervous system, respiratory system and autacoids

3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.4	1.1.4.1	List drugs' mechanism of action, therapeutic effects and evaluate their suitability, efficacy, and safety in individuals and populations

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Formulate pharmaceutical care plans for management of several disorders and drug-related problems with reference to their particulate health problems and special considerations.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Adjust a dosage routine for a patient based on the physiological, genetic, and immunological changes brought about by disease or concomitant drug use.
3.2.1	3.2.1.1	Monitor principles of pharmacological aspects of drugs, as mode of action, therapeutic uses, proper dosage, unwanted effects, and drug interactions.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Demonstrate decision-making activities with other pharmacy team members and non-pharmacy team members and apply effective time management skills.
4.2.1	4.2.1.1	Present clear language, pace, tone and non-verbal communication and writing skills when dealing with patients, other health team and communities.

4. Contents:

Week No	Topics	Lecture credit hours
1	Introduction	2

2	Pharmacokinetics (absorption & distribution)	2
3	Pharmacokinetics (metabolism & excretion)	2
4	Pharmacodynamics (Dose-response curve)	2
5	Pharmacodynamics (Drug-Receptor Interactions)	2
6	Pharmacodynamics (types of drugs)	2
7	Pharmacology of Autonomic nervous system (part 1)	2
8	Pharmacology of Autonomic nervous system (part 2)	2
9	Pharmacology of respiratory tract (part 1)	2
10	Pharmacology of respiratory tract (part 2)	2
11	Pharmacology of Autaciods	2
12	Principles of drug interaction (Pharmacodynamics interaction)	2
13	Principles of drug interaction (Pharmacokinetics interaction) (self learning)	2
14	**Revision and quiz**	2
15	**Final written and oral exam**	
	Practical topics	
Week No	**Topics**	**Practical credit hour**
1	Searching Internet	1
2	Handling of Experimental animals	1
3	Routes of drug administration	1
4	Drug metabolism	1
5	Techniques used in experimental research in pharmacology	1
6	Pharmacology of autonomic drugs affecting the eye	1
7	Clinical cases on glaucoma	1
8	**Mid-term Exam**	1
9	Pharmacology of autonomic drugs affecting the GIT	1
10	Effect of Autonomic drugs on Rat Cardiovascular System (Heart rate and Blood pressure)	1
11	Investigation of effect of histamine on Rat Cardiovascular System (Heart rate and Blood pressure)	1
12	Anaphylactic shock	1
13	Peptic ulcer	1

14	Practical exam	1

5. Teaching and learning Methods:

5.1	Computer aided learning: a. On line learning through My mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans c. Lectures using Data show, PowerPoint presentations
5.2	Self-learning
5.3	Collaborative learning: research project
5.4	Practical

6. Student Assessment:

a- Assessment methods

1. Mid Term exam	1.1.4.1, 2.4.3.1, 3.1.1.1, 3.2.1.1
2. Practical exam	1.1.4.1, 2.4.3.1, 3.1.1.1, 3.2.1.1, 4.1.1.1, 4.2.1.1
3. Oral	1.1.4.1, 2.4.3.1, 3.1.1.1, 3.2.1.1, 4.1.1.1, 4.2.1.1
4. Final Written exam	1.1.4.1, 2.4.3.1, 3.1.1.1, 3.2.1.1

b- Assessment schedule

Assessment 1	Practical	14th week
Assessment 2	Mid-term	8th week
Assessment 3	Oral	15th week
Assessment 4	Written	15th week

c- Weighting of assessments

1.	Mid-term examination	10 %
2.	Final-term examination	50 %
3.	Oral examination	15 %
4.	Practical examination and Semester work	25 %
Total		100 %

7. List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes

2.	Recorded videos prepared by stuff members	**Videos on platform**
3.	Katzung, B. G., Kruidering-Hall, M., & Trevor, A. J. (2021). Katzung & Trevor's pharmacology: Examination & board review (13th edition).	**Book**
4.	Brunton L.,Chabner B. A.,Bjorn Knollman B.A. (2021):Goodman and Gilman's the pharmacological basis of therapeutics (14 th edition).	**Book**
5.	https://www.ncbi.nlm.nih.gov/books/NBK482426/ https://www.ekb.eg	**websites**

8. Matrix of Course content and key element

Week No.	Course contents / K. elements	Domain : 1	Domain 2	Domain: 3		Domain: 4	
		1.14.1	2.4.3.1	3.1.1.1	3.2.1.1	4.1.1.1	4.2.1.1
1	Introduction	√	√	√	√ √		
2	Pharmacokinetics (absorption & distribution)	√	√	√	√		
3	Pharmacokinetics (metabolism & excretion)	√	√	√	√		
4	Pharmacodynamics (Dose-response curve)	√	√	√	√		
5	Pharmacodynamics (Drug-Receptor Interactions)	√	√	√	√	√	√
6	Pharmacodynamics (types of drugs)	√	√	√	√	√	√
7	Pharmacology of Autonomic nervous system (part 1)	√	√	√	√	√	√
8	Pharmacology of Autonomic nervous system (part 2)	√	√	√	√	√	√

9	Pharmacology of respiratory tract (part 1)	√			√		√		√		√	√
10	Pharmacology of respiratory tract (part 2)	√			√		√		√		√	√
11	Pharmacology of Autaciods	√			√		√		√		√	√
12	Principles of drug interaction (Pharmacodynamics interaction)	√			√		√		√		√	√
13	Principles of drug interaction (Pharmacokinetics interaction)	√			√		√		√		√	√
14	**Revision and quiz**	√			√		√		√		√	√

Practical part

Week No.	**Course contents / K. elements**	**Domain : 1**		**Domain 2**		**Domain: 3**				**Domain: 4**	
		1.14.1		2.4.3.1		3.1.1.1		3.2.1.1		4.1.1.1	4.2.1.1
1	Searching Internet	√		√		√		√ √			
2	Handling of Experimental animals	√		√		√		√			
3	Routes of drug administration	√		√		√		√			
4	Drug metabolism	√		√		√		√			
5	Techniques used in experimental research in pharmacology	√		√		√		√		√	√
6	Pharmacology of autonomic drugs affecting the eye	√		√		√		√		√	√

7	Clinical cases on glaucoma	√			√		√		√		√	√
9	Pharmacology of autonomic drugs affecting the GIT	√			√		√		√		√	√
10	Effect of Autonomic drugs on Rat Cardiovascular System (Heart rate and Blood pressure)	√			√		√		√		√	√
11	Investigation of effect of histamine on Rat Cardiovascular System (Heart rate and Blood pressure)	√			√		√		√		√	√
12	Anaphylactic shock	√			√		√		√		√	√
13	Peptic ulcer	√			√		√		√		√	√
14	**Practical exam**											

Course Coordinator:	**Prof. Dr. Manar A Nader**
Head of Department:	**Prof. Dr. Manar A Nader**

Date: 18/9/2023

Third level

Course specification of Clinical Microbiology

University: Mansoura
Faculty : Pharmacy
Department : Microbiology and Immunology
Course title: Clinical Microbiology
Course code: PM 502

Program on which the course is given	B. Pharm (Clinical Pharmacy)
Academic Level	Level Three , First semester, 2023-2024
Date of course specification approval	10/9/2023

A-Basic Information : Course data :

Course title:	Clinical Microbiology	**Code:** PM 502	
Specialization:	Medical		
Prerequisite:			
Teaching credit hours:	**Lecture:** 2	**Practical:**1	
Total number of units: (credit hours)	3		

B- Professional Information

1- Course Aims:

On completion of the course, the student will be able to describe the common microbial pathogens and the mechanisms of pathogenesis, describe the clinical manifestation of disease and diagnose disease based on clinical laboratory data, describe the method of transmission of infectious diseases and control measures and discuss the treatment of disease.

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	List the most common bacteria and fungi of medical importance.
1.1.2	**1.1.2.1**	Define terms related to medical microbiology.
1.1.5	**1.1.5.1**	Describe and discuss the common infectious diseases caused by bacteria and fungi as pathogenesis, clinical pictures, complications.
1.1.6	**1.1.6.1**	Outline principle of treatment and prevention and control of common bacterial and fungal diseases.
1.1.7	**1.1.7.1**	Recognize the scientific basis of the conventional and up-to-date diagnostic procedures needed to carry out accurate diagnosis of bacterial and fungal and

		immunological diseases with emphasis on their prioritization in management plans.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Integrate the most important signs and symptoms of important bacterial and fungal diseases and the laboratory test findings into a meaningful diagnostic significance (using case study)
	2.4.3.2	Express systemic thinking and personal judgment for differential diagnosis with prioritization of the common possibilities for each bacterial and fungal diseases
	2.4.3.3	Express systemic thinking and personal judgment for differential diagnosis of the immunological diseases and disorders.

Domain 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.1.3	3.1.3.1	Record the growth on different media and perform laboratory tests for identification of the causative agents of infectious diseases
3.1.4	3.1.4.1	Record the common diseases caused by bacteria and fungi of medical interest as regards etiology, pathogenesis, clinical features and methods of combat.
	3.1.4.2	Outline the characters, laboratory diagnosis and treatment of immunological diseases and disorders.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Share decision-making activities with other team members and apply effective time management skills.
4.2.1	4.2.1.1	Use clear language and communication when dealing with patients and other health team and communities

3- Contents:-

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Pathogenesis of bacterial infection and virulence factors	2	
2	Staphylococci	2	
3	Streptococci	2	
4	Gram-positive aerobic rods	2	

5	Gram-positive anaerobic rods	2	
6	Gram-negative cocci (Nisseria) Fasidious bacteria (Brucella, Bordetella, Hemophilus),	2	
7	Gram-negative rods (Enterobacteriaceae family	2	
8	Other Gram negative rods: *Helicobacter sp., Vibrio sp., Pseudomonas sp., legionella*	2	
9	Lacking cellwall: Mycoplasma Obligate intracellular: Rickettsia, Chlamydia, coxiella	2	
10	Rigid cell wall (Mycobacterium) Spirochetes	2	
11	Fungal infections	2	
12	Viral infections: DNA viral diseases	2	
13	Viral infections: RNA viral diseases	2	
14	Revision and quiz	2	
15	**Final written & oral exams**	-	
Week No	**Practical Topics**	**Lecture credit hours**	**Practical credit hours**
1	Introduction, Differential media		1
2	Staphylococci identification		1
3	Streptococci identification		1
4	*Bacillus cereus* identification		1
5	*E. coli* identification		1
6	Klebsiella identification		1
7	Proteus identification		1
8	**Mid-term Exam**		
9	*Pseudomonas* identification		1
10	Shigella and Salmonella identification		1
11	Fungi identification		1
12	Viral infections identification		1
13	Revision		1
14	**Practical exam**		-

4- Teaching and learning Methods:

Teaching and learning method	
5.1	**Computer aided learning:** **a. Lectures using Data show, power Point presentations** **b. Distance learning** • **On line learning through my mans "Mansoura university "as recorded – video lectures** **Inter active discussion through My Mans**
5.2	**Class Activity: Group discussion offline and online.**
5.3	**Practical session using laboratory equipment (Microscopes and glass wares)**
5.4	**Research assignments**
5.5	**Case study**
5.6	**Self-learning**

5- Student Assessment:

a- Assessment methods:

1- Periodical (Mid-term exam)	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.3.1), (2.4.3.2), (2.4.3.3), (3.1.4.1), (3.1.4.2),(4.2.1.1)
2-Practical exam	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.3.1), (2.4.3.2), (2.4.3.3), (3.1.4.1), (3.1.4.2),(4.2.1.1)
3-Written exam	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.3.1), (2.4.3.2), (2.4.3.3), (3.1.4.1), (3.1.4.2)
4-Oral	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.3.1), (2.4.3.2), (2.4.3.3), (3.1.4.1), (3.1.4.2), ,(4.2.1.1)

b- Assessment schedule

Assessment 1	Mid-term	8th week
Assessment 2	Practical	14th week
Assessment 3	Written	15th week
Assessment 3	Oral	15th week

c- Weighting of assessments

1	**Mid-term examination**	**10 %**
2	**Final-term examination**	**50 %**
3	**Oral examination**	**15 %**
4	**Practical examination & Semester work**	**25 %**
Total		**100%**

6- Matrix of course content versus course K. element

Week No.	Course contents / K. elements		Domain : 1					Domain 2				Domain 3				Domain: 4	
		1.1.1.1	1.1.2.1	1.1.5.1	1.1.6.1	1.1.7.1		2.4.3.1	2.4.3.2	2.4.3.3		3.1.3.1	3.1.4.1	3.1.4.2		4.1.1.1	4.1.2.1
1	Pathogenesis of bacterial infection and virulence factors	√	√														√
2	Staphylococci			√	√	√		√	√			√	√			√	√
3	Streptococci			√	√	√		√	√			√	√			√	√
4	Gram-positive aerobic rods			√	√	√		√	√			√	√			√	√
5	Gram-positive anaerobic rods			√	√	√		√	√			√	√			√	√
6	Gram-negative cocci (Nisseria) Fasidious bacteria (Brucella, Bordetella, Hemophilus),			√	√	√		√				√	√			√	√
7	Gram-negative rods (Enterobacteriaceae family			√	√	√		√				√	√			√	√
8	Other Gram negative rods: *Helicobacter sp., Vibrio sp., Pseudomonas sp., legionella*			√	√	√		√	√			√	√			√	√
9	Lacking cellwall: Mycoplasma Obligate intracellular: Rickettsia, Chlamydia, coxiella			√	√	√		√				√	√			√	√
10	Rigid cell wall (Mycobacterium)					√				√		√	√	√		√	√

