Level 4

Semester (7)

Course Title	Course code
Pharmacology II	PO 702
Radiopharmaceuticals	PP 701
Clinical pharmacy-I	PP 702
Hospital pharmacy	PP 703
Controlled drug delivery system	PT 704
Public health and preventive medicine	MD 710
Pharmaceutical Biotechnology	PM 703
Pharmaceutical microbiology	PM 704

Semester (8)

Course Title	Course code
Medicinal chemistry-II	PC 810
Clinical pharmacy -II	PP 805
Phytotherapy	PG 807
Pharmaceutical analysis and quality control	PC 808
Clinical biochemistry	PB 803
Drug marketing	PP 806
Drug interactions	PO 803

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

Fourth Level

Course Specifications Pharmacology II

University: Mansoura university (MU)
Faculty : Pharmacy
Department : Pharmacology and Toxicology
Course title: Pharmacology II
Course code: PO 702

Program on which the course is given	**B. Pharm (Clinical Pharmacy Program)**
Academic Level	Level 4, Second semester, 2023/2024
Date of course specification approval	September 2023

1. Basic Information: Course data:

Course title:	Pharmacology II	**Code:**	PO702
Specialization:	Medical Sciences		
Prerequisite:	Pharmacology I		
Teaching Hours:	**Lecture:** 2	**Practical:**	1
Number of units: (credit hours)	3		

2. Course Aims:

Pharmacology II course aims to:

1. Provide knowledge and understanding of the basic principles of pharmacology pharmacokinetics and pharmacodynamics of various drug classes affecting various body organs and systems.
2. Provide fundamental pharmacological knowledge of the principles of drug action.
3. Provide comprehensive coverage of the major drug groups affecting different body systems; Cardiovascular system, gastrointestinal tract, skeletal muscles, anesthetics and anti-inflammatory drugs

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**	Demonstrate decision making processes for predictable drug-related problems.

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
4.3.1	**4.3.1.1**	Apply effective plans to achieve and improve self-practice of pharmacy.

4. Contents:

Week No	Topics	Lecture credit hour
1.	Antihypertensive Drugs (part 1)	2
2	Antihypertensive Drugs (part 2)	2
3	Drugs for Treatment of Congestive Heart Failure (part 1)	2
4	Drugs for Treatment of Congestive Heart Failure (part 2)	2
5	Antiarrythmic drugs	2
6	Diuretics drugs	2
7	Antiplatelets and thrombolytic agents and Anticoagulants	2

8	Anti-inflammatory Drugs	2
9	Anti-anemic Drugs	2
10	Drugs for Treatment of Dyslipidemia	2
11	Pharmacology of Drugs affecting the gastrointestinal Tract	2
12	Skeletal Muscles Relaxants	2
13	Antianginal Drugs (part 1)	2
14	Antianginal Drugs (part 2) (self learning)	2
15	Revision and quiz	2
16	**Final written and oral Exams**	

Week No	**Practical topics**	**Lecture credit hour**
1.	Antihypertensive drugs (Case study1)	1
2	Antihypertensive drugs (Case study2)	1
3	Drugs for Treatment of Congestive Heart Failure (Case study1)	1
4	Drugs for Treatment of Congestive Heart Failure (Case study2)	1
5	Antiarrythmic drugs case study	1
6	Diuretics drugs case study	1
7	Antiplatelets and thrombolytic agents case study	1
8	**Mid-term exam**	
9	Anticoagulants case study	1
10	Anti-inflammatory drugs case study	1
11	Anti-anemic drugs case study	**1**
12	Drugs for Treatment of dyslipidemia case study	1
13	Pharmacology of Drugs affecting the gastrointestinal Tract (case study)	1
14	Antianginal Drugs (case study)	1
15	**Practical exam**	**1**

5. Teaching and learning Methods:

5.1	Lectures using white boards, data shows and online platforms of which Microsoft teams and Moodle
5.2	Practical classes provided with experimental animals for handling and demonstration of toxicities with data shows and white boards for data presentation
5.3	Student seminars and research assignments.
5.4	Case studies

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-Written exam	**1.1.4.1, 2.4.3.1, 3.1.1.1, 3.2.1.1**
3-Practical exam	**1.1.4.1, 2.4.3.1, 3.1.1.1, 3.2.1.1, 4.3.1.1**
4-Oral	**1.1.4.1, 2.4.3.1, 3.1.1.1, 3.2.1.1, 4.3.1.1**

b- Assessment schedule

Assessment 1	Practical	15th week
Assessment 3	Mid-term	8th week
Assessment 3	Oral	16th week
Assessment 4	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. List of References

No	Reference	Type
1.	Course note by staff member	**Notes**
2.	Katzung and Trevor's Pharmacology Examination and Board Review; Katzung B, Kruidering-Hall M, Tuan RL, Vander TW, Trevor A. McGraw Hill Lange; 13th edition (2021).	**Book**
3.	Rang H Rang and Dale's pharmacology; Ritter J; Flower R; Henderson G; Loke YK; MacEwan D. Elsevier; 9th edition (2020).	**Book**
4.	Lippincott's Pharmacology; illustrated review; Karen Whalen. Wolters Kluwer; 8th edition (2022).	**Book**
5.	Basic & Clinical Pharmacology; Katzung B.G., & Vanderah T.W. (Eds.). McGraw Hill Lange; 15th edition (2021).	**Book**

6.	ACCP guidelines (https://www.accp.com/) Egyptian Knowledge Bank (https://www.ekb.eg/)	**websites**

8. Matrix of knowledge and skills of the course

Study Week	Course contents	Domains / Key elements Outcomes									
		Domain 1		Domain 2		Domain 3				Domain 4	
		1.1.4.1		2.4.3.1		3.1.1.1	3.2.1.1			4.3.1.1	
	A) Theoretical part										
1	Antihypertensive Drugs (part 1)	√		√		√	√				
2	Antihypertensive Drugs (part 2)	√		√		√	√				
3	Drugs for Treatment of Congestive Heart Failure (part 1)	√		√		√	√				
4	Drugs for Treatment of Congestive Heart Failure (part 2)	√		√		√	√				
5	Antiarrythmic drugs	√		√		√	√			√	
6	Diuretics drugs	√		√		√	√			√	
7	Antiplatelets and thrombolytic agents and Anticoagulants	√		√		√	√			√	
8	Anti-inflammatory Drugs	√		√		√	√			√	
9	Anti-anemic Drugs	√		√		√	√			√	
10	Drugs for Treatment of Dyslipidemia	√		√		√	√			√	
11	Pharmacology of Drugs affecting the gastrointestinal Tract	√		√		√	√			√	
12	Skeletal Muscles Relaxants	√		√		√	√			√	
13	Antianginal Drugs (part 1)	√		√		√	√			√	
14	Antianginal Drugs (part 2) (self learning)	√		√		√	√			√	
15	Revision and quiz	√		√		√	√			√	
	B) Practical part										
1	Antihypertensive drugs (Case study1)	√		√		√	√			√	