	Spirochetes																
11	Fungal infections			√	√	√		√				√	√			√	√
12	Viral infections: DNA viral diseases			√	√	√		√				√	√			√	√
	Viral infections: RNA viral diseases			√	√	√		√				√	√			√	√
13	Revision and quiz	√	√	√	√	√		√	√	√		√	√	√		√	√
	Practical topics																
1	Introduction, Differential media	√	√	√													
2	Staphylococci identification			√	√	√		√	√	√		√	√	√		√	√
3	Streptococci identification			√	√	√		√	√	√		√	√	√		√	√
4	*Bacillus cereus* identification			√	√	√		√	√	√		√	√	√		√	√
5	*E. coli* identification			√	√	√		√	√	√		√	√	√		√	√
6	Klebsiella identification			√	√	√		√	√	√		√	√	√		√	√
7	Proteus identification			√	√	√		√	√	√		√	√	√		√	√
9	*Pseudomonas* identification			√	√	√		√	√	√		√	√	√		√	√
10	Shigella and Salmonella identification			√	√	√		√	√	√		√	√	√		√	√
11	Fungi identification			√	√	√		√	√	√		√	√	√		√	√
12	Viral infections identification			√	√	√		√	√	√		√	√	√		√	√
13	Revision	√	√	√		√	√	√		√	√	√		√	√	√	√

7- List of References

No.	Reference	type
1	Salyers, A. A., Whitt, D. D., & Whitt, D. D. (2011). Bacterial pathogenesis: a molecular approach . Washington, DC: ASM press.	Book
2	Brooks, G.F.; Carroll, K. C.; Butel, J.S.; Morse, S. A. (2007): Jawetz, Melnick and Adelberg's Medical Microbiology. 24th ed. McGraw-Hill.	Book
3	Levinson, W. (2014). Review of medical microbiology and immunology. , 9th edition. McGraw-Hill Education.	Book
4	Surinder Kumar (2016): Essentials of Microbiology. First Edition. Jaypee Brothers Medical Publishers	eBook
5.	Levinson, W. (2014). Review of Medical microbiology & immunology Thirteenth Edition	eBook
6.	Sherris & Ryan,s (2022): Medical microbiology. Eighteenth edotion, McGraw Hill	eBook
7.	http://www.sciencedirect.com / http://www.google.com / http://www.pubmed.com Centers for Disease Control and Prevention. https://0810fd8j4-1104-y-https-www-clinicalkey-com.mplbci.ekb.eg/#!/content/3-s2.0-B9780323673204000523 https://0810ed95d-1104-y-https-onlinelibrary-wiley-com.mplbci.ekb.eg/doi/chapterepub/10.1002/9781119998648.ch15 https://0810fd8jd-1104-y-https-www-clinicalkey-com.mplbci.ekb.eg/service/content/pdf/watermarked/3-s2.0-B9780323930383002318.pdf?locale=en_US&searchIndex= https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4600970/	Websites

Course Coordinator	**Prof. Dr. Rasha Barwa**
	
Head of department	**Prof. Dr. EL-Sayed E. Habib**
	

Date: 10/9/2023

Third Level

Pharmaceutical dosage forms 2
Course Specifications

University: Mansoura
Faculty: Pharmacy
Department: Pharmaceutics
Course title: Pharmaceutical dosage forms 2

Program on which the course is given	B. Pharm (Clinical Pharmacy), Credit hours
Academic Level	Level three, first term, 2023-2024
Date of course specification approval	20/9/2023

1- Basic Information: Course data:

Course title:	Pharmaceutical dosage forms 2	**Code:**	PT 505
Specialization:	Pharmaceutical sciences		
Prerequisite: Physical Pharmacy			
Teaching Hours:	**Lecture:** 2	**Practical:**	1
Number of units: (Credit hours)	3		

2- Course Aims:

On completion of the course, the student will be able to recognize of the bases of pharmaceutical calculations, formulation, compounding, preservation, and storage of different dosage forms, enumerate the different properties and classification of semisolid preparations, gain ability to prepare drugs in different dosage forms as rectal and topical preparations and know the different types of pharmaceutical excipients and their uses.

3- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	List the basic principles of diffusion through the skin and transdermal drug delivery systems.

1.1.3	**1.1.3.1**	Interpret the different semisolid dosage forms as; creams, ointment, gels and pasts.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.2.4	**2.2.4.1**	Specify basic requirements fort and transdermal drug delivery systems.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	**4.1.2.1**	Share decision-making activities with other team members and apply effective time management skills.
4.3.2	**4.3.2.1**	Practice self-learning to improve professional skills

4- Course Contents:

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Semisolid preparations: Definition, classification, methods,	2	
2	Semisolid preparations: evaluation and uses	2	
3	Transdermal and topical drugs: Structure, function & Topical Treatment of skin. Properties that influence percutaneous absorption, methods for studying percutaneous absorption, formulation of dermatological vehicles, liniments, lotions, clinical patches.	2	
4	Transdermal and topical drugs: Cosmetic criteria for dermatological formulations.	2	
5	Suppositories: Definition, Anatomy and physiology of the rectum.	2	
6	Suppositories: absorption of drugs from the rectum	2	

7	Suppositories: Formulation, Manufacture and Quality control.	2	
8	Parenteral preparations: Definition, routes of administration, solvents & vehicles, added substances, preparation, sterilization, packaging, labeling, and storage. **(Mid-term Exam)**	2	
9	Parenteral preparations : quality control.	2	
10	Pharmaceutical aerosols (manufacture) & **Self-learning**	2	
11	Ophthalmic preparations: Definition, sterilization, and bactericides	2	
12	Ophthalmic preparations: physical properties, concentration, tonicity, and Viscosity	2	
13	Ophthalmic preparations: different types of ophthalmic preparation (eye drops, ointment and ocusert)	2	
14	Revision	2	
15-16	Written & Oral Exam		
Week No	**Practical Topics**	**Lecture credit hours**	**Practical credit hours**
1	Ointments		1
2	Sulfur Ointment		1
3	Creams		1
4	Cold Cream		1
5	Vanishing Cream		1
6	Cleansing Cream		1
7	Toothpaste		1
8	**Mid-term Exam**		
9	Plain Fatty suppositories		1
10	Medicated Fatty suppositories		1
11	Plain Water soluble suppositories		1
12	Medicated Water soluble suppositories		1
13	Revision		1
14	**Practical Exam**		

5- Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning ● Online learning through my mans "Mansoura university "as recorded – video lectures ● Inter active discussion through My Mans
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.5	Problem – based learning and brainstorming

6- Student Assessment:

a. Assessment methods

1-Written exam	1.1.1.1/ 1.1.3.1/ 2.2.4.1
2-Practical exam	1.1.1.1/2.2.4.1/ 4.1.2.1/ 4.3.2.1
3-Oral	1.1.1.1/ 2.2.4.1/ 4.1.2.1/ 4.3.2.1
4-Midterm exam	1.1.1.1/ 1.1.3.1

b. Assessment schedule

Assessment 1	Mid-term	8th week
Assessment 2	Practical	14th week
Assessment 3	Written	15th-16th week
Assessment 3	Oral	15th-16th week

c. Weighting of assessments

1.	Mid-term examination	10 %
2.	Final-term examination	50 %
3.	Oral examination	15 %
4.	Practical examination and Semester work	25 %
Total		100 %

7. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes				
		Domain 1		Domain 2		Domain 4

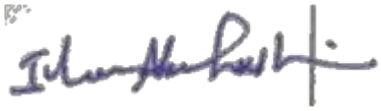
		1.1.1.1	1.1.3.1		2.2.4.1		4.1.2.1	4.3.2.1
	A) Theoretical part							
1	Semisolid preparations: Definition, classification, methods,	□	□		□		□	□
2	Semisolid preparations: evaluation and uses	□	□		□		□	□
3	Transdermal and topical drugs: Structure, function & Topical Treatment of skin. Properties that influence percutaneous absorption, methods for studying percutaneous absorption, formulation of dermatological vehicles, liniments, lotions, clinical patches.	□			□		□	□
4	Transdermal and topical drugs: Cosmetic criteria for dermatological formulations.	□			□		□	□
5	Suppositories: Definition, Anatomy and physiology of the rectum.	□			□		□	□
6	Suppositories: absorption of drugs from the rectum	□			□		□	□
7	Suppositories: Formulation, Manufacture and Quality control.	□			□		□	□
8	Parenteral preparations: Definition, routes of administration, solvents & vehicles, added substances, preparation, sterilization, packaging, labeling, and storage. **(Mid-term Exam)**		□		□		□	□
9	Parenteral preparations : quality control.		□		□		□	□
10	Pharmaceutical aerosols (manufacture) & **Self-learning**	□					□	□
11	Ophthalmic preparations: Definition, sterilization, and bactericides		□		□		□	□

12	Ophthalmic preparations: physical properties, concentration, tonicity, and Viscosity		□		□	□	□
13	Ophthalmic preparations: different types of ophthalmic preparation (eye drops, ointment and ocusert)		□		□	□	□
14	Revision		□		□	□	□
	B) Practical part						
1	Ointments	□			□	□	□
2	Sulfur Ointment	□			□	□	□
3	Creams	□			□	□	□
4	Cold Cream	□			□	□	□
5	Vanishing Cream	□			□	□	□
6	Cleansing Cream	□			□	□	□
7	Toothpaste	□			□	□	□
8	**Mid-term Exam**						
9	Plain Fatty suppositories				□	□	□
10	Medicated Fatty suppositories				□	□	□
11	Plain Water soluble suppositories				□	□	□
12	Medicated Water soluble suppositories	□			□	□	□
13	Revision	□			□	□	□

8. List of References

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**

3.	"Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems" 10th Ed., Wolters Kluwer, Loyd Allen, Howard C. Ansel, Lippincott Williams and Wilkins, Philadelphia, (2013).	**Book**
4.	"Remington's: The science and practice of pharmacy" 23rd Ed., Pharmaceutical Press, Lippincott Williams and Wilkins, Philadelphia, (2020).	**Book**
5.	"Aulton's Pharmaceutics: The design and manufacture of medicines" 4th Ed., Michael E.Aulton, Kevin M.G. Taylor, (2013).	**Book**
6.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	**websites**

Course Coordinator	**Prof Dr/ Osama Abd-El Azeem Soliman**
	
Head of Department	**Prof. Dr. Irhan Ibrahim Abu Hashim**
	

Date: 20/9/2023

Mansoura University
Faculty of Pharmacy
Clinical Pharmacy Program

Course specification
2023- 2024

Second Level **Course Specification Biochemistry-II**

University:	Mansoura University (MU)
Faculty:	Pharmacy
Department:	Biochemistry
Course title:	Biochemistry-II
Course code:	PB 502

Program on which the course is given	B. Pharm (Clinical Pharmacy), Credit hours)
Academic Level	Level 2, second semester, 2023-2024
Date of course specification approval	16/9/2023

1. Basic Information: Course data:

Course title:	Biochemistry II	**Code:** PB 502
Specialization:	Clinical Pharmacy	
Prerequisite:	**Biochemistry 1**	
Teaching Hours:	**Lecture: 2**	**Practical: 1**
Number of units: (credit hours)	**3 hours**	

2. Course Aims:

1. **To provide comprehensive coverage of major metabolic pathways that take place in the human body and the consequences of any defect in their action.**
2. **To learn the interrelationship between carbohydrates, lipid, and protein metabolism.**
3. **To study the chemical structure and metabolism of purines.**
4. **To equip students with skills those are both of value to future employment in some areas of biology.**

2. **Course k. elements:**

Upon completing the course, the student will be able to dominate the following key elements

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
(1.1.1)	**(1.1.1.1)**	Recall in-depth and breadth knowledge of biochemical and clinical sciences.
(1.1.2)	**(1.1.2.1)**	Recognize appropriate pharmaceutical and medical terminology, abbreviations, and symbols in pharmacy practice.
(1.1.3)	**(1.1.3.1)**	Illustrate the principles of fundamental sciences to handle and identify synthetic/natural pharmaceutical raw materials.
(1.1.5)	**(1.1.5.1)**	Identify and apply the principles, practice, and critical understanding of fundamental sciences to solve problems related to human health and

		health systems.
(1.1.6)	**(1.1.6.1)**	Describe relevant scientific literature and other scientific resources to make evidence-informed professional decisions.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
(2.2.1)	**(2.2.1.1)**	Identify biological macromolecules and, pharmaceutical materials from different origins.
(2.3.1)	**(2.3.1.1)**	Select, and apply appropriate methods and procedures and resources for handling and disposal of synthetic/natural materials and biological items used in pharmacy.
(2.3.2)	**(2.3.2.1)**	Conduct best practices and adhere to high ethical, legal and safety standards for management of biological and pharmaceutical materials/products.

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
(3.1.1)	**(3.1.1.1)**	Identify different cell types and cell components and physiological, genetic, biochemical, metabolic, and immunological changes brought about by disease or concomitant drug therapy.
(3.1.4)	**(3.1.4.1)**	Illustrate the characters, epidemiology, pathogenesis, and clinical features of infections/diseases and cancers and their treatment, prevention, and

		nutritional care.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
(4.1.1)	**(4.1.1.1)**	Share decision-making activities with other with other pharmacy team members and non-pharmacy team members and apply effective time management skills.
(4.1.2)	**(4.1.2.1)**	Collect information and analyze data, identify problems, and present solutions, participate independently and collaboratively with other team members in the healthcare system.
(4.2.1)	**(4.2.1.1)**	Use clear language, pace, tone, and non-verbal communication and writing skills when dealing with patients, other health team and communities.
(4.2.2)	**(4.2.2.1)**	Utilize advanced technologies and channels whenever possible to present relevant information.
(4.3.1)	**(4.3.1.1)**	Conduct self-evaluation strategies to manage and improve professional of pharmacy.
(4.3.2)	**(4.3.2.1)**	Promote continuous professional development by practicing self and independent learning.

Mansoura University
Faculty of Pharmacy
Clinical Pharmacy Program

Course specification
2023- 2024

1. Course Contents:

Week No	Topics	Lecture credit hours
1	Introduction to the course and metabolism	2
2	Digestion and absorption of carbohydrates.	2
3	Glycolysis and its regulations	2
4	Krebs, HMP, Uronic acid pathways. Glycogen metabolism.	2
5	Monosaccharides interconversion -Gluconeogenesis. Blood glucose.	2
6	Purine metabolism and class activity	2
7	Digestion and absorption of lipids. Neutral lipid metabolism and B-oxidation.	2
8	Fatty acid synthesis.	2
9	Ketogenesis and ketolysis	
10	Phospholipids and Cholesterol. Protein digestion and absorption.	2
11	General protein metabolism.	2
12	Amino acid metabolism part 1	2
13	Amino acid metabolism part 2	2
14	Interrelationship of carbohydrate, lipid and protein metabolism	2
15	**Practical exam**	
16	**Final written & oral**	
Week No	**Practical Topics**	**Practical credit hours**
1	Lab safety and how to use glassware and instruments	1
2	Chemical analysis for biological fluids (urine analysis).	1
3	Urine analysis report : part 1	1
4	Urine analysis report : part 2	1
5	Infection control principles	1
6	Determination of glucose in urine and serum	1
7	Determination of Liver function (plasma protein assessment).	1

8	**Mid-term Exam**	
9	Determination of Liver function (Albumin assessment).	1
10	Determination of Kidney function, creatinine in serum.	1
11	Determination of uric acid in serum.	1
12	Determination of urea in serum.	1
13	Lipid profile assay Seminars.	1
14	Revision.	1
15	**Practical Exam**	

2. Teaching and learning Methods:

5.1	**Computer aided learning:** **a. Online learning through My mans "Mansoura university "as recorded – video lectures** **b. Inter active discussion through My Mans** **c. Lectures using Data show, PowerPoint presentations**
5.2	**Self-learning**
5.3	**Practical sessions using Laboratory equipment, white board, and Data show**
5.4	**Computer aided learning: Group discussion**
5.5	**Problem solving- based learning and Brain storming**
5.6	**Class Activity Discussion**

3. Student Assessment:

a- Assessment methods

Periodical exam	**1.1.1.1, 1.1.2.1, , 2.2.1.1, 2.3.1.1, 4.1.1.1**
Practical exam	**1.1.1.1, 1.1.2.1, 2.2.1.1, 2.3.1.1, 2.3.2.1, 3.1.1.1, 3.1.4.1**
Final Written exam	**1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.5.1,1.1.6.1**
Oral exam	**1.1.1.1, 1.1.2.1, 1.1.3.1, 4.1.1.1, 4.1.2.1,4.2.1.1, 4.2.2.1, 4.3.1.1, 4.3.2.1**

b- Assessment schedule

Assessment 1	**Practical**	**15th week**
Assessment 2	**Periodical**	**8th week**
Assessment 3	**Oral**	**16th week**
Assessment 4	**Written**	**16thweek**

c- Weighting of assessments

1.	**Mid-term examination**	**10 %**
2.	**Final-term examination**	**50 %**
3.	**Oral examination**	**15 %**
4.	**Practical examination and Semester work**	**25 %**
Total		**100 %**

4. Matrix of course content versus course key elements:

Study Week	**Course contents**	**Domains / Key elements Outcomes**																
		Domain 1					**Domain 2**			**Domain 3**			**Domain 4**					
		1.1.1.1	**1.1.2.1**	**1.1.3.1**	**1.1.5.1**	**1.1.6.1**	**2.2.1.1**	**2.3.1.1**	**2.3.2.1**	**3.1.1.1**	**3.1.4.1**		**4.1.1.1**	**4.1.2.1**	**4.2.1.1**	**4.2.2.1**	**4.3.1.1**	**4.3.2.1**
	A) Theoretical part																	
1	Introduction to the course and metabolism	✔	✔	✔			✔			✔			✔		✔		✔	
2	Digestion and absorpt	✔		✔			✔			✔			✔	✔	✔	✔	✔	

	ion of carbohydrates.																
3	Glycolysis and its regulations	✔	✔	✔			✔			✔				✔	✔	✔	✔	
4	Krebs, HMP, Uronic acid pathways. Glycogen metabolism.	✔	✔	✔		✔	✔			✔					✔		✔	✔
5	Monosaccharides interconversion - Gluconeogenesis. Blood glucose	✔		✔	✔	✔	✔			✔			✔			✔		✔
6	Purine metabolism and class activity	✔	✔	✔	✔		✔			✔				✔	✔		✔	
7	Digestion and	✔		✔	✔		✔			✔				✔		✔		✔

	absorption of lipids, Neutral lipid metabolism and B-oxidation																
8	Fatty acid synthesis	✔		✔	✔		✔			✔	✔				✔		✔
9	Ketogenesis and ketolysis	✔		✔	✔		✔			✔	✔			✔	✔	✔	✔	
10	Phospholipids and Cholesterol. Protein digestion and absorption.	✔	✔	✔		✔	✔			✔	✔				✔	✔		
11	General protein metabolism.	✔		✔			✔			✔					✔			
12	Amino acid metabolism	✔	✔			✔		✔		✔			✔		✔			

	part 1																
13	Amino acid metabolism part 2	✔	✔			✔		✔		✔			✔		✔		✔	
14	Interrelationship of carbohydrate, lipid and protein metabolism	✔		✔		✔				✔			✔	✔		✔		
B) Practical part																		
1	Lab safety and how to use glassware and instruments	✔	✔	✔			✔	✔		✔			✔	✔	✔	✔	✔	✔
2	Chemical analysis for biological fluids (urine analysis).	✔		✔	✔		✔	✔		✔			✔	✔		✔	✔	✔
3	Urine analysis	✔		✔			✔	✔		✔			✔	✔		✔	✔	✔

	report : part 1																	
4	Urine analysis report : part 2	✔		✔	✔		✔	✔		✔			✔			✔		✔
5	Infection control principles	✔	✔	✔	✔		✔	✔		✔			✔		✔	✔		✔
6	Determination of glucose in urine and serum	✔		✔			✔	✔	✔	✔			✔		✔	✔	✔	✔
7	Determination of Liver function (plasma protein assessment).	✔		✔	✔		✔	✔	✔	✔			✔			✔		✔
9	Determination of Liver function (Albumin assessment).	✔		✔	✔		✔	✔	✔	✔			✔			✔		✔

10	Determination of Kidney function, creatinine in serum.	✔	✔	✔			✔	✔	✔	✔			✔	✔	✔	✔	✔	✔
11	Determination of uric acid in serum.	✔		✔	✔		✔	✔	✔	✔			✔	✔	✔	✔	✔	✔
12	Determination of urea in serum.	✔	✔		✔		✔	✔		✔				✔		✔	✔	
13	Lipid profile assay Seminars.	✔	✔		✔	✔		✔		✔			✔		✔	✔		
14	Revision.	✔	✔	✔		✔		✔	✔	✔			✔	✔	✔		✔	

5. List of References:

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by staff members	**Videos on platform**

3.	Ferrier, D. R., & Harvey, R. A. Lippincott Illustrated Reviews Series: Biochemistry. Philadelphia: Wolters Kluwer Health. Sixth, North American Edition edition-2020	**Essential Book**
4.	Geetha Damodaran K.Practical Biochemistry.2nd edition-2016.	**Essential Book**
5.	https://www.futurelearn.com/courses/biochemistry	**websites**

Course Coordinator:	To be nominated
Acting Head of Department:	Dr. Noha Mansour Hassan

Date: 16/9/2023

Level-3
Clinical Pharmacy Students
(Credit Hour System)

Phytochemistry-2

University: Mansoura
Faculty : Pharmacy
Department : Pharmacognosy
Course title: Phytochemistry-II

Program on which the course is given	B. Pharm (Clinical Pharmacy), Credit hours
Academic Level	Level 3 – first semester 2023-2024
Date of course specification approval	6/9/2023

1. Basic Information : Course data :

Course title:	Phytochemistry-2	**Code:**	PG 505
Specialization:	Clinical Pharmacy (Pharmaceutical science)		
Prerequisite: Phytochemistry-1			
Teaching Hours:	**Lecture:** 2	**Practical:**	1
Number of units: (credit hours)	3		

2. Course Aims:

Phytochemistry-2 course aims to:

1. Classify the basic structure of naturally occurring alkaloids, glycosides, natural hallucinogenic and anticancer drugs.
2. Understand the different methods of isolation and characterization of alkaloids and glycosides of medicinal value as well as natural hallucinogenic and anticancer drugs.
3. Gain knowledge about the chemistry of natural hallucinogenic and anticancer drugs and their mechanism of action.

3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	List the different classes of alkaloids, tannins and antioxidants with emphasis on those having pharmaceutical applications.
1.1.3	1.1.3.1	Identify the main sources for alkaloids, tannins and antioxidants having pharmaceutical importance and their physical and chemical characters.
	1.1.3.2	Understand principles of different chromatographic methods used for isolation and / or analysis of the previous plant active constituents.
1.1.4	1.1.4.1	Recognize pharmacological effects, medicinal uses as well as structure activity relationships (SAR) of these natural products derived compounds and their pharmacophoric features.
	1.1.4.2	Be aware with anti-cancer agents, drugs affecting CNS, drugs ameliorating liver diseases and anti-inflammatory agents having valuable use in Egypt and worldwide markets.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Manipulate the suitable methods for alkaloids, tannins, antioxidants, anti-cancer agents, drugs affecting CNS, drugs ameliorating liver diseases and anti-inflammatory agents: extraction, isolation, purification, qualitative and /or quantitative determination from their respective sources adapting the suitable laboratory rules
2.2.2	2.2.2.1	Analyze alkaloids and/or any of the for mentioned drugs in their natural sources or in the pharmaceutical preparation for quality management employing the suitable chromatographic methods
2.3.1	2.3.1.1	Discriminate poisonous alkaloids and/or any of the titled drugs and apply the safe procedures for their handling to discard any harm to public

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element

4.1.2	4.1.2.1	Retrieve and evaluate information, solve problems, and work effectively in a team.
4.2.1	4.2.1.1	Communicate effectively in a scientific language by verbal and written means in the field of health care and natural pharmaceutical preparations regarding the studied topics.
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development.

4. Course Contents:-

Week No	Topics	No. of hours	Lecture (hr.)	Practical
1	Introduction to alkaloids	2	2	
2	Phenyl alkyl amine & purine alkaloids	2	2	
3	Terpene & Imidazole alkaloids	2	2	
4	Quinine and Isoquinoline alkaloids	2	2	
5	Opium & Tropane & Indole alkaloids	2	2	
6	Introduction and Different classes of glycosides	2	2	
7	Alcohol, Simple phenolic, coumarin glycosides	2	2	
8	**Mid-term Exam**			
9	lignans and neolignans and anthraquinones glycosides.	2	2	
10	Flavones and related flavonoid, saponins	2	2	
11	Steroidal glycosides	2	2	
12	cyanogenic glycosides	2	2	
13	Natural hallucinogenic and anticancer drugs.	2	2	
14	**revision and quiz**	2	2	
15	**Final written & oral exams**			
	Practical topics			
1	Qualitative identification (Macro-chemical tests) of Alkaloids: (Dil. Ephedrine, Eserine, Quinine, Quinidine, Colchicine, Atropine)	2		1
2	Qualitative identification (Macro-chemical tests) of Alkaloids: (Emetine, Papaverine, Strychnine, Pilocarpine	2		1
3	Qualitative identification (Macro-chemical tests) of Alkaloids: (Methyl ergometrine, Brucine, Caffeine, Theophylline	2		1
4	General Scheme of Alkaloids using Macro-chemical tests; Unkowns	2		1

5	Micro-crystallization methods for identification of Alkaloids (Caffeine, Ephedrine, Theobromine, Aminophylline,)	2		1
6	Micro-crystallization methods for identification of Alkaloids: (Atropine, Quinine, Papaverine)	2		1
7	Micro-crystallization methods for identification of Alkaloids: (Berberine, Nicotine, Codeine, Strychnine)	2		1
8	**Mid Term Exam**			
9	Qualitative identification of glycosides: (Anthraquinones, and cyanogen)	2		1
10	Qualitative identification of glycosides: (cardiac glycosides and Flavonoids)	2		1
11	Quantitative estimation of glycosides (Colorimetric estimation of digitalis glycosides by Baljet's reagent)	2		1
12	Quatitative estimation of some natural hallucinogenic and anticancer drugs.	2		1
13	Revision	2		1
14	Practical exam			

5. Teaching and learning Methods:

5.1.	Computer aided learning 5.1.1. Online learning through My Mans "Mansoura University as recorded video lectures. 5.1.2. Interactive Discussions through My Mans. 5.1.3. Lectures using Data show, Power point presentaions.
5.2.	Self-Learning
5.3.	Student seminars and research assignments.
5.4.	Case studies

6. Student Assessment:

a- Assessment methods:

1- Mid Term exam	**To assess understanding, intellectual and professional skills**
2-Practical exam	**To assess professional and practical skills**
3-Final Written exam	**To assess understanding, intellectual and professional skills**
4-Oral exam	**To assess understanding, intellectual, general and transferable skills**

b- Assessment schedule

Assessment 1	Practical	12th week
Assessment 2	Mid-term	7th week
Assessment 3	Oral	13th -15th week
Assessment 4	Written	13th -15th week

c- Weighting of assessments

1	**Mid-term examination**	10 %
2	**Final-term examination**	50 %
3	**Oral examination**	15 %
4	**Practical examination & Semester work**	25 %
Total		100%

7- Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes												
		Domain 1						Domain 2				Domain 4		
		1.1.1.1	1.1.3.1	1.1.3.1	1.1.3.2	1.1.3.2		2.2.1.1	2.2.2.1	2.3.1.1		4.1.2.1	4.2.1.1	4.3.2.1
	1. Theoretical Part													
1	Introduction to alkaloids	✓	✓									✓		✓
2	Phenyl alkyl amine & purine alkaloids	✓	✓									✓		✓
3	Terpene & Imidazole alkaloids	✓	✓	✓	✓	✓						✓		✓
4	Quinine and Isoquinoline alkaloids	✓	✓	✓	✓	✓						✓	✓	✓
5	Opium & Tropane & Indole alkaloids	✓	✓	✓	✓	✓						✓	✓	✓
6	Introduction and Different classes of glycosides		✓	✓	✓									
7	Alcohol, Simple phenolic, coumarin glycosides		✓	✓	✓									
8	**Mid-term Exam**	✓	✓	✓	✓	✓						✓	✓	✓
9	lignans and neolignans and anthraquinones glycosides.	✓	✓	✓	✓	✓						✓	✓	✓
10	Flavones and related flavonoid, saponins	✓	✓	✓	✓	✓						✓	✓	✓
11	Steroidal glycosides	✓	✓	✓	✓	✓						✓	✓	✓
12	cyanogenic glycosides	✓	✓	✓	✓	✓						✓	✓	✓

13	Natural hallucinogenic and anticancer drugs.	✓	✓	✓	✓	✓						✓	✓	✓
14	**revision and quiz**	✓	✓	✓	✓	✓						✓	✓	✓
	2. **Practical Part**													
1	Qualitative identification (Macro-chemical tests) of Alkaloids: (Dil. Ephedrine, Eserine, Quinine, Quinidine, Colchicine, Atropine)							✓	✓	✓		✓	✓	✓
2	Qualitative identification (Macro-chemical tests) of Alkaloids: (Emetine, Papaverine, Strychnine, Pilocarpine							✓	✓	✓		✓	✓	✓
3	Qualitative identification (Macro-chemical tests) of Alkaloids: (Methyl ergometrine, Brucine, Caffeine, Theophylline							✓	✓	✓		✓	✓	✓
4	General Scheme of Alkaloids using Macro-chemical tests; Unkowns							✓	✓	✓		✓	✓	✓
5	Micro-crystallization methods for identification of Alkaloids (Caffeine, Ephedrine, Theobromine, Aminophylline,)							✓	✓	✓		✓	✓	✓

6	Micro-crystallization methods for identification of Alkaloids: (Atropine, Quinine, Papaverine)							✓	✓	✓		✓	✓	✓
7	Micro-crystallization methods for identification of Alkaloids: (Berberine, Nicotine, Codeine, Strychnine)							✓	✓	✓		✓	✓	✓
9	Qualitative identification of glycosides: (Anthraquinones, and cyanogen)							✓	✓	✓		✓	✓	✓
10	Qualitative identification of glycosides: (cardiac glycosides and Flavonoids)							✓	✓	✓		✓	✓	✓
11	Quantitative estimation of glycosides (Colorimetric estimation of digitalis glycosides by Baljet's reagent)							✓	✓	✓		✓	✓	✓
12	Quatitative estimation of some natural hallucinogenic and anticancer drugs.							✓	✓	✓		✓	✓	✓
13	Revision							✓	✓	✓		✓	✓	✓

8 - List of References

N0.	Reference	type
1	Lectures note written by Faculty members	Course notes
2	Bioactive natural products (Part B): V21 (Studies in Natural Products Chemistry), Elsevier Science; 3 rd ed. (2015)	Reference textbook
4	“Textbook of Pharmacognosy and Phytochemistry” Shah B., Elsevier, (2019)	book
5	"Medicinal Natural Products, a Biosynthetic Approach" Dewick P. M. John Wiely and Sons Ltd (2019)	book
6	Periodicals	Periodicals
7	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	websites

Course Coordinator	**Prof. Dr. Weam Nabil Elsayed Ebrahim**
Head of department	**Prof. Dr. Mahmoud F. Elsebai**

Date: 6/9/2023

Course specification
2023/2024
Clinical Pharmacy Program
Faculty of Pharmacy
Mansoura University

Third Level

Course Specifications Pathophysiology

University: Mansoura University (MU)
Faculty : Pharmacy
Department Pharmacology & Toxicology
Course title: Pathophysioloy
Course code: MD 507

Program on which the course is given	**B. Pharm (Clinical Pharmacy-Credit hours)**
Academic Level	Level 3, First semester, 2023/2024
Date of course specification approval	18/9/2023

1. Basic Information: Course data:

Course title:	Pathophysiology	**Code**	**MD 507**
Specialization:	Medical sciences		
Prerequisite: Physiology			
Teaching Hours:	**Lecture:** 2	**Practical:**	-
Number of units: (credit hours)	2		

2. Course Aims:

1- Provide knowledge and understanding of the basic dysfunctions of the body systems.
2- Introduce concepts of abnormal cellular, tissue and system hemostasis.
3- Provide comprehensive coverage on the integration of the different body systems pathogenesis

1. 3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1-1-1	**1.1.1.1**	Define information of biomedical and clinical sciences

1-1-5	**1-1-5-1**	Apply the principles and practice of fundamental sciences to solve problems related to human health and health systems

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3-1-1	**3-1-1-1**	Adjust a dosage routine for a patient based on the physiological, genetic, and immunological changes brought about by disease or concomitant drug therapy.
3-1-4	**3-1-4-1**	Utilize etiology, epidemiology, pathogenesis, laboratory diagnosis, and clinical features to suggest the proper preventive strategies for various infections/diseases.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4-2-1	**4.2.1.1**	Usage of clear language, pace, tone and non-verbal communication and writing skills when dealing with patients, other health team and communities.
4-2-2	**4.2.2.1**	Use artificial technology whenever possible to present relevant information.
4-3-2	**4.3.2.1**	Present principles of continuing professional development including assessing own learning needs and developing a plan to meet these needs.

4. Contents:

Week No	Topics	Lecture credit hours
1	Introduction to pathophysiology	2
2	Vascular disorders	2
3	Endocrine disorders (part 1)	2
4	Endocrine disorders (part 2)	2

5	Inflammation and immune response	2
6	Respiratory system disorders(part 1)	2
7	Respiratory system disorders(part 2)	2
8	Urinary system disorders (part 1)	2
9	Urinary system disorders (part 2)	2
10	Pancreatic disorders	2
11	GIT disorders	2
12	Liver disorders	2
13	Hematological disorder.	2
14	Prostatic gland disorders (self learning)	2
15	**Final written and oral exam**	

5. Teaching and learning Methods:

5.1	**Computer aided learning:** **a. On line learning through My mans "Mansoura university "as recorded – video lectures** **b. Inter active discussion through My Mans** **c. Lectures using Data show, PowerPoint presentations**
5.2	**Self-Learning**
5.3	**Formative Assignments**

6. Student Assessment:

a. **Assessment methods**:

2- Midterm exam	1-1-1-1, 1-1-5-1, 3-1-1-1, 3-1-4-1
3- Practical exam	**----------**
2 -Written exam	1-1-1-1, 1-1-5-1, 3-1-1-1, 3-1-4-1
3- Oral exam	1-1-1-1, 1-1-5-1, 4-2-1-1, 4-2-2-1, 4-3-2-1

b. **Assessment schedule**

Assessment 1	**Mid-term**	**8thweek**
Assessment 2	**Practical**	**----------**
Assessment 3	**Final Written exam**	**15thweek**
Assessment 4	**Oral exam**	**15thweek**

a- Weighting of assessments

1	**Mid-term examination**	**20 %**
2	**Final-term examination**	**65 %**

3	Oral examination	15 %
4	Practical examination and Semester work	0 %
Total		100%

7. List of References

No	Reference	Type
1.	Lectures notes prepared by staff members	Course notes
2.	Physiology; Elsevier Saunders, Linda S. Costanzo, 7th edition, 2021	Book
3.	Lazenby RB. Handbook of Pathophysiology. Wolters Kluwer/Lippincott Williams & Wilkins Health, Philadelphia USA, 7th ed. 2022.	Book
4.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	websites

8. Matrix of Course contents and course key elements

Week No.	Course contents / K. elements	Domain 1			Domain 3			Domain 4		
		1.1.1.1	1.1.5.1		3.1.1.1	3.1.4.1		4.2.1.1	4.2.2.1	4.3.2.1
1	Introduction to pathophysiology	✓	✓		✓	✓				
2	Vascular disorders	✓	✓		✓					
3	Endocrine disorders (part 1)	✓	✓		✓					
4	Endocrine disorders (part 2)	✓	✓			✓				
5	Inflammation and immune response	✓	✓			✓			✓	
6	Respiratory system disorders(part 1)	✓	✓		✓	✓		✓		
7	Respiratory system disorders(part 2)	✓	✓		✓	✓		✓		
8	Urinary system disorders (part 1)	✓	✓		✓	✓		✓		

9	Urinary system disorders (part 2)	✓	✓			✓	✓		✓		
10	Pancreatic disorders	✓	✓			✓	✓		✓		
11	GIT disorders	✓	✓			✓	✓		✓		
12	Liver disorders	✓	✓			✓	✓		✓		
13	Hematological disorder.	✓	✓			✓	✓		✓	✓	✓
14	Prostatic gland disorders **(self learning)**	✓	✓			✓	✓		✓	✓	✓

Course Coordinator:	**Dr. Rania R. Abdelaziz**
Head of department	**Dr. Manar Ahmed Nader**

Date: 18/9/2023

Third Level

Course Specification Pharmacy administration

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutics
Course title: Pharmacy Administration
Course code: PT 506

Program on which the course is given	B. Pharm (Clinical Pharmacy), Credit hours)
Academic Level	Level 3, Fifth semester, 2023-2024
Date of course specification approval	20/9/2023

1. Basic Information: Course data:

Course title:	**Pharmacy Administration**	**Code: PT 506**
Specialization:	**Pharmaceutical**	
Prerequisite:	**Registration**	
Teaching Hours:	**Lecture: 1**	**Practical: 0**
Number of units: (credit hours)	**1**	

2. Course Aims:

2.1. Master the major concepts in management and marketing to the different fields of pharmacy practice.
2.2. Understand the different applications involved in different management system.
2.3. Help pharmacy students to construct a new pharmacy concerning the following points: location, design, communication, advertising, and financing.

3. Course k. elements:

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	Define the different basic knowledge of pharmacy management.
1.1.6	**1.1.6.1**	Classify different methods of analysis and apply relevant scientific resources to make evidence-based cost-effective health care decisions.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.4.3	**2.4.3.1**	Specify the factors affecting contribution to decision making processes for recognized drug-related and pharmaceutical care problems for values-based pricing.
2.6.1	**2.6.1.1**	Utilize and apply the principles of business administration and management to ensure rational use of financial and human resources.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	**4.1.1.1**	Share decision-making activities with other pharmacy team members and non-pharmacy team members and apply effective time management skills.
4.1.3	**4.1.3.1**	Demonstrate innovation and apply entrepreneurial skills within a simulated entrepreneurial activity.
4.2.1	**4.2.1.1**	Communicate effectively in a proper professional language by verbal and non-verbal means.
4.3.2	**4.3.2.1**	Practice self-learning to improve professional skills and developing a plan to meet these needs so promote critical thinking, decision-making, and time managing capabilities.