2	Antihypertensive drugs (Case study2)	√	√	√	√		√
3	Drugs for Treatment of Congestive Heart Failure (Case study1)	√	√	√	√		√
4	Drugs for Treatment of Congestive Heart Failure (Case study2)	√	√	√	√		√
5	Antiarrythmic drugs case study	√	√	√	√		√
6	Diuretics drugs case study	√	√	√	√		√
7	Antiplatelets and thrombolytic agents case study	√	√	√	√		√
9	Anticoagulants case study	√	√	√	√		√
10	Anti-inflammatory drugs case study	√	√	√	√		√
11	Anti-anemic drugs case study	√	√	√	√		√
12	Drugs for Treatment of dyslipidemia case study	√	√	√	√		√
13	Pharmacology of Drugs affecting the gastrointestinal Tract (case study)	√	√	√	√		√
14	Antianginal Drugs (case study)	√	√	√	√		√

Course Coordinator :	**Prof. Dr. Ghada Mohamed Suddek**
Head of department	**Prof. dr. Manar Ahmed Nader**

Date: September 2023

بكالوريوس الصيدلة الإكلينيكية

Course Specification

Academic year: 2023-2024

Course name: Radiopharmaceuticals (PT 708)	اسم المقرر:المستحضرات المشعة
Academic Level: Level 4	المستوى الأكاديمي: الرابع
Scientific department: Clinical Pharmacy and Pharmacy Practice	**القسم العلمي:** الصيدلة الإكلينيكية والممارسة الصيدلية
Head of Department Dr. Mohamed Elhusseiny Shams	**رئيس القسم:** د. محمد الحسيني شمس
Course Coordinator: **Noha Mohamed Saleh Marey**	:منسق المقرر

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- Credit hours)**
Academic Level	**Level Four, First Semester, 2023-2024**
Date of course specification approval	**20/9/2023**

1- Basic Information: Course data:

Course Title	**Radiopharmaceuticals**
Course Code	**PP 701**
Prerequisite	**Registration**
Teaching Credit Hours: Lecture	**1**
Practical	**0**
Total Credit Hours	**1 (Credit H)**

2- Course Aims:

1. Orienting the students to the clinical effect of radioactive pharmaceutical products, i.e., using the most effective radionuclide for the scanning, diagnosis, and treatment of the diseases.

2. Gain good knowledge about preparation and handling of the radiopharmaceutical products.

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	State the different applications of radiation and radioactive compounds in medical diagnosis
	1.1.1.2	List the different methods of preparation, quality control of radioactive compounds and different examples of radiopharmaceuticals.
	1.1.1.3	Recall the different methods of dose calculation and unit utility.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.3.1	2.3.1.1	Solve problems related to; the decay of radioactive compounds and equipment used to produce radionuclides.
	2.3.1.2	Choose the most suitable types of radioactive compounds and their applications (diagnosis, therapy, industry).

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.6	3.2.6.1	Apply the suitable dosing system required for radioactive compounds.

	3.2.6.2	Evaluate the quality controls of the prepared radiopharmaceuticals.

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	Credit Hours
1	Introduction about radiopharmaceutical.	1
2	Preparation of radiopharmaceuticals.	1
3	Quality control of radiopharmaceuticals.	1
4	Generators and equipment used to produce radionuclides	1
5	The application of radiation medical diagnosis.	1
6	The application of radiation in therapy-part 1	1
7	The application of radiation in therapy-part 2	1
8	The application of radiation in industry (**Mid-Term Exam)**	1
9	Rationale for dose calculation and unit utility-part 1	1
10	Rationale for dose calculation and unit utility-part 2	1
11	Official examples of radiopharmaceuticals.	1
12	Non-Official examples of radiopharmaceuticals.	1

13	Discussion of self-learning	1
14	Revision	1
15	**Final written exam**	-

5- Teaching and Learning Methods:

	Teaching and Learning Methods	Week no.
5.1	**Computer aided learning:** **a. Online learning through My mans "Mansoura university "as recorded – video lectures** **b. Interactive discussion through My Mans platform** **c. Power point (PPT) presentations**	**Week 1-14**
5.2	**Self-learning**	**Week 13**
5.3	**Formative Assignments**	**Week 9**
5.4	**Class Activity Discussion**	**Week 11-14**

6- Student Assessment:

a- Assessment Methods:

1-Periodical (Mid-term exam)/ Course work	**1.1.1.1, 1.1.1.3, 2.3.1.1, 3.2.6.1, 4.1.2.1, 4.3.2.1**
2-Written exam	**1.1.1.1, 1.1.1.2, 1.1.1.3, 2.3.1.1, 2.3.1.2, 3.2.6.1, 3.2.6.2**

b- Assessment schedule

Assessment 1	**Mid-term**	8th week
Assessment 2	**Written**	15th week

c- Weighing of assessments

1	**Mid-term examination**	25%
2	**Final-term examination**	75%
Total		100%

7- Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Library	Books and Pharmacopoeia

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	1.1.1.2	1.1.1.3	2.3.1.1	2.3.1.2	3.2.6.1	3.2.6.2	4.1.2.1	4.3.2.1
1	Introduction about radiopharmaceutical.	√				√			√	√
2	Preparation of radiopharmaceuticals.		√					√		
3	Quality control of radiopharmaceuticals.									

4	Generators and equipment used to produce radionuclides		√			√						
5	The application of radiation medical diagnosis.	√	√				√				√	√
6	The application of radiation in therapy-part 1	√	√				√				√	√
7	The application of radiation in therapy-part 2	√		√		√			√			
8	The application of radiation in industry (**Mid-Term Exam)**	√	√				√				√	√
9	Rationale for dose calculation and unit utility-part 1			√		√			√			
10	Rationale for dose calculation and unit utility-part 2			√		√			√			
11	Official examples of radiopharmaceuticals.		√				√				√	√
12	Non-Official examples of radiopharmaceuticals.											
13	Discussion of self-learning	√	√				√				√	√
14	Revision	√	√	√		√	√		√	√	√	√

9- List of References

No	Reference	Type
1.	Electronic theoretical notes prepared by teaching staff members.	Course notes
2.	Handbook of radiopharmaceutical, Radiochemistry and application, 1st Ed, Michael J. Welch & Carol S, Redvanly. (2008).	Essential Book

3.	Radiopharmaceuticals in Nuclear Pharmacy & Nuclear Medicine, 2nd Ed, Richard J. Kowalsky. (2007).	Essential Book
4.	http://www.ekb.eg https://www.who.int/medicines/publications/pharmacopoeia/Radgenmono.	Websites

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

Date: 20/9/2023

Modified Bylawبكالوريوس الصيدلة الإكلينيكية (لائحة معدلة –)

Course Specification

Academic year: 2023-2024

Course name: Cosmetic preparations	اسم المقرر: مستحضرات التجميل
Academic Level: Elective Course	المستوى الأكاديمي: مقرر اختياري
Scientific department: Pharmaceutics	القسم العلمي: الصيدلانيات
Head of Department: **Prof. Dr. Irhan Ibrahim Abu Hashim**	رئيس القسم: أ.د/ ارهان ابراهيم ابو هاشم
Course Coordinator: **Noha Mohamed Saleh Marey**	منسق المقرر د/نهى محمد صالح المتولي مرعي

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutics
Department supervising the course	Pharmaceutics
Program on which the course is given	**B. Pharm. (Modified Bylaw) (Clinical Pharmacy)**
Academic Level	**Level 4, First semester, 2023-2024**
Date of course specification approval	**20/9/2023**

3- Basic Information: Course data:

Course Title	**Cosmetic preparations**
Course Code	**PTE14**
Prerequisite	**Registration**
Teaching Hours: Lecture	**1**
Practical	**1**
Total Credit Hours	**2 (Credit H)**

4- Course Aims:

2.1. Knowing the basic principles and techniques of compounding, dispensing and evaluation of different cosmetic preparations.

2.2. Enumerating the different properties and classification of each cosmetic preparation.

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**	Define the different cosmetic products and bases in their preparation.
1.1.3	**1.1.3.1**	Classify different methods of preparation of various cosmetic products.
	1.1.3.2	Identify the different methods of evaluation of some cosmetic preparations.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.2.1	**2.2.1.1**	Organize the basic concepts involved in the formulation and manufacture of cosmetic products.
	2.2.1.2	Specify the factors affecting on the preparation and evaluation of different cosmetic preparations.
2.2.4	**2.2.4.1**	Apply quality control and quality assurance of all the processes of pharmaceutical formulations and their applications for cosmetic delivery systems evaluation such as shampoo, fragrance, nail lacquers and eye makeup.

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 communicate verbally in a scientific language.
4.3.2	**4.3.2.1**	Practice self-learning to improve professional skills

4- Course Contents

Week No.	Topics	Credit Hours
1	Definition of cosmetics, types of cosmetics. Skin care products.	1
2	Antiperspirant and deodorants	1
3	Moisturizers	1
4	Anti-dandruff preparations	1
5	Cleansers	1
6	Hair dyes and Sunscreen preparations	1
7	Tanning	1
8	Eye make up **(Mid-Term Exam)**	1
9	Dentifrices	1
10	Shampoos	1
11	Nail lacquers	1
12	Fragrance preparations	1
13	Discussion of self-learning topic	1
14	**Revision**	1
15	**Final written and oral exam**	-
Week No.	**Practical topics**	**Credit hours**

1	Antiperspirants	1
2	deodorants	1
3	Shaving Creams	1
4	Foundation Creams	1
5	Cleansing Creams	1
6	Toothpastes	1
7	Eye makeup	1
8	**Mid-Term Exam**	-
9	Moisturizer (Hand cream)	1
10	Sunscreen cream	1
11	Acne vulgaris cream	1
12	Shampoo	1
13	**Revision**	1
14	**Practical exam**	-

5- 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	1-14

	• Online learning through My Mans "Mansoura university "as recorded – video lectures • Interactive discussion through My Mans Platform	
2	Self-learning	13
3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-7 9-13
4	Class Activity: Group discussion offline and online.	1-3
5	Problem – based learning and brainstorming	8-9
6	Research assignments	13

6- Student Assessment:

d- Assessment Methods:

1-Written exam	1.1.1.1 / 1.1.3.1/1.1.3.2
2-Practical exam	2.2.1.1 / 2.2.1.2/2.2.4.1/ 4.3.2.1
3-Oral	4.1.2.1
4-Periodical (mid-term and class work)	4.1.2.1 / 4.3.2.1/ 1.1.1.1/ 1.1.3.1/1.1.3.2

e- Assessment schedule

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

Other assessment		

f- Weighing of assessments

1	**Midterm and Practical exam**	25%
2	**Final-term examination**	75%
3	**Other types of assessment**	-------
Total		100%

7- Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Laboratory facilities	Water baths, glassware, chemicals, electronic balance
Library	Books and Pharmacopoeia

8- Matrix of knowledge and skills of the course

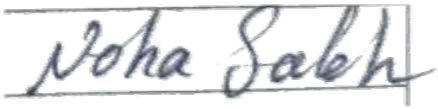
Study Week	**Course contents**	**Outcomes** **Domains / Key elements**							
		Domain 1				**Domain 2**			**Domain 4**	
		1.1.1.1	**1.1.3.1**	**1.1.3.2**		**2.2.1.1**	**2.2.1.2**	**2.2.4.1**	**4.1.2.1**	**4.3.2.1**
1	Definition of cosmetics, types of cosmetics. Skin care products.	√	√	√		√	√	√	√	√
2	Antiperspirant and deodorants	√	√	√		√	√	√	√	√
3	Moisturizers	√	√	√		√	√	√	√	√

4	Anti-dandruff preparations	√	√	√		√	√	√		√	√
5	Cleansers	√	√	√		√	√	√		√	√
6	Hair dyes and Sunscreen preparations	√	√	√		√	√	√		√	√
7	Tanning	-	-	-		-	-	-		-	-
8	Eye make up **(Mid-Term Exam)**	√	√	√		√	√	√		√	√
9	Dentifrices	√	√	√		√	√	√		√	√
10	Shampoos	√	√	√		√	√	√		√	√
11	Nail lacquers	√	√	√		√	√	√		√	√
12	Fragrance preparations	√	√	√		√	√	√		√	√
13	Discussion of self-learning topic	√	√	√		√	√	√		√	√
14	**Revision**	√	√	√		√	√	√		√	√
1-7 **9-13**	**Practical topics** Antiperspirant and deodorants, Creams (Shaving, foundation, and cleansing), Toothpastes, Eye makeup, Moisturizer (Hand cream), Sunscreen cream ,									√	√