1. Course Contents:

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1	Introduction and functional areas in the pharmacy. Planning as a management function	1	1	-
2	Common business problems and organization as a management function	1	1	-
3	Staffing, directing, and controlling as management functions.	1	1	-
4	The signs of readiness to become an entrepreneur	1	1	-
5	Introduction to Pharmacy business functions	1	1	-
6	Managing operations	1	1	-
7.	Steps of starting a new pharmacy-part 1	1	1	-

8	Steps of starting a new pharmacy-part 2 **(Mid-term Exam)**	1	1	-
9	Buying a well-established pharmacy and competitive advantages	1	1	-
10	Managing money (part 1) & **Self-learning**	1	1	-
11	Managing money (part 2)	1	1	-
12	Managing people (part 1)	1	1	-
13	Managing people (part 2)	1	1	-
14	Revision	1	1	-
15	**Final written Exam**	-	-	-

2. Teaching and learning Methods:

5.1	**Computer aided learning:** **a. Online learning through My mans "Mansoura university "as recorded – video lectures** **b. Inter active discussion through My Mans** **c. Lectures using Data show, PowerPoint presentations**
5.2	**Self-learning**

3. Student Assessment:

a- Assessment methods

1-Written exam	1.1.1.1/ 1.1.6.1/ 2.4.3.1/2.4.3.1/2.6.1.1
2-Practical exam	---
3-Oral	---
4-Formative Assessment	1.1.1.1/ 1.1.6.1/ 2.4.3.1/2.4.3.1/2.6.1.1/4.1.1.1/4.1.3.1/4.2.1.1/4.3.2.1

b- Assessment schedule

Assessment 1	**Mid-term**	8th week
Assessment 2	**Practical**	---
Assessment 3	**Written**	15thweek
Assessment 4	**Oral**	---

c- Weighting of assessments

1.	Mid-term examination	10 %
2.	Final-term examination	90 %
3.	Oral examination	-
4.	Practical examination and Semester work	-

Total	**100**

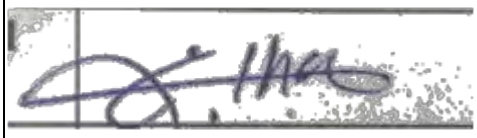
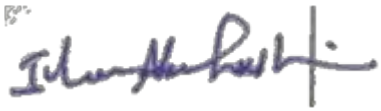
4. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes							
		Domain 1		Domain 2		Domain 4			
		1.1.1.1	1.1.6.1	2.4.3.1	2.6.1.1	4.1.1.1	4.1.3.1	4.2.1.1	4.3.2.1
1	Introduction and functional areas in the pharmacy. Planning as a management function	√	√	√	√	√	√		
2	Common business problems and organization as a management function	√					√	√	
3	Staffing, directing, and controlling as management functions.	√	√	√			√		√
4	The signs of readiness to become an entrepreneur	√			√	√	√		
5	Introduction to Pharmacy business functions	√						√	√
6	Managing operations	√						√	√
7.	Steps of starting a new pharmacy-part 1	√			√		√	√	
8	Steps of starting a new pharmacy-part 2 **(Mid-term Exam)**	√		√		√		√	
9	Buying a well-established pharmacy and competitive advantages	√				√		√	√
10	Managing money (part 1) & **Self-learning**	√	√	√	√	√	√	√	√

11	Managing money (part 2)	√	√	√				√	√
12	Managing people (part 1)	√	√	√				√	√
13	Managing people (part 2)	√	√	√				√	√
14	Revision	√		√	√	√	√	√	√

8. List of References:

N0.	Reference	Type
1	Shimin Yang, Pharmacy Administration (2nd edition), Beijing, China Medical Technique Press, (2006)	Book
2	Eugene Mick Kolassa, James Greg Perkins, Bruce R Siecker, Pharmaceutical Marketing Principles, Environment, and Practice (1st edition), CRC Press, (2002)	Book
3	Journal of Pharmaceutical Marketing and Management http://www.marketingpower.com/content31634.php	Website
4	Course Notes prepared by the Pharmaceutics Department Staff.	Course Notes

Course Coordinator	**Dr. Elham Abdelmonem Elsaid Mohamed**
	
Head of Department	**Prof. Dr. Irhan Ibrahim Abu Hashim**
	

Date: 20/9/2023

بكالوريوس الصيدلة الإكلينيكية

Course Specification

Academic year: 2023/2024

Course Name: Medicinal Chemistry 1	**اسم المقرر: كيمياء دوائية 1**
Academic Level: Level 3	**المستوى الأكاديمي: الثالث**
Scientific Department: Medicinal Chemistry	**القسم العلمي: الكيمياء الدوائية**
Head of Department: **Prof. Dr. Mohammed Ahmed Ahmed Mostafa**	**رئيس القسم:** **أ.د/ محمد أحمد أحمد مصطفى**
Course Coordinator: **Prof. Dr. Mohammed Ahmed Ahmed Mostafa**	**منسق المقرر:** **أ.د/ محمد أحمد أحمد مصطفى**

University	Mansoura
Faculty	Pharmacy
Department offering the course	Medicinal Chemistry
Department supervising the course	Medicinal Chemistry
Program on which the course is given	**B. Pharm. (credit hours)**
Academic Level	Third level, Second semester, 2023-2024
Date of course specification approval	06/09/2023

1- Basic Information: Course data:

Course Title	**Medicinal Chemistry 1**
Course Code	**PC 609**
Prerequisite	**Pharmaceutical Organic Chemistry 3**
Teaching Hours: Lecture	**2**
Practical	**1**
Total Credit Hours	**3**

2- Course Aims:

This course enables the students to:

Medicinal chemistry I course aims to demonstrate the fundamental physicochemical properties affecting drug activity and metabolic fate of these drugs in relation to their chemical structure. Additionally, important medicinal chemistry aspects of chemotherapeutic agents, including essential chemical features, mode of action and therapeutic utilities are to be covered. The practical part of the course enables the students to visualize in silico drug structures and discuss certain case studies related to drugs used in therapy that are covered in the theoretical part.

3- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	Recognize in depth and breadth the basic principles of medicinal chemistry course as a part of applied pharmaceutical sciences in pharmacy curriculum.
1.1.2	**1.1.2.1**	Use non-proprietary names (scientific names) of drugs in professional practice.
1.1.4	**1.1.4.1**	Explain the molecular mode of action of dugs of different classes.
1.1.6	**1.1.6.1**	Apply medicinal chemistry principles to make informed decisions on drug use.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.3.2	**2.3.2.1**	Choose the proper procedure to handle chemotherapeutic agents.
2.4.3	**2.4.3.1**	Use principles of medicinal chemistry to contribute to decision-making processes to solve drug- related problems.

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.1	**3.2.1.1**	Integrate fundamentals of medicinal chemistry of drugs including mode of action, therapeutic uses and untoward side effects.
3.2.5.	**3.2.5.1**	Use principles of medicinal chemistry to provide education and councelling to support patients and community about their care plan.
3.2.6	**3.2.6.1**	Develop public awareness on rational use of drugs, drug abuse and misuse.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element

4.1.2	**4.1.2.1**	Participate independently and collaboratively in delivery of health services related to pharmacy practice.
4.2.1	**4.2.1.1**	Communicate verbally and nonverbally including software tools with patient other health care team and communities.
4.3.2	**4.3.2.1**	Participate in continuous professional development activities to update and advance learning needs.

4- Course Contents

Week No.	Topics	Credit Hours
1	The Physicochemical properties and drug action	2
2	Drug biotransformation	2
3	Antibiotics that inhibit cell wall synthesis : Penicillins	2
4	Antibiotics that inhibit cell wall synthesis : Cephalosporins	2
5	Sulfonamides	2
6	Cancer chemotherapy-Part I	2
7	Cancer chemotherapy-Part II	2
8	Antifungal agents	2
9	Antiviral Agents	2
10	Aminoglycosides	2
11	Quinolone antibacterial	2
12	Antimycobacterial agents	2
13	Tetracyclines (self-learning)	2
14	Revision and quiz	2
15	**Final written and oral exam**	-
Week No.	**Practical topics**	**Practical Credit hours**
1	Chemdraw Software: different tool bars	1
2	Chemdraw Software: draw chemical structures	1
3	Chemdraw Software: display characters of compounds	1
4	Chemdraw Software: predict and calculate proton and carbon NMR spectra	1

5	Chemdraw exam	1
6	Physicochemical properties tutorial-1	1
7	Physicochemical properties tutorial-2	1
8	Mid-Term Exam	-
9	Case Study: tetracyclines	1
10	Case Study: aminoglycosides	1
11	Case Study: penicillins	1
12	Case Study: anticancer agents-Part I	1
13	Case Study: anticancer agents-Part II	1
14	Practical Exam	1

5- Teaching and Learning Methods:

	Teaching method	Week no.
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning • On line learning through My Mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans	1-6 & 8-14
5.2	Self-learning	12
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-6 & 8-14
5.4	Class Activity: Group discussion offline and online.	12
5.5	Problem – based learning and brainstorming	1-6 & 8-14
5.6	Research assignments	12
5.7	Role play	13

6- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.3.2.1, 2.4.3.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
2-Practical exam	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 3.2.1.1, 3.2.5.1, 3.2.6.1, 4.1.2.1, 4.2.1.1, 4.3.2.1

3-Oral	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 4.1.2.1, 4.2.1.1, 4.3.2.1

b- Assessment schedule

Assessment 1	**Periodical (Mid-term exam) / course work**	8th week
Assessment 2	**Practical examination and tutorial**	14th week
Assessment 3	**Written exam**	15th week
Assessment 4	**Oral exam**	15th week

c- Weighing of assessments

1	**Periodical (Mid-term) exam / course work**	10%
2	**Practical examination & tutorial**	25%
3	**Final-term examination**	50%
4	**Oral examination**	15%
Total		100%

7- Facilities required for teaching and learning

Classroom	Data show, Computers, Internet, Platform
Laboratory facilities	Computer software (ChemBioOffice)
Library	Books

8- Matrix of knowledge and skills of the course

Study Week	Course contents	Outcomes Domains / Key elements												
		Domain 1				Domain 2		Domain 3			Domain 4			
		1.1.1	1.1.2	1.1.4	1.1.6	2.3.2	2.4.3	3.2.1	3.2.5	3.2.6	4.1.2	4.2.1	4.3.2
1	The physicochemical properties and drug action	√			√		√						
2	Drug biotransformation	√			√		√						
3-4	Antibiotics that inhibit cell wall synthesis	√	√	√	√	√	√	√	√	√			
5	Sulfonamides	√	√	√	√	√	√	√	√	√			
6	Cancer chemotherapy	√	√	√	√	√	√	√	√	√			
8	Antifungal agents	√	√	√	√	√	√	√	√	√			
9	Antiviral Agents	√	√	√	√	√	√	√	√	√			
10	Aminoglycosides	√	√	√	√	√	√	√	√	√			
11	Quinolone antibacterial	√	√	√	√	√	√	√	√	√			
12	Antimycobacterial agents	√	√	√	√	√	√	√	√	√			
13-14	Tetracyclines (self-learning)	√	√	√	√	√	√	√	√	√			
1-6 & 8-14	**Practical topics:** Chemdraw Software: different tool bars, draw chemical structures, display characters of compounds, predict and calculate proton and carbon NMR spectra, Physicochemical properties tutorial-1and -2, Case Study: tetracyclines, aminoglycosides, penicillins, anticancers	√	√	√	√	√	√	√	√	√	√	√	√

9- List of References

No	Reference	Type
1	Electronic book "Medicinal Chemistry-2" prepared by staff members	Course notes
2	Recorded videos prepared by stuff members	**Videos on platform**
3	"**Foye's Principles of Medicinal Chemistry**", *8th Edition*, (David A. Williams, Thomas L. Lemke & William O. Foye, Editors), Lippincott Williams & Wilkins, 2017.	Essential Book
4	"**Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry**" *12th Edition*, (J. H. Block and J. M. Beale Jr, Editors), Lippincott Williams & Wilkins, Philadelphia, PA, 2011.	Essential Book
5	"**An Introduction to Medicinal Chemistry**", *6th Revised Edition*, (Graham L. Patrick), Oxford University Press, USA, 2017.	Essential Book
6	"**Fundamentals of Medicinal Chemistry**", *Kindle Edition*, (Gareth Thomas), Wiley-Blackwell, 2013.	Essential Book
7	http://www.sciencedirect.com/ http://www.google.com / http://www.pubmed.com / http://www.ekb.eg	Websites

Course Coordinator	**Prof. Dr. Mohammed Ahmed Ahmed Mostafa**
Head of Department	**Prof. Dr. Mohammed Ahmed Ahmed Mostafa**

Date:

Third Level

Course Specification Pharmaceutical Technology

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutics
Course title: Pharmaceutical technology
Course code: PT 607

Program on which the course is given	B. Pharm (Clinical Pharmacy)
Academic Level	Level 3, second semester, 2023-2024
Date of course specification approval	20/9/2023

1. Basic Information: Course data:

Course title:	**Pharmaceutical technology**	**Code: PT 607**
Specialization:	**Pharmaceutical**	
Prerequisite:	**Registration**	
Teaching Hours:	**Lecture: 2**	**Practical: 1**
Number of units: (credit hours)	**3**	

2. Course Aims:

2.1. Orienting the students to know the principles of pharmaceutical engineering
2.2. Recognizing different types of unit operations.
2.3. Knowing applications of different unit operations in manufacturing of selected dosage forms.

3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	List the theories of the different unit operations utilized in the pharmaceutical technology.
1.1.6	1.1.6.1	Recognize the quality control of each pharmaceutical operation and how to minimize the error of manufacturing, storage & handling.
1.1.7	1.1.7.1	Identify the construction and operation of these unit operations including heat transfer, evaporation, drying, centrifugation, crystallization, filtration and mixing, size reduction and their equipment.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.2	2.2.2.1	Classify the different equipment commonly used in each unit operation
2.2.3	2.2.3.1	Determine the critical aspects related to the equipment construction that can affect their performance
	2.2.3.2	Specify the advantages, disadvantages and best use of each equipment

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Retrieve and evaluate information, solve problems, and work effectively in a team.
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development.