	Acne vulgaris cream , Shampoo										

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.	Harrys cosmeticology, Martin M Rieger (Editor). Publisher: chemical publisher, chemical publishing company ,8th edition, May 2000.	**Book**
4.	Handbook of cosmetic science and technology, the theory and practice of cosmeceuticals, Patel Hardik k., Suthar Rajnikant M., Patel Meghana H, Paperback, 2015.	**Book**
5.	The chemistry and manufacture of cosmetics M, Schlossman (editor), Allureds publishing crop USA vols 1, 2001.	**Book**
6.	https://www.researchgate.net/publication/325023106 http://www.sciencedirect.com/ http://www.google.com / http://www.pubmed.com https://www.ekb.eg	**Websites**

Course Coordinator	**Noha Mohamed Saleh Marey**
	
Head of Department	**Dr Mohamed ELhusseiny Shams**

Date: 20/9/2023

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة الإكلينيكية

Course Specification Academic year:

2023-2024

Course name: Clinical Pharmacy-1	**اسم المقرر:** صيدلة اكلينيكية-1
Academic Level: Level 4	المستوى الأكاديمي: الرابع
Scientific department: Clinical Pharmacy and Pharmacy Practice	**القسم العلمي:** الصيدلة الإكلينيكية والممارسة الصيدلية
Head of Department: **Dr. Mohammed Elhusseiny Shams**	**رئيس القسم:** أ.د/ محمد الحسيني شمس
Course Coordinator: **Dr. Moetaza Mahmoud Hassab**	**منسق المقرر:** أ.م.د/ معتزة محمود حسب السيد

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

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

1- Basic Information: Course data:

Course Title	**Clinical Pharmacy-1**
Course Code	**PP 702**
Prerequisite	**Pharmacology 1**
Credit Hours: Lecture	**2**
Tutorial	**1**
Total Credit Hours	**3 (Credit H)**

2- Course Aims:

1. Scoping of clinical pharmacy and its objectives
2. Understanding the concept of clinical pharmacy and the role of clinical pharmacist
3. Providing patient care that optimizes the use of medication and promotes health
4. Maximizing the clinical effect of medicines, i.e. using the most effective treatment for each type of patient

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
1.1.4	**1.1.4.1**	Describe the appropriateness, effectiveness, and safety of different medications in specific individuals and populations to optimize patients' outcomes.
1.1.5	**1.1.5.1**	Recall the principles of basic pharmaceutical sciences to solve drug related problems in certain case scenarios.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Conduct pharmaceutical care plans for specific clinical cases according to the patients' needs and history.
2.4.3	2.4.3.1	Evaluate drug-related problems and adapt pharmaceutical care plans that consider actions and decisions taken for patient management.

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 regimen based on the disease and drug history to optimize medication use.
3.2.2	3.2.2.1	Optimize drug use with respect to the principles of clinical pharmacy practice.
3.2.5	3.2.5.1	Collaborate with other healthcare professionals and manage the patient care plan as needed. Consult the healthcare team about the rational drug use

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.2.1.1	Use verbal and non-verbal communication skills when dealing with patients and health professionals.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

4- Course Contents

Week No.	Lecture Topics	Lecture Credit Hours
1	**Introduction of clinical pharmacy.** *(Prescription monitoring, prescribing advice to medical and nursing staff, medication errors and adverse drug reaction reporting, medication history-taking and medicines reconciliation, medicines formularies)*	2
2	**Patient medical history** *(Presenting complaint, History of presenting complaint Past medical history, Drug history, Family history, Social and personal history, Systems review)*	2
3	**Patient Management approach** *(Patient education and counselling, pharmacokinetics and therapeutic drug level monitoring. personalised medicine)*	2
4	**Clinical problem solving** *Managing interactions (St John's Wort, hyperkalaemia, ibuprofen, and warfarin), advising how to use lamotrigine, choosing antibiotic therapy, drug-induced hypercalcaemia, clopidogrel for percutaneous coronary intervention, managing therapy by ciprofloxacin)*	2
5	**Dermatological Disorder** *Tinea Pedis, Tinea Cruris & Tinea Unguium*	2
6	**Upper Respiratory Tract Infections** *Acute Otitis Media (AOM)*	2
7	**Upper Respiratory Tract Infections** *Acute Pharyngitis*	2
8	Urinary Tract Infection *Upper UTI (Pyelonephritis), Lower UTI*	2
9	Peptic Ulcer Disease *Symptoms, diagnosis, and treatments* **(self-learning)**	2
10	**Clinical problem solving.** *Managing interactions (St John's Wort, hyperkalaemia, ibuprofen, and warfarin), advising how to use lamotrigine, choosing antibiotic therapy, drug-induced hypercalcaemia, clopidogrel for percutaneous coronary intervention, managing therapy by ciprofloxacin)*	2
11	Asthma *Symptoms, diagnosis, and treatments*	2
12	Management of common drug over dosage.	2

	(Acetaminophen-induced hepatotoxicity, digixon toxicity, valproic acid toxicity, diamorphine poisoning)	
13	Cardiovascular Disorders in Clinical Pharmacy *(hypertension, heart failure)*	2
14	Cardiovascular Disorders in Clinical Pharmacy 2 *(arrhythmias)*	2
15	Starting of final Theoretical and oral exam	-
Week No.	**Tutorial topics**	**Credit hours**
1	Patient Presentation / Adverse Drug Reactions Reporting	1
2	Case study: Type-I Diabetes Mellitus	1
3	Case study: Managing interactions(St John's Wort, hyperkalaemia, ibuprofen, and warfarin)	1
4	Case study: Dermatological Disorder Tinea Pedis, Tinea Cruris & Tinea Unguium	1
5	Case study: Upper Respiratory Tract Infections Acute Otitis Media (AOM)	1
6	Case study: Upper Respiratory Tract Infections Acute Pharyngitis	-
7	Case study: Urinary Tract Infection	1
8	**Periodical (midterm)exam**	1
9	Case study: Peptic Ulcer Disease **(Group project)**	1
10	Case study: Managing interactions	1
11	Case study: Asthma	1
12	Case study: Management of acetaminophen toxicity	1
13	Case study: Management of digoxin toxicity	1
14	Tutorial 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. Power point (PPT) presentations	Week 1-14
5.2	Tutorial sessions using patient case studies	Week 1-13
5.3	Self-learning	Week 9
5.4	Formative Assignments	Week 1-13
5.5	Class Activity Discussion / brainstorming / problem solving / role play.	Week 1-13

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1
2-Tutorial exam	1.1.5.1, 2.1.1.1, 3.1.1.1, 4.2.1.1, 4.3.2.1
3-Oral	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1, 4.2.1.1
4- Formative Assessme nt	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1, 4.3.2.1

b- Assessment schedule

Assessment 1	**Periodical(midterm)**	8th week
Assessment 2	**Tutorial**	14h week
Assessment 3	**Written**	Starting in 15th week
Assessment 4	**Oral**	Starting in 15th week

c- Weighing of assessments

1	**Mid-term examination & Semester work**	10%
2	**Practical examination using 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
Library	Text books

8-Matrix of knowledge and skills of the course

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Introduction of clinical pharmacy.						√			
Patient medical history					√	√			
Patient Management approach	√	√		√	√		√		
Clinical problem solving	√	√	√		√		√		
Dermatological Disorder			√				√		
Upper Respiratory Tract Infections: *Acute Otitis Media (AOM)*			√				√		
Upper Respiratory Tract Infections:*Acute Pharyngitis*			√				√		
Urinary Tract Infection	√					√			
Peptic Ulcer Disease **(self-learning)**				√			√		√
Clinical problem solving.				√			√		
Asthma				√			√		
Management of common drug over dosage.	√								

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Cardiovascular Disorders in Clinical Pharmacy *(hypertension, heart failure)*				√			√		
Cardiovascular Disorders in Clinical Pharmacy 2 *(arrhythmias)*				√			√		
Revision	√	√	√	√	√	√	√		
Tutorial topics									
Patient Presentation / Adverse Drug Reactions Reporting		√	√		√	√		√	√
Case study: Type-I Diabetes Mellitus		√	√		√	√		√	√
Case study: Managing interactions (St John's Wort, hyperkalaemia, ibuprofen, and warfarin)		√	√		√	√		√	√
Case study: Dermatological Disorder Tinea Pedis, Tinea Cruris & Tinea Unguium		√	√		√	√		√	√
Case study: Upper Respiratory Tract Infections Acute Otitis		√	√		√	√		√	√

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Media (AOM)									
Case study: Upper Respiratory Tract Infections Acute Pharyngitis		√	√		√	√		√	√
Case study: Urinary Tract Infection		√	√		√	√		√	√
Periodical (midterm)exam									
Case study: Peptic Ulcer Disease **(Group project)**		√	√		√	√		√	√
Case study: Managing interactions		√	√		√	√		√	√
Case study: Asthma		√	√		√	√		√	√
Case study: Management of acetaminophen toxicity		√	√		√	√		√	√
Case study: Management of digoxin toxicity		√	√		√	√		√	√

List of References

No	Reference	Type
1.	Lecture notes prepared by teaching staff	Course notes
2.	Clinical Pharmacy and Therapeutics by Roger Walker and Catherine Whittlesea, 2022.	Essential Book
3.	Stokley's drug interaction, 11th Ed, by Karen Baxter (2016).	Essential Book
4.	Pharmacotherapy. Handbook. Seventh Edition. Barbara G. Wells, PharmD, FASHP, FCCP, BCPP.	Essential Book
5.	Lexicomp, Dynamed Plus , Pubmed and BMJ best practice http://www.pubmed.com https://www.ekb.eg/.	Websites

Course Coordinator	**Dr. Moetaza Mahmoud Hassab**
Head of Department	**Dr. Mohamed Elhusseiny Shams**

Date: 7-9-2023

Course specification

2023/2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة الإكلينيكية

Course Specification

Academic year: 2023-2024

Course name: Hospital pharmacy	**اسم المقرر:**صيدلة المستشفيات
Academic Level: Level 4	**المستوى الأكاديمي** :الرابع
Scientific department: Clinical pharmacy and pharmacy practice	**القسم العلمي:** الصيدلة الاكلينيكية والممارسة الصيدلية
Head of Department: Prof. Dr. Mohamed Elhusseiny Shams	**رئيس القسم:** ا.د/ محمد الحسيني شمس
Course Coordinator: Dr. Noha O. Mansour	**منسق المقرر:** د/ نهي اسامة منصور

University	Mansoura
Faculty	Pharmacy
Department offering the course	Clinical pharmacy and pharmacy practice
Department supervising the course	Clinical pharmacy and pharmacy practice
Program on which the course is given	**B. Pharm. (Clinical Pharmacy)**
Academic Level	**Level 4, First semester, 2023- 2024**
Date of course specification approval	7/9/2023

A. Basic Information: Course data:

Course Title	**Hospital pharmacy**
Course Code	**PP 703**
Prerequisite	**Registration**
Teaching credit Hours: Lecture	2
Practical:	1
Total Credit Hours	3

B. Professional Information:

1. Course Aims:

This course enables the students to:

- State the hospital pharmacy facilities and services.
- Promote handling of cytotoxic drugs and risk management.
- Maximize the clinical effect of drugs, i.e., using the most effective treatment for either inpatient or outpatient.

- Minimize the risk of treatment-induced adverse events, i.e., monitoring the therapy course and the patient's compliance with therapy.

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 t no.	Course K. element
1.1.1	1.1.1.1	Describe the primary information about the hospital, functional organization of hospital pharmacy and hospital formulary.
1.1.4	1.1.4.1	Identify the patient counseling and safety, risk management and handling of cytotoxic drugs.
	1.1.4.2	Define rational medication use, patient's medication record, and I. V. admixtures and incompatibilities

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element t no.	Course K. element
2.1.1	2.1.1.1	Apply the information needed to give the patients better services.
2.3.1	2.3.1.1	Identify the different type of packing and labeling and intravenous admixtures.
	2.3.1.2	Explain the method of handling cytotoxic drugs.

Domain 4: Personal Practice:

Program K. element no.	Course K. element t 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 and IV admixture**	2
2	**- Hospital classification and functions** **- Method of administration**	2
3	**- Hospital pharmacy** **- Incompatibilities 1**	2
4	**- Division of hospital pharmacy** **- Incompatibilities 2**	2
5	**- Inpatient pharmacy** **- Incompatibilities 3**	2
6	**- Outpatient pharmacy**	2
7	**- Total parenteral nutrition**	2
8	**- Medication record**	2
9	**- Rational drug use** **- Hospital formulary**	2
10	**- Handling of cytotoxic drug** **- Patent counseling and safety**	2
11	**- Therapeutic drug monitoring** **- Risk management**	2
12	**-Drug Distribution Systems in Hospitals** **(self learning)**	2

	-- Pharmacy and therapeutic committee	
13	**-Quality Assurance in Hospital Pharmacy Practice**	2
14	**Revision and quiz**	2
15	**Starting of final written and oral exam**	-
Week No.	**Practical topics**	**Practical credit hours**
1.	OTC drugs + Antacids	1
2.	Anthelmintic and Anti-diarrheal products	1
3.	Laxative products and Antiemetic products	1
4.	Common cold	1
5.	Asthma products	1
6.	Sleep aid, Sedative	1
7.	Otic products	1
8.	**Mid-term exam**	1
9.	Dental products	1
10.	Acne products	1
11.	Ophthalmic products	1
12.	Topical anti-infective products	1
13.	Revision and activity	1
14	**Practical exam**	-