4. Course Contents:

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours

1	Introduction to the course	2	2	
2	Drying	2	2	
3	Filtration- part 1	2	2	
4	Filtration- part 2	2	2	
5	Evaporation	2	2	
6	Centrifugation	2	2	
7	Crystallization	2	2	
8	Heat transfer (**Mid-term Exam**)	2	2	
9	Mixing- part 1	2	2	
10	Mixing- part 2	4	4	
11	Extraction	2	2	
12	Size reduction	2	2	
13	**Discussion of self learning topic**	2	2	
14	Revision	2	2	
16	**Final written and oral exam**			

Practical topics

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1	Dryers	2		1
2	Filters	2		1
3	Evaporators	2		1
4	Centrifuges-1	2		1
5	Centrifuges-2	2		1
6	Crystallizers	2		1
7	Heaters Mixers	2		1
8	**Mid-term Exam**	-		-
9	Extractors-1	2		1
10	Extractors-2 and **Self-learning topic**	2		1
11	Size reduction equipment-part 1	2		1
12	Size reduction equipment-part 2	2		1
13	Size reduction equipment-part 3	2		1
14	Revision	2		1

15	Practical Exam			

5. Teaching and learning Methods:

5.1	Computer aided learning: a. Online learning through My mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans c. Lectures using Data show, PowerPoint presentations
5.2	Self-learning
5.3	Formative Assignments
5.4	Tutorial

6. Student Assessment:

a- Assessment methods

1.	Mid Term exam	1.1.1.1, 1.1.6.1, 1.1.7.1, 2.2.3.2
2.	Practical exam	2.2.2.1, 2.2.3.1, 2.2.3.2, 4.1.2.1, 4.3.2.1
3.	Oral exam	1.1.1.1, 1.1.6.1, 2.2.2.1, 2.2.3.1, 2.2.3.2, 4.1.2.1, 4.3.2.1
4.	Final Written exam	1.1.1.1, 1.1.6.1, 1.1.7.1, 2.2.2.1, 2.2.3.1, 2.2.3.2

b- Assessment schedule

Assessment 1	Mid-term	8th week
Assessment 2	Practical	15th week
Assessment 3	Oral	16th week
Assessment 4	Written	16th week

c- Weighting of assessments

1.	Mid-term examination	10 %
2.	Practical examination	25%
3.	Final-term examination	50 %
4.	Oral examination	15 %
Total		100 %

7. Matrix of course content versus course key elements:

Study	Course contents	Domains / Key elements Outcomes				
		Domain 1		Domain 2		Domain 4

Week		1.1.1.1	1.1.6.1	1.1.7.1		2.2.2.1	2.2.3.1	2.2.3.2		4.1.2.1	4.3.2.1
	A) Theoretical part										
1	Introduction to the course										
2	Drying										
3	Filtration- part 1										
4	Filtration- part 2										
5	Evaporation										
6	Centrifugation										
7	Crystallization										
8	Heat transfer (**Mid-term Exam**)										
9	Mixing- part 1										
10	Mixing- part 2										
11	Extraction										
12	Size reduction										
13	**Discussion of self learning topic**										
14	Revision										
	B) Practical part										
1	Dryers										
2	Filters										
3	Evaporators										
4	Centrifuges-1										
5	Centrifuges-2										

6	Crystallizers										
7	Heaters Mixers										
9	Extractors-1										
10	Extractors-2										
11	Size reduction equipment-part 1										
12	Size reduction equipment-part 2										
13	Size reduction equipment-part 3										
14	Revision										

8. List of References

N0.	Reference	type
1	Course Notes prepared by the staff members	Course notes
2	"Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems" 10th Ed., Wolters Kluwer, Loyd Allen, Howard C. Ansel, Lippincott Williams and Wilkins, Philadelphia, (2013).	Book
3	Unit Operations of Chemical Engineering. Warren L. McCabe, Julian C. Smith, Peter Harriott, 7th edition (2005).	Book
4	Chemical Engineering Design, Fourth Edition: Chemical Engineering Volume I (Coulson & Richardson's Chemical Engineering) (2009).	Book
5	Lachman/Lieberman's The Theory and Practice of Industrial Pharmacy, 4th Ed., Roop K Khar, SP Vyas , Farhan J Ahmad , Gaurav K Jain, CBS Publishers & Distributors Pvt Ltd (2016).	Book
6	Handbook of Pharmaceutical Manufacturing Formulations 2nd Ed., Sarfaraz K. Niazi (2009)	Book
7	https://books.google.com.eg/books?id=uqXawoxLrnsC&printsec=frontcover&dq=pharmaceutical+technology&hl=en&sa=X&ved=2ahUKEwiKqLWJ5cDyAhUDJhoKHdU-BEQQ6AEwAHoECAMQAg#v=onepage&q=pharmaceutical%20technology&f=false	Website

Course Coordinator:	**Prof. Dr. Hassan Mohamed Elsabbagh**

	
Head of Department:	Prof. Dr. Irhan Ibrahim Abu Hashim
	

Date: 20/9/2023

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة

Course Specification

Academic year: 2023-2024

Course name: Community pharmacy practice	اسم المقرر: ممارسة صيدلية مجتمعية
Academic Level: Level 3	المستوى الأكاديمي: الثالث
Scientific department: **Clinical Pharmacy & Pharmacy Practice Department**	القسم العلمي: قسم الصيدلة الإكلينيكية والممارسة الصيدلية
Head of Department: Prof. Dr. Irhan Ibrahim Abu Hashim	رئيس القسم: أ.د/ ارهان ابراهيم أبوهاشم
Course Coordinator: **Dr. Moetaza Mahmoud Soliman**	منسق المقرر أ.م.د / معتزة محمود سليمان

University	Mansoura
Faculty	Pharmacy
Department offering the course	Clinical Pharmacy and Pharmacy Practice Department
Department supervising the course	Pharmaceutics Department
Program on which the course is given	**B. Pharm.**
Academic Level	Third level, second semester, 2023-2024
Date of course specification approval	7-9-2023

1- Basic Information: Course data:

Course Title	**Community pharmacy practice**
Course Code	**PT-608**
Prerequisite	**Pharmacology 1**
Teaching Hours: Lecture	**1**
Tutorial	**0**
Total Credit Hours	**1 (Credit H)**

2- Course Aims:

The course affords students with fundamentals of evidence-based use for OTC medicines in the community pharmacy settings. The course also familiarizes the students with concepts of patient counseling and pharmaceutical care. Other aims include, providing the students with essential competencies to promote the public health role of the pharmacist in the community pharmacy settings.

3- Course Learning Outcomes

Upon completing the course, the student will be able to dominate the following key elements

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Differentiate between simple ailments and major diseases.
1.1.4	1.1.4.1	Outline the different pharmacological and non-pharmacological response options for minor ailment in the community pharmacy.
1.1.5	1.1.5.1	Design an individualized optimum therapeutic plan for management of minor illness using over the counter drugs.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.4	2.1.4.1	Identify patient cases that requires referral without dispensing OTC medicines.

DOMAIN 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.2.3	3.2.3.1	Recommend prescription modification after consulting the health care professionals.
3.2.5	3.2.5.1	Practice professional patient counseling to optimize outcomes of pharmaceutical care plan and audit the patient's therapeutic plan in collaboration with healthcare professional
3.2.6	3.2.6.1	Promote public understanding of important vaccinations and self monitoring of chronic diseases.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.3.2	**4.3.2.1**	Practice self-learning to improve professional skills.

4- Course Contents

Week No.	Topics	Lecture Hours
1	Introduction to Community pharmacy	2
2	Women's Health Cystitis	2
3	Women's Health Premenstrual syndrome, Dysmenorrhoea, Menorrhagia	2
4	Childhood Conditions Chickenpox, Infantile colic, napkin dermatitis, Head lice, Threadworm,	2
5	Skin Conditions Acne, Psoriasis, Scabies, Dandruff, Athlete's foot	2
6	OTC medications for respiratory diseases Common Cold& Flu, Sore Throats and Cough	2
7	Specific product recommendation-1 Smoking cessation-Obesity Management	2
8	Specific product recommendation-2: Motion sickness	2
9	OTC medications for gastrointestinal diseases- 1 Mouth ulcers, Heartburn, Indigestion	2
10	OTC medications for gastrointestinal diseases- 2 Diarrhea, and constipation	2
11	OTC medications for painful conditions Headache	2
12	OTC medications for painful conditions- 2 Musculoskeletal problems	2
13	Eye and Ear Problems (self-learning topic)	2

14	Discussion and revision	2
15	**Starting of Written exam**	--

Week No.	Tutorial topics	Hours
1	Training in making a diagnosis: AS METHOD Pharmaceutical calculation for community pharmacist	1
2-3	Case study: Women's Health	2
4	Case study: Childhood Conditions	1
5	Case study: Skin Conditions	1
6	Case presentation: Common cold & Flu	1
7	Case presentation: Cough	1
8	Midterm	-
9	Specific product recommendation Smoking cessation Obesity management	1
10	Case Presentation: GERD Indigestion Mouth Ulcers	1
11	Case Presentation: Constipation Diarrhea	1
12	Hands on use of mobile applications for community pharmacist Guidance on monitoring of chronic diseases in the community pharmacy	1
13	Group project presentation (selected topics)	1
14	Sheet / and Tutorial exam (OSCE)	....

5- Teaching and Learning Methods:

	Teaching and Learning method	Week no.
5.1	Computer aided learning: Lectures using Data show, power Point presentations Distance learning Online learning through My Mans "Mansoura university "as recorded – video lectures	Week 1-14

	Inter active discussion through My Mans	
5.2	Self-learning	Week 13
5.3	Practical sessions using tutorials	Week 1-13
5.4	Class Activity: Group discussion offline and online	Week 1-14

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.1.1, 1.1.4.1, 1.1.5.1, 1.1.9.1, 2.1.4.1, 3.2.3.1, 3.2.5.1, 3.2.6.1, 4.3.2.1
2-Tutorial exam (OSCE)	1.1.1.1, 1.1.4.1, 1.1.5.1, 1.1.9.1, 2.1.4.1, 3.2.3.1, 3.2.5.1, 3.2.6.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.4.1, 1.1.5.1, 1.1.9.1, 2.1.4.1, 3.2.3.1, 3.2.5.1, 3.2.6.1

b- Assessment schedule

Assessment 1	Periodical (Mid-term exam)	8th week
Assessment-2	Tutorial examination (OSCE)	14th week
Assessment 3	Written	Starting in 15th week
Assessment 4	Oral	Week 15

c- Weighing of assessments

1	Periodical (Mid-term exam) / Course work	15%
2	Tutorial examination (OSCE)	25%
3	Final-term examination	50%
4	Oral examination	10%
Total		100%

7- Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Library	Books and mobile applications

8- Matrix of knowledge and skills of the course

Study Week No.	Course contents	Outcomes Domains / Key elements								
		Domain 1				Domain 2	Domain 3			Domain 4
		1.1.1.1	1.1.4.1	1.1.5.1	1.1.9.1	2.1.4.1	3.2.3.1	3.2.5.1	3.2.6.1	4.3.2.1
1	Introduction to Community pharmacy	√	√	√	√		√	√		
2	Women's Health Cystitis	√	√	√	√	√	√	√	√	
3	Women's Health Premenstrual syndrome, Dysmenorrhoea, Menorrhagia									
4	Childhood Conditions Chickenpox, Infantile colic, napkin dermatitis, Head lice, Threadworm,	√	√	√	√	√	√	√	√	
5	Skin Conditions Acne, Psoriasis, Scabies, Dandruff, Athlete's foot	√	√	√	√	√	√	√	√	
6	OTC medications for respiratory diseases Common Cold& Flu, Sore Throats and Cough	√	√	√	√	√	√	√	√	
7	Specific product recommendation-1 Smoking cessation-Obesity Management	√	√	√	√	√	√	√	√	
8	Specific product recommendation-2: Motion sickness									
9	OTC medications for gastrointestinal diseases- 1 Mouth ulcers, Heartburn, Indigestion	√	√	√	√	√	√	√	√	
10	OTC medications for gastrointestinal diseases- 2 Diarrhea, and constipation	√	√	√	√	√	√	√	√	
11	OTC medications for painful conditions Headache	√	√	√	√	√	√	√	√	
12	OTC medications for painful conditions- 2 Musculoskeletal problems	√	√	√	√	√	√	√	√	

13	Eye and Ear Problems (self-learning topic)	√	√	√	√	√	√	√	√	√
14	Discussion and revision	√	√	√	√	√	√	√	√	
Practical										
1	Training in making a diagnosis: AS METHOD Pharmaceutical calculation for community pharmacist	√	√	√	√	√	√	√	√	√
2-3	Case study: Women's Health	√	√	√	√	√	√	√	√	√
4	Case study: Childhood Conditions	√	√	√	√	√	√	√	√	√
5	Case study: Skin Conditions	√	√	√	√	√	√	√	√	√
6	Case presentation: Common cold & Flu	√	√	√	√	√	√	√	√	√
7	Case presentation: Cough	√	√	√	√	√	√	√	√	√
8	Midterm	√	√	√	√	√	√	√	√	√
9	Specific product recommendation Smoking cessation Obesity management	√	√	√	√	√	√	√	√	√
10	Case Presentation: GERD Indigestion Mouth Ulcers	√	√	√	√	√	√	√	√	√
11	Case Presentation: Constipation Diarrhea	√	√	√	√	√	√	√	√	√
12	Hands on use of mobile applications for community pharmacist Guidance on monitoring of chronic diseases in the community pharmacy	√	√	√	√	√	√	√	√	√
13	Group project presentation (selected topics)	√	√	√	√	√	√	√	√	√

9- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by stuff members	Videos on platform
3.	Symptoms in the pharmacy; a Guide to the Management of Common Illness edited by Alison Blenkinsopp, Paul Paxton, and John Blenkinsopp, 8th edition, 2018	Essential Book
4.	https://www.ekb.eg/. https://go.wolterskluwer.com/lexicomp-drug-references-int-b.html?utm_source=google&utm_medium=cpc&utm_campaign=ALL_Lexicomp_INT_Brand&utm_content=001-ETA-Brand_Exact&utm_term=lexicomp&gclid=CjwKCAjwhuCKBhADEiwA1HegOa3V40mlNyAwkxXqqD-MhuJqRWNSUDOi7AlREiUFqTghXadDjRSaGBoC2GcQAvD_BwE https://accesspharmacy.mhmedical.com/ http://www.sciencedirect.com / http://www.google scholar.com/ http://www.pubmed.com	Websites

Course Coordinator	**Dr. Moetaza Mahmoud Soliman** Moetaza Soliman
Head of Department	**Prof. Dr. Irhan Ibrahim Abu Hashim**

Date: 7/9/2023

بكالوريوس الصيدلة الإكلينيكية

Course Specification

Academic year: 2023-2024

Course name: Biopharmaceutics and Pharmacokinetics	اسم المقرر الصيدلة الحيوية والحركية للدواء
Academic Level: Level 3	المستوى الثالث : الفرقة الثالثة
Scientific department: Pharmaceutics	القسم العلمي المسئول عن المقرر
Head of Department: Prof. Dr. Irhan Ibrahim Abu Hashim	رئيس القسم : أ.د/ إرهان إبراهيم أبو هاشم
Course Coordinator: Pro. Dr. Thanaa Mohamed Borg	منسق المقرر : أ.د/ ثناء محمد برج

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutics
Department supervising the course	Pharmaceutics
Program on which the course is given	**B. Pharm. (Clinical Pharmacy)**
Academic Level	**Third Level, Second semester, 2023-2024**
Date of course specification approval	**20/9/2023**

A. Basic Information: Course data:

Course Title	Biopharmaceutics and Pharmacokinetics
Course Code	PT 609
Prerequisite	Pharmaceutical dosage forms 2
Teaching credit Hours: Lecture	2
: Practical	1
Total Credit Hours	3

B. Professional Information:

1. Course Aims:

This course enables the students to:

- Understand the principle of biopharmaceutics and pharmacokinetics.
- Solve problems related to the pharmacokinetic parameters (including AUC, half-life, total clearance, volume of distribution).