4-Teaching and Learning Methods:

	Teaching and Learning Methods	**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	1-14

	• Interactive discussion through My Mans Platform	
2	Self-learning	12
3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-7 9-13
4	Class Activity: Group discussion offline and online.	1-3
5	Problem – based learning and brainstorming	8-9

5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.4.1, 1.1.4.2, 2.1.1.1, 2.3.1.1, 2.3.1.2, 4.3.2.1
2-Practical exam	2.1.1.1, 2.3.1.1, 2.3.1.2, 4.2.1.1, 4.1.2.1
3-Oral	1.1.1.1, 1.1.4.1, 1.1.4.2, 2.1.1.1, 2.3.1.1, 2.3.1.2., 4.2.1.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.4.1, 1.1.4.2, 2.1.1.1, 2.3.1.1, 2.3.1.2., 4.2.1.1

b. Assessment schedule

Assessment 1	Course work (periodical)	6-9th week
Assessment 2	Practical examination and tutorial	14th week
Assessment 3	Written exam	Starting 15th week
Assessment 4	Oral exam	Starting 15th 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%

6- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory facilities	Data show- Computers - white board

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

Course contents	Domain 1			Domain 2			Domain 4		
	1.1.1.1	1.1.4.1	1.1.4.2	2.1.1.1	2.3.1.1	2.3.1.1	4.1.2.1	4.2.1.1	4.3.2.1
- Introduction and IV admixture	✓		✓	✓	✓		✓	✓	✓
- Hospital classification and functions - Method of administration	✓			✓	✓		✓	✓	✓
- Hospital pharmacy - Incompatibilities 1	✓		✓	✓			✓	✓	✓
- Division of hospital pharmacy - Incompatibilities 2	✓		✓	✓			✓	✓	✓
- Inpatient pharmacy - Incompatibilities 3	✓		✓	✓			✓	✓	✓
- Outpatient pharmacy - Total parenteral nutrition	✓	✓	✓	✓	✓		✓	✓	✓
Midterm									
- Medication record	✓		✓	✓			✓	✓	✓

- Pharmacy and therapeutic committee											
- Rational drug use **- Hospital formulary**	✓	✓	✓		✓				✓	✓	✓
- Handling of cytotoxic drug **- Patent counseling and safety**		✓	✓		✓	✓	✓		✓	✓	✓
- Therapeutic drug monitoring **- Risk management**		✓	✓		✓		✓		✓	✓	✓
- Drug Distribution Systems in Hospitals	✓		✓		✓	✓			✓	✓	✓
Practical topics:											
●OTC drugs + Antacids ●Anthelmintic and Anti-diarrheal products ●Laxative products and Antiemetic products ●Common cold ●Asthma products ●Sleep aid, Sedative ●Otic products									✓	✓	✓

● Dental products ● Acne and Topical anti-infective products ● Ophthalmic products											

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.	Hospital Pharmacy by Martin Stephens (2003)	**Book**
4.	Best Practices for Hospital & Health-system Pharmacy: 2004-2005 by Bruce Hawkins (2004).	**Book**
5.	Pharmacotherapy, 6th edition, Joseph T. DiPiro, (2006).	**Book**
6.	http://www.sciencedirect.com http://www.google scholar.com http://www.pubmed.com https://www.ekb.eg http://www.mcc.ac.UK/pharmweb http://www.druginfonet.com	**websites**

Course Coordinator	**Dr. Noha Osama Mansoura**
Head of Department	**Prof. Dr. Mohamed Elhusseiny Shams**

Date: 7-9-2023

بكالوريوس الصيدلة الإكلينيكية

Course Specification

Academic year: 2023-2024

Course name: Controlled Drug Delivery System	اسم المقرر: أنظمة دواء محكم
Academic Level: Level 4	المستوى الأكاديمي: الرابع
Scientific department: Pharmaceutics	القسم العلمي: الصيدلانيات
Head of Department: **Prof. Dr. Irhan Ibrahim Abu Hashim**	**:**رئيس القسم أ.د/ ارهان ابراهيم أبو هاشم
Course Coordinator: **Prof. Dr. Hassan M. El sabbagh**	**:**منسق المقرر أ.د /حسن محمد الصبـــاغ

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	**Forth Level, Second semester, 2023-2024**
Date of course specification approval	**20/9/2023**

1- Basic Information: Course data:

Course Title	**Controlled Drug Delivery Systems**
Course Code	**PT 704**
Prerequisite	**Pharmaceutical dosage forms II**
Teaching Credit Hours: Lecture	**2**
Practical	**0**
Total Credit Hours	**2 (Credit H)**

2- Course Aims:

1. Orienting the students to the advanced approaches to control drug diffusion rates from dosage forms.
2. Recognizing different types of advanced drug delivery systems.
3. Knowing applications of different advanced drug delivery systems.

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**	Recognize the properties of different pharmaceutical dosage forms showing advanced delivery including novel drug delivery systems
	1.1.1.2	Outline the fundamental differences between the conventional and controlled drug delivery systems
	1.1.1.3	Conclude the design principles of different drug delivery systems aiming to control the drug delivery rate.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.6.1	**2.6.1.1**	Develop formulations of safe and effective medicines
	2.6.1.2	Compare some novel drug delivery systems with the conventional ones
	2.6.1.3	Interpret possible causes of patients non-compliance that may occur during treatment

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.6	**3.2.6.1**	Illustrate the fundamental clinical considerations of oral-modified dosage forms and transdermal drug delivery systems
	3.2.6.2	Analyze the skills of deciding the alternative and more effective therapy of some chronic diseases such as diabetes and cancer

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	**4.1.2.1**	Communicate clearly by verbal and written means with patients and other health care professionals.
4.3.2	**4.3.2.1**	Promote critical thinking, problem-solving, decision-making, and time managing capabilities.

4- Course Contents

Week No.	Topics	Credit Hours
1	Modified oral drug delivery systems	2
2	Modified oral drug delivery systems	2
3	Skin structure, skin permeability, in-vitro, and in-vivo evaluation of drug diffusion	2
4	Long acting parenterals: Liposomes (structure, preparation, evaluation, applications, and challenges)	2

5	Transdermal patches: design and objectives	2
6	Transdermal patches: types	2
7	Transdermal patches: advantages and disadvantages	2
8	Long acting parenterals: insulin injections and implants introduction (**Mid-term)**	2
9	Extensive examples of transdermal drug delivery systems and clinical considerations	2
10	Implants for insulin delivery, contraception, and chemotherapy	2
11	Mucoadhesive drug delivery systems	2
12	Ion-exchange resins as drug delivery carriers	2
13	Discussion of self learning topic	2
14	Revision	2
16	**Final written and oral exam**	-

5- 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	13
3	Problem – based learning and brainstorming	8-9
4	Research assignments	12
5	Role play	11

6- Student Assessment:

a- Assessment Methods:

1-Periodical (Mid-term exam)/ Course work	**1.1.1.1, 1.1.1.3, 2.6.1.1, 3.2.6.1, 4.1.2.1, 4.3.2.1**
2-Written exam	**1.1.1.1, 1.1.1.2, 1.1.1.3, 2.6.1.1, 2.6.1.2, 3.2.6.1, 3.2.6.2,**

b- Assessment schedule

Assessment 1	**Periodical (Mid-term exam) / Course work**	**8th week**
Assessment 2	**Written exam**	**16th week**
Assessment 3	**Oral exam**	**16th week**

c- Weighing of assessments

1	**Periodical (Mid-term) exam / Course work**	**20%**
2	**Practical examination and tutorial**	**-----**
3	**Final-term examination**	**65%**
4	**Oral examination**	**15%**
Total		**100%**

7-Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Library	Books and Pharmacopoeia

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	**1.1.1.2**	**1.1.1.3**	**2.6.1.1**	**2.6.1.2**	**3.2.6.1**	**3.2.6.2**		**4.1.2.1**	**4.3.2.1**
1	Modified oral drug delivery systems	√				√				√	√
2	Modified oral drug delivery systems		√					√			

3	Skin structure, skin permeability, in-vitro, and in-vivo evaluation of drug diffusion		√			√							
4	Long acting parenterals: Liposomes (structure, preparation, evaluation, applications, and challenges)	√				√					√	√	√
5	Transdermal patches: design and objectives	√	√				√					√	√
6	Transdermal patches: types	√	√				√					√	√
7	Transdermal patches: advantages and disadvantages	√		√		√			√				
8	Long acting parenterals: insulin injections and implants introduction	√	√				√					√	√
9	Extensive examples of transdermal drug delivery systems and clinical considerations			√		√			√				
10	Implants for insulin delivery, contraception, and chemotherapy		√				√					√	√
11	Mucoadhesive drug delivery systems	√	√				√					√	√
12	Ion-exchange resins as drug delivery carriers	√	√	√		√	√		√	√		√	√
13	Discussion of self learning topic		√			√				√			√
14	Revision	√	√	√		√	√		√	√		√	√

9- List of References

No	Reference	Type
1.	Electronic theoretical notes prepared by teaching staff members.	Course notes
2.	"Remington's: The science and practice of pharmacy" 23rd Ed., Pharmaceutical Press, Lippincott Williams and Wilkins, Philadelphia, (2020).	Essential Book
3.	Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems ninth edition, Allen L. V. et. al., Lippincott Williams and Wilkins, Philadelphia, (2011)	Essential Book

4.	Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems ninth edition, Allen L. V. et. al., Lippincott Williams and Wilkins, Philadelphia, (2011)	Essential Book
5.	http://www.sciencedirect.com http://www.google scholar.com http://www.pubmed.com https://www.ekb.eg	Websites

Course Coordinator	Prof. Dr. Hassan Mohamed Elsabbagh
	
Head of Department	**Prof. Dr. Irhan Ibrahim Abu Hashim**
	

Date: 20/9/2023

Fourth Level

Course Specification:
Public Health and Preventive Medicine

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Microbiology and Immunology
Course title: Public Health and Preventive Medicine
Course code: MD 710

Program on which the course is given	B. Pharm (Clinical Pharmacy)
Academic Level	Level 4, First semester, 2023-2024
Date of course specification approval	10/9/2023

1. Basic Information: Course data:

Course title:	Public Health and Preventive Medicine	**Code:** MD 710
Specialization:	**Health and environmental**	
Prerequisite:	**Clinical Microbiology**	
Teaching Hours:	**Lecture: 2**	**Practical:** -
Number of units: (credit hours)	**2**	

2. Course Aims:

2.1. Orienting the students to epidemiology and principles of maintaining good health
2.2. Recognizing different types of types of diseases and their etiology.
2.3. Knowing applications of different treatment strategies and immunization techniques and good nutrition to control different and prevent diseases.

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 the basic Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences.
1.1.5	**1.1.5.1**	Utilize different principles and health problems related to different fields of life to improve health.

1.1.6	**1.1.6.1**	Analyze available information principles and health problems related to different fields of life to prevent and minimize different health problems.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.1	**2.1.1.1**	Make the best use of knowledge regarding maternal, child and patient health to prevent expected diseases complications.
2.1.3	**2.1.3.1**	Cooperate professionally with health care team members to prevent diseases ,improve patients' health and avoid disease complications.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.2	**3.1.2.1**	Develop appropriate methods of infection control to limit infections and promote public health awareness.
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 and cost effective tool leading to the identification of the causative organism.
3.2.6	**3.2.6.1**	Spread awareness regarding immunization strategies.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.1	**4.1.1.1**	Apply medical knowledge to participate in decision making required for solving different health problems.
4.1.2	**4.1.2.1**	Participate in developing solutions and preventive measures to avoid diseases or minimize the related complications
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. Contents:

Week No	Topics	Lecture credit hours	Practical credit hours
1	Introduction to public health	2	-
2	Epidemiology	2	-
3	Food- borne diseases	2	-
4	Water-borne diseases	2	-
5	Occupational diseases	2	-
6	Immunization	2	-
7	Maternal Health	2	
8	Child health	2	-
9	Nosocomial or Health-care associated Infections	2	-
10	Contact Diseases	2	-
11	Zoonosis	2	-
12	Airborne Diseases	2	-
13	Non-communicable diseases	2	-
14	Health promotion and preventive healthcare	2	-
15	Revision and quiz	2	-

5. Teaching and learning Methods:

Teaching and learning method	
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