- Know the principles of pharmacokinetic (including absorption, distribution, metabolism, and elimination) and drug-drug interactions.
- Gain some knowledge about the basis of selection, a particular drug preparation, route of administration and evaluation of bioavailability of dugs products.

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.7	1.1.7.1	Define the biopharmaceutical topics such as: drug absorption, distribution, metabolism, excretion.
	1.1.7.2	Identify the various factors affecting the bioavailability of drugs such as; physiological, physicochemical, and formulation-related factors and describe a route of administration with a dosage regimen that gives appropriate response.
	1.1.7.3	Recognize pharmacokinetic parameters from data obtained for drugs administered via the intravascular and extravascular routes.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.3.2	2.3.2.1	Conduct the dose adjustment principles for patients with hepatic or renal insufficiency.
	2.3.2.2	Select the most suitable dosage form of a drug that gives the highest bioavailability based on the properties of the drug and excipients.
2.5.1	2.5.1.1	Determine the different pharmacokinetic parameters from the supplied biological data.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Adjust the dosage regimen based on the calculation of the pharmacokinetic parameters.
	3.1.1.2	Utilize the available pharmacokinetic data to improve the quality of patient's life

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Retrieve and evaluate information, solve problems, and work effectively in a team.
4.2.1	4.2.1.1	Communicate effectively in a scientific language by verbal and written means in the field of health care and natural pharmaceutical preparations regarding the studied topics.
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	**Introduction to biopharmaceutics and pharmacokinetics definitions**	2
2	**Pharmacokinetic parameters and sites of drug administration**	2
3	**Pharmacokinetics of oral route**	2
4	**Pharmacokinetics of IV infusion**	2
5	**Multiple dosing and factors affecting drug absorption**	2
6	**Bioavailability (definition, types and assessment)**	2

7	**Drug absorption mechanisms-1**	2
8	**Drug absorption mechanisms-2 (Mid-term exam)**	2
9	**Factors affecting drug absorption (physico-chemical, formulation &physiological factors)**	2
10	**Drug distribution and drug metabolism**	2
11	**Discussion of self learning topic**	2
12	**Drug elimination (renal & extrarenal)**	2
13	**Compartment models (one & two compartments)**	2
14	**Revision**	2
16	**Final written and oral exam**	2
Week No.	**Practical topics**	**Practical credit hours**
1.	**Mathematical Fundamentals in pharmacokinetics and Calculation of AUC (Trapezoid rule)**	1
2.	**Rates and orders of Reactions**	1
3.	**One-Compartment Open Model: Intravenous Bolus Administration-1**	1
4.	**One-Compartment Open Model: Intravenous Bolus Administration-2**	**1**
5.	**Bioavailability**	1
6.	**Calculation of Elimination rate constant (K): using urine data** **Urinary excretion rate method**	1
7.	**Calculation of Elimination rate constant (K): using urine data**	1

	Sigma-minus method	
8.	**Mid-term exam**	-
9.	**Determination of absorption rate constant ka**	1
10.	**Multiple Dosing of IV bolus injection**	1
11.	**IV infusion**	1
12.	**Noyes-Whitney equation**	1
13	**Henderson-Hasselbalch equation**	1
14	**Revision**	1
15	**Practical exam**	-

4- Teaching and Learning Methods:

	Teaching and Learning Method	**Week no.**
1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning ● Online learning through My mans "Mansoura university "as recorded – video lectures ● Interactive discussion through My Mans Platform	1-14
2	Self-learning	11
3	Practical tutorials and student presentation seminars	1-7 9-14
4	Class Activity: Group discussion offline and online.	1-3

5	Problem – based learning and brainstorming	8-9
6	Research assignments	12

5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.7.1, 1.1.7.2, 1.1.7.3, 2.3.2.1, 2.3.2.2, 2.5.1.1, 3.1.1.1, 3.1.1.2
2-Practical exam	2.3.2.1, 2.3.2.2, 2.5.1.1, 3.1.1.1, 3.1.1.2, 4.1.2.1, 4.2.1.1, 4.3.2.1
3-Oral	2.3.2.1, 2.3.2.2, 2.5.1.1, 3.1.1.1, 3.1.1.2, 4.1.2.1, 4.2.1.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.7.1, 1.1.7.2, 1.1.7.3, 2.3.2.1, 2.3.2.2, 2.5.1.1

b. Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	8th week
Assessment 2	Practical examination and tutorial	15th week
Assessment 3	Written exam	16th week
Assessment 4	Oral exam	16th week

c. Weighing of assessments

1	Periodical (Mid-term) exam / Course work	10%
2	Practical examination and tutorial	25%
3	Final-term examination	50%

4	Oral examination	15%
Total		100%

6- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.

7- Matrix of course content versus course k. elements:

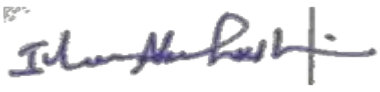
Week No.	Course contents / K. elements	Domain 1			Domain 2			Domain 3		Domain 4		
		1.1.7.1	1.1.7.2	1.1.7.3	2.3.2.1	2.3.2.2	2.5.1.1	3.1.1.1	3.1.1.2	4.1.2.1	4.2.1.1	4.3.2.1
1	Introduction to biopharmaceutics and pharmacokinetics definitions	✓	✓		✓	✓	✓	✓	✓	✓	✓	
2	Pharmacokinetic parameters and sites of drug administration	✓	✓		✓	✓	✓	✓	✓	✓	✓	
3	Pharmacokinetics of oral route	✓	✓		✓	✓	✓	✓	✓	✓	✓	
4	Pharmacokinetics of IV infusion	✓		✓	✓	✓		✓	✓	✓	✓	
5	Multiple dosing and factors affecting drug absorption	✓		✓	✓	✓		✓	✓	✓	✓	
6	Bioavailability (definition, types and assessment)	✓		✓	✓	✓		✓	✓	✓	✓	
7	Drug absorption mechanisms-1	✓		✓	✓	✓		✓	✓	✓	✓	
8	Drug absorption mechanisms-2 (Mid-term exam)	✓	✓	✓		✓	✓			✓	✓	✓

9	Factors affecting drug absorption (physico-chemical, formulation &physiological factors)	✓	✓	✓			✓	✓					✓	✓	✓
10	Drug distribution and drug metabolism	✓	✓	✓			✓	✓					✓	✓	✓
11	Discussion of self learning topic	✓		✓		✓		✓		✓	✓		✓	✓	✓
12	Drug elimination (renal & extrarenal)	✓	✓	✓		✓	✓			✓			✓		✓
13	Compartment models (one & two compartments)	✓	✓	✓		✓	✓			✓			✓		✓
14	Revision	✓	✓	✓		✓	✓			✓			✓		✓
1-7 9-14	● Practical topics ● Mathematical Fundamentals in pharmacokinetics and Calculation of AUC (Trapezoid rule) ● Rates and orders of Reactions ● Intravenous Bolus Administration ● Bioavailability ● Urinary excretion rate method ● Determination of absorption rate constant ka												✓		✓

	● Multiple Dosing of IV bolus injection ● IV infusion ● Noyes-Whitney equation ● Henderson-Hasselbalch equation														

8- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by stuff members	Videos on platform
3.	Applied Biopharmaceutics and Pharmacokinetics, 8th Ed., Leon Shargel, Susanna Wu-Pong, Andrew Yu, ed., McGraw Hill Professional (2022).	Book
5.	Basic pharmacokinetics, 2nd Ed., Mohsen A Hedaya ed., Pharmaceutical Press (2012)	Book
6.	http://www.sciencedirect.com http://www.google scholar.com http://www.pubmed.com https://www.ekb.eg	websites

Course Coordinator	Pro. Dr. Thanaa Mohamed Borg
	
Head of Department	Prof. Dr. Irhan Ibrahim Abu Hashim
	

Date: 20/9/2023

Level-3
Clinical Pharmacy Program

Quality control of herbal drugs

University: Mansoura
Faculty : Pharmacy
Department : Pharmacognosy
Course title: Quality Control of Herbal Drugs

Program on which the course is given	B. Pharm (Clinical Pharmacy)
Academic Level	**Level 3, Second semester, 2023-2024**
Date of course specification approval	6/9/2023

1. Basic Information : Course data :

Course title:	**Quality Control of Herbal Drugs**	**Code:**	**PG 606**
Specialization:	**Clinical Pharmacy (Pharmaceutical science)**		
Prerequisite: Phytochemistry-2			
Teaching Hours:	**Lecture: 2**	**Practical:**	**1**
Number of units: (credit hours)	**3**		

2. Course Aims:

The aims of this course are to:

1. Deal with the general principles of quality control laboratory scheme and use the different preliminary screening methods for analysis and testing the purity of the crude herbal products.

2. Apply different spectroscopic and chromatographic methods in analysis of herbal products.

3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Distinguish the quality control from herbal aspects, sampling, structural, physical, and analytical standards, purity, safety and adulteration of drugs and their detection.
	1.1.1.2	Retrieve and evaluate information, solve problems, and work effectively in a team.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Manipulate the quality control from herbal aspects, sampling, structural, physical, and analytical standards, purity, safety and adulteration of drugs and their detection.
2.5.1	2.5.1.1	Determine the different pharmacokinetic parameters from the supplied biological data.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development.

4. Course Contents:

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Introduction to the quality control of herbal drugs	2	
2	Pharmacopeial Standards of herbal products	2	
3	Natural plant toxins	2	
4	Poisonous Plants I	2	
5	Poisonous Plants II	2	
6	Herbal adulteration	2	

8	**Mid-term Exam**		
9	Herb-herb interactions	2	
10	Herb- Drug interactions	2	
11	Herb- Food interactions	2	
12	Agrochemical Residue	2	
13	Heavy Metals	2	
14	Biological Contaminants	2	
15	Revision and quiz	2	
16	**Final written and oral exam**		
Week No	**Practical Topics**		**Practical credit hours**
1-2	Introduction to the quality control of herbal drugs		2
3-4	Pharmacopeial Standards of herbal products		2
5-6	Poisonous Plants		2
7	Herb, Drug and Food interactions		1
8	**Mid-term Exam**		
9-10	Agrochemical Residue		2
11-12	Heavy Metals		2
13-14	Biological Contaminants		2
15	**Practical Exam**		

5. Teaching and learning Methods:

5.1.	**Computer aided learning** 5.1.1. Online learning through My Mans "Mansoura University as recorded video lectures. 5.1.2. Interactive Discussions through My Mans. 5.1.3. Lectures using Data show, Power point presentations.
5.2.	**Self-Learning**
5.3.	**Formative Assignments**
5.4.	**Case study and Problem solving**
5.5.	**Research and Reports**

6. Student Assessment:

a- Assessment methods:

1- Mid Term exam	**To assess understanding, intellectual and professional skills**
2-Practical exam	**To assess professional and practical skills**
3-Final Written exam	**To assess understanding, intellectual and professional skills**
4-Oral exam	**To assess understanding, intellectual, general and transferable skills**

b- Assessment schedule

Assessment 1	Practical	15th week
Assessment 3	Mid-term	8th week
Assessment 3	Oral	16th week
Assessment 45	Written	16th week

c- Weighting of assessments

1	Mid-term examination	10 %
2	Final-term examination	50 %
3	Oral examination	15 %
4	Practical examination & Semester work	25 %
Total		100%

7. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes					
		Domain 1			Domain 2		Domain 4
		1.1.1.1	1.1.1.2		2.2.1.1	2.5.1.1	4.3.2.1
	1. Theoretical Part						
1	Introduction to the quality control of herbal drugs	✓	✓				
2	Pharmacopeial Standards of herbal products	✓	✓				
3	Natural plant toxins	✓	✓				✓
4	Poisonous Plants I	✓	✓				✓
5	Poisonous Plants II	✓	✓				✓
6	Herbal adulteration	✓	✓				✓
9	Herb-herb interactions	✓	✓				✓
10	Herb- Drug interactions	✓					✓
11	Herb- Food interactions	✓	✓				✓
12	Agrochemical Residue	✓	✓				✓
13	Heavy Metals	✓					✓
14	Biological Contaminants	✓					✓
15	Revision and quiz	✓	✓				✓
	2. Practical Part						
1-2	Introduction to the quality control of herbal drugs				✓		✓
3-4	Pharmacopeial Standards of herbal products				✓	✓	✓
5-6	Poisonous Plants				✓		✓
7	Herb, Drug and Food interactions				✓	✓	✓

9-10	Agrochemical Residue			✓	✓	✓
11-12	Heavy Metals			✓		✓
13-14	Biological Contaminants			✓		✓

8. List of References

N0.	Reference	type
1	Lectures note written by Faculty members	Course notes
2	Tease and Evens, "General Pharmacognosy",saunders, London, New York, Sydney, Toronto, 2015.	book
3	Jackson, B.P. and Snowdon, D.W. "Powdered vegetable drugs" 17th. Ed, W.B. Saunders Company Ltd., London, 2017.	book
4	Egyptian Pharmacopoeia "The English Text", 6rd Ed., Vol. 1, Cairo, General organization for Government Printing Office, 2014.	book
5	WHO guidelines 2017	book
6	http://www. Sciencedirect.com	Website

Course Coordinator :	Prof. Amal Abd-Elhamid Galala
Head of department	Prof. Dr. Mahmoud F. Elsebai
Date	6/9/2023

Course specification
2023/2024
Clinical Pharmacy Program
Faculty of Pharmacy
Mansoura University

Third level

Course specification of Pathology

University: Mansoura University (MU)
Faculty : Medicine
Department : Pathology
Course title: Pathology

Program on which the course is given	B. Pharm (Clinical Pharmacy)
Academic Level	Third Level, second semester-2023-2024
Date of course specification approval	10th September , 2023

1- Basic Information : Course data :

Course title:	Pathology	**Code:** MD 608	
Specialization:	Medical		
Prerequisite:			
Teaching Hours:	**Lecture:** 2	**Practical:** 1	
Number of units: (credit hours)	3		

2- Course Aims:

On completion of the course, the student will be able to recognize different diseases regard pathologic terminology, pathogenesis, and diagnosis bases on morphologic changes.

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.2	1.1.1.1	Define inflammation and its pathogenesis and classification with comparison between them.
	1.1.1.2	Define repair & identify its types. Enumerate complication and factors affecting repair.
1.1.4	1.1.4.1	Define & identify different disorders (cardiac and respiratory).

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.2	2.1.2.1	Establish the best use of knowledge regarding patient health and associated ethical guidelines.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.4	3.1.4.1	Formulate a systemic approach for the laboratory diagnosis of common infectious clinical conditions and select the most appropriate tools.
3.2.5	3.2.5.1	Develop appropriate methods of infection control to limit infections and promote medical awareness

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.2.1.1	Use the correct medical terms related to different diseases when dealing with different members of the community.
4.3.2	4.3.2.1	Use different approaches to ensure ongoing professional development including self-learning and establishing a strategy to achieve this aim.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Introduction to pathology	2
2	Adaptation, reversible and irreversible cell injury	2
3	Intracellular accumulation of different substances	2
4	Extracellular accumulation of different substances	2
5	Classification and pathogenesis of acute inflammation	2

6	Chronic inflammation	**2**
7	Pathology of repair	**2**
8	Pathology of different circulatory disorders	**2**
9	Introduction to neoplasia	**2**
10	Classification of neoplasia	**2**
11	Thrombosis and embolism	**2**
12	Cardiovascular disorders	**2**
13	Respiratory disorders	**2**
14	CNS disorders	**2**
15	Revision and quiz	**2**
16	Final written exam	**-**

	Practical topics	Lecture credit hours	Practical credit hours
1	Introduction to pathology		1
2	Adaptation		1
3	Intra and extracellular accumulation of different substances		1
4	Acute inflammatory diseases		1
5	Chronic inflammatory diseases		1
6	Complication of repair and scar		1
7	Necrosis		1
8	**Mid Term**		
9	Infraction, hemorrhage and gangrene.		1
10	Thrombosis		1
11	Tuberculosis.		1
12	Benign and malignant tumors		1
13	Bilharziasis		1
14	Revision		1
15	Practical exam		-

4- Teaching and learning Methods:

5.1	Interactive session on platform , PowerPoint presentations
5.2	Practical session
5.3	Case study
5.4	Distance learning
5.5	Self-learning

5- Student Assessment:

a- Assessment methods:

Mid Term exam	1.1.1.1, 1.1.1.2, 1.1.4.1, 2.1.2.1, 3.1.4.1, .3.25.1
Practical exam	1.1.1.1, 1.1.1.2, 1.1.4.1, 2.1.2.1, 3.1.4.1, .3.25.1, 4.2.1.1, 4.3.2.1
Final Written exam	1.1.1.1, 1.1.1.2, 1.1.4.1, 2.1.2.1, 3.1.4.1, .3.25.1,
Oral exam	1.1.1.1, 1.1.1.2, 1.1.4.1, 2.1.2.1, 3.1.4.1, .3.25.1, 4.2.1.1, 4.3.2.1

b- Assessment schedule

Assessment 1	Mid-term	8th week
Assessment 2	Practical	15th week
Assessment 3	Written	16th week
Assessment 4	Oral	16th week

c- Weighting of assessments

1.	Mid-term examination	10 %
2.	Practical examination and semester work	25 %
3.	Oral examination	15 %
4.	Final-written examination	50 %
Total		100 %

6- Facilities required for teaching and learning

Classroom	Data show, Computers, Internet.

7-Matrix : Course content and course key elements:

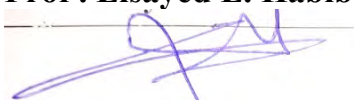
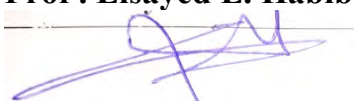
Course contents	Study Week	Course Key Elements							
		Domain 1			Domain 2	Domain 3		Domain 4	
		1.1.1.1	1.1.1.2	1.1.4.1	2.1.2.1	3.1.4.1	.3.25.1	4.2.1.1	4.3.2.1
Introduction to pathology	1	√	√	√		√			
Adaptation, reversible and irreversible cell injury	2	√	√	√		√			
Intracellular accumulation of different substances	3		√	√		√			
Extracellular accumulation of different substances	4		√	√		√			
Classification and pathogenesis of acute inflammation	5		√	√		√	√	√	√
Chronic inflammation	6	√	√	√	√	√		√	√
Pathology of repair	7		√	√	√	√		√	√
Pathology of different circulatory disorders	8		√	√		√		√	√
Introduction to neoplasia	9		√	√		√		√	√
Classification of neoplasia	10		√	√		√		√	√
Thrombosis and embolism	11	√	√	√	√	√	√	√	√
Cardiovascular disorders	12		√	√		√		√	√
Respiratory disorders	13		√	√		√		√	√
CNS disorders	14		√	√		√		√	√

Revision and quiz	**15**	√	√	√	√	√	√	√	√

Course contents	**Study Week**	**Course Key Elements**							
		Domain 1			**Domain 2**	**Domain 3**		**Domain 4**	
		1.1.1.1	**1.1.1.2**	**1.1.4.1**	**2.1.2.1**	**3.1.4.1**	**.3.25.1**	**4.2.1.1**	**4.3.2.1**
Introduction to pathology	**1**	√	√	√		√			
Adaptation	**2**	√	√	√					
Intra and extracellular accumulation of different substances	**3**		√	√					
Acute inflammatory diseases	**4**		√	√					
Chronic inflammatory diseases	**5**		√	√			√	√	√
Complication of repair and scar	**6**	√	√	√	√			√	√
Necrosis	**7**		√	√	√	√		√	√
Infraction, hemorrhage and gangrene.	**9**		√	√	√	√		√	√
Thrombosis	**10**		√	√	√			√	√
Tuberculosis.	**11**		√	√	√	√		√	√
Benign and malignant tumors	**12**		√	√	√			√	√
Bilharziasis	**13**		√	√	√	√		√	√
Revision	**14**		√	√	√	√	√	√	√

8- List of References

No.	Reference	type
1	Kumar, V., Abbas, A. K., & Aster, J. C. (2015). *Robbins and Cotran pathologic basis of disease* (Ninth edition.). Philadelphia, PA: Elsevier/Saunders.	Book
2	Lectures notes prepared by staff members	Course notes
3	https://www.ekb.eg	website

Course Coordinator :	Prof . Elsayed E. Habib 
Head of supervision department	Prof . Elsayed E. Habib 

Course specification
2023/2024
Clinical Pharmacy Program
Faculty of Pharmacy
Mansoura University

Third Level

Course Specification First Aid

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacology and toxicology
Course title: Tromas and First Aid
Course code: MD 609

Program on which the course is given	B. Pharm (Clinical Pharmacy
Academic Level	Level 3, Second semester, 2023/2024
Date of course specification approval	18/9/2023

1. Basic Information: Course data:

Course title:	Tromas and First Aid	Code: MD 609
Specialization:	Medical sciences	
Prerequisite:	Histology, anatomy and physiology	
Teaching Hours:	Lecture: 2	Practical: 0
Number of units: (credit hours)	2	

2. Course Aims:

2.1. The correct procedures to be followed in the emergency care of a sick or injured casualty.

2.2. The skills and knowledge critical for saving life and minimizing the severity of injury or sudden illness.

2.3. Safety awareness and accident prevention are emphasized throughout the course.

3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Recognize first aid skills and management for a range of common disorders and

		injuries.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Illustrate professional requirements for individuals and healthcare team to provide first aid care.
2.4.1	2.4.1.1	Identify and deal with different causes of poisoning and select the first aid measures for various toxic agents.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.2	3.2.2.1	Assess and perform first aid measures and initial therapy for injured and ill casualties.
	3.2.2.2	Demonstrate how to perform basic first aid technical procedures.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.3.1	4.3.1.1	Acquire skills to arrange priorities in case of managing medical emergencies in pharmacy.
	4.3.1.2	Practice independent learning to promote first aid knowledge and skills.

4. Course Contents:

Week No	Topics	Lecture credit hours
1	Introduction to first aid	2

2	First aid care for allergic reactions, anaphylaxis, and shock	2
3	Respiratory Emergencies	2
4	Cardiovascular Emergencies	2
5	Diabetic Emergencies	2
6	First aid care for wounds, and burns	2
7	First aid care for choking	2
8	First aid care for bleeding	2
9	First aid care for musculoskeletal injuries	2
10	Neurological emergencies	2
11	Environmental emergencies	2
12	First aid care for Bites and Stings	2
13	Muscles, Bones and joints injuries	2
14	First aid care for poisoning	2
15	Human bites (self-learning)	2
16	**Final theoretical and oral exam**	

5. Teaching and learning Methods:

5.1	**Computer aided learning:** **a. On line learning through My mans "Mansoura university "as recorded – video lectures** **b. Inter active discussion through My Mans** **c. Lectures using Data show, PowerPoint presentations** **d. Lectures showing animations and videos to illustrate first aid techniques.**
5.2	**Self-learning**
5.3	**Formative Assignments**

6. Student Assessment:

a- Assessment Methods:

1-Written exam	**1.1.1.1, 2.1.1.1, 2.4.1.1, 3.2.2.1**
2-Practical exam	**……**
3-Oral	**1.1.1.1, 2.1.1.1, 2.4.1.1, 3.2.2.2, 4.3.1.2**
4- Periodical (Mid-term exam)	**1.1.1.1, 2.1.1.1, 2.4.1.1, 3.2.2.1, 4.3.1.1**

b- Assessment schedule:

Assessment 1	**Mid-term**	8th week
Assessment 2	**Practical**	……

Assessment 3	**Written**	16th week
Assessment 4	**Oral**	16th week

c- Weighting of assessments:

1.	**Mid-term examination**	20 %
2.	**Final-term examination**	65 %
3.	**Oral examination**	15 %
4.	**Practical examination and Semester work**	0 %
Total		100 %

7. List of References

N0.	Reference	type
1	First Aid Manual, 11th Edition. Written and Authorised by the UK's Leading First Aid Providers (2021).	**Book**
2	First Aid/ CPR/ AED Participant's Manual, Published by American Red Cross (2021).	**Book**
3	Lectures notes prepared by staff members	**Course notes**

8. Matrix of course content versus course k. elements:

Week No.	Course contents / K. elements	Domain 1	Domain 2		Domain 3		Domain 4	
		1.1.1.1	2.1.1.1	2.4.1.1	3.2.2.1	3.2.2.2	4.3.1.1	4.3.1.2
1	Introduction to first aid	✓	✓	✓	✓	✓		
2	First aid care for allergic reactions and anaphylaxis	✓	✓	✓	✓	✓		
3	Respiratory Emergencies	✓	✓	✓	✓	✓		
4	Cardiovascular Emergencies	✓	✓	✓	✓	✓		
5	Diabetic Emergencies	✓	✓	✓	✓	✓	✓	✓
6	First aid care for wounds, and burns	✓	✓	✓	✓	✓	✓	✓

7	First aid care for choking	✓			✓	✓			✓	✓		✓	✓
8	First aid care for bleeding	✓			✓	✓			✓	✓		✓	✓
9	First aid care for musculoskeletal injuries	✓			✓	✓			✓	✓		✓	✓
10	Neurological emergencies	✓			✓	✓			✓	✓		✓	✓
11	Environmental emergencies	✓			✓	✓			✓	✓		✓	✓
12	First aid care for Bites and Stings	✓			✓	✓			✓	✓		✓	✓
13	Muscles, Bones and joints injuries	✓			✓	✓			✓	✓		✓	✓
14	First aid care for poisoning	✓			✓	✓			✓	✓		✓	✓
15	Human bites (self-learning)	✓			✓	✓			✓	✓		✓	✓

Course Coordinator	**Dr. Manar Gamal Abdel Hameed Helal**
Head of Department	**Prof. Dr. Manar Ahmed Nader**

Date: 18/9/2023