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam)	1.1.1.1, 1.1.5.1, 1.1.6.1, 2.1.1.1, 3.1.2.1, 3.1.4.1, 3.2.6.1, 4.1.1.1, 4.1.2.1, 4.2.1.1
2-Written exam	1.1.1.1, 1.1.5.1, 1.1.6.1, 2.1.1.1, 2.1.3.1, 3.1.2.1, 3.1.4.1, 3.2.6.1, 4.1.1.1, 4.1.2.1, 4.2.1.1

b-Assessment schedule

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

c-Weighting of assessments

1.	Mid-term examination	10 %
2.	Oral examination	15 %
3.	Final-term examination	75 %
Total		100 %

7. List of References

No.	Reference	type
1	Theoretical course Notes "Public Health and Preventive Medicine" prepared by staff members	Course notes
2	Mitchell, Amber Hogan, 2020. Preventing Occupational Exposures to Infectious Disease in Health Care. A practical guide. Springer press.	Book
3	Pinger, R.R. and Seabert, D., 2016. *An introduction to community & public health*. 9th edition, Jones & Bartlett Learning.	**Book**
4	Edelman, C.L., Mandle, C.L. and Kudzma, E.C., 2017. *Health promotion throughout the life span-e-book*. Elsevier Health Sciences.	Book
5	Perry, S.E., Hockenberry, M.J., Alden, K.R., Lowdermilk, D.L., Cashion, M.C. and Wilson, D., 2017. *Maternal Child Nursing Care-E-Book*. Mosby.	Book
6	Kasenga, F. ed., 2016. *Epidemiology of Communicable and Non-Communicable Diseases: Attributes of Lifestyle and Nature on Humankind*. BoD–Books on Demand.	Book
7	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	Website

8. Matrix of course content versus course K. element

Week	Course contents	Domain 1			Domain 2			Domain 3			Domain 4		
		1.1.1.1	1.1.5.1	1.1.6.1	2.1.1.1	2.1.3.1	2.1.7.1	3.1.2.1	3.1.4.1	3.2.6.1	4.1.1.1	4.1.2.1	4.2.1.1
1	Introduction to public health	√	√	√			√	√		√	√	√	√
2	Epidemiology	√	√	√			√	√		√	√	√	√
3	Food- borne diseases		√	√			√	√		√	√	√	√
4	Water-borne diseases		√	√			√	√		√	√	√	√
5	Occupational diseases		√	√			√	√	√	√	√	√	√
6	Immunization		√	√	√		√	√		√	√	√	√
7	Maternal Health		√	√	√	√	√	√		√	√	√	√
8	Child health		√	√	√	√	√	√		√	√	√	√
9	Nosocomial or Health-care		√	√			√	√		√	√	√	√

	associated Infections												
10	Contact Diseases		√	√			√	√		√	√	√	√
11	Zoonosis		√	√			√	√		√	√	√	√
12	Airborne Diseases		√	√			√	√		√	√	√	√
13	Non-communicable diseases		√	√			√	√	√	√	√	√	√
14	Health promotion and preventive healthcare	√	√			√	√	√	√	√	√	√	√
15	Revision and quiz	√	√	√	√	√	√	√	√	√	√	√	√

Course Coordinator:	**Prof. El Sayed El Sherbiny Habib**
Head of Department:	**Prof. El Sayed El Sherbiny Habib**

Date: 10/9/2023

Fourth Level

Course Specification: Pharmaceutical Biotechnology

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Microbiology and Immunology
Course title: Pharmaceutical Biotechnology
Course code: PM703

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

A. Basic Information: Course data:

Course title:	Pharmaceutical biotechnology	**Code:** PM 703
Specialization:	Pharmaceutical sciences	
Prerequisite:	General Microbiology and Immunology	
Teaching credit Hours:	Lecture: 2	**Practical:** : 1
Total Number of units: (credit hours)	3 **hours**	

B. Professional Information:

1- Course Aims:

At the end of the course the student should:	
1.	Orienting the students to use microorganisms in the production of valuable substances
2.	Recognizing different types of fermentation process and production of pharmaceutical products
3.	Knowing applications of genetic engineering and gene therapy

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	Define the importance of biotechnology and its uses

1.1.2	1.1.2.1	Identify terms related to genetic engineering and bioremediation
	1.1.2.2	Differentiate between different types of fermentation processes
1.1.3	1.1.3.1	Recognize the use of microorganisms in the production of important pharmaceutical products
1.1.7	1.1.7.1	Identify the basics of gene therapy and its uses in treatment of monogenic and polygenic disorders
	1.1.7.2	Illustrate the use of genetic engineering in production of some drugs

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 suitable methods for the production of fermented products
2.2.2	2.2.2.1	Analyze how to encode and transfer regions of the genetic material of the microorganisms and its use in the synthesis of important proteins
2.2.3	2.2.3.1	Differentiate between DNA manipulation techniques

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.3	3.2.3.1	Determine the use of monoclonal antibodies in the treatment of cancer
	3.2.3.2	Investigate gene therapy and its use in treatment of some diseases

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 pharmaceutical preparations regarding the studied topics

4.2.2	4.2.2.1	Use information technology tools to retrieve clinical laboratory data from different sources to improve professional competencies
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development

3- Course Contents:

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Genetic engineering and its applications	2	
2	Recombinantn DNA technology	2	
3	Manipulation of living organisms to produce new products	2	
4	DNA manipulation techniques (southern, northern blots and microarray)	2	
5	Western blot	2	
6	Monoclonal antibodies	2	
7	Gene therapy and its applications	2	
8	Introduction to Biotechnology and Media composition	2	
9	Fermentation system	2	
10	Solid State fermentation (SSF)	2	
11	Products of Fermentation Process	2	
12	Application of Fermentation Process I	2	
13	Application of Fermentation Process II Bioremediation and its application	2	
14	Revision and quiz	2	
15	**Final written and oral exam**	-	
Week No	**Practical Topics**	**Lecture credit hours**	**Practical credit hours**
1	Isolation of soil bacteria		1
2	Identification and Examination of soil micro-organisms		1
3	Antimicrobial spectrum of Streptomyces		1
4	Mutation		1
5	Polymerase Chain Reaction(PCR)		1
6	Agarose gel electrophoresis		1
7	Recombinant DNA technology		1

8	**Mid-term Exam**		-
9	SDS-PAGE		1
10	Western blot		1
11	Northern blot		1
12	southern blot		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	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.4	Class Activity: Group discussion offline and online.
5.5	Problem – based learning and brainstorming
5.6	Research assignments

5- Student Assessment:

a. Assessment methods

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam)	1.1.1.1, 1.1.2.1, 1.1.2.2, 1.1.3.1, 1.1.7.2, 2.2.1.1, 2.2.2.1, 3.2.3.1, 4.2.1.1, 4.3.2.1
2-Practical exam	1.1.2.1, 1.1.3.1, 1.1.7.2, 2.2.2.1, 2.2.3.1, 3.2.3.1, 3.2.3.2, 4.2.1.1, 4.3.2.1
3-Written exam	1.1.1.1, 1.1.2.1, 1.1.2.2, 1.1.3.1, 1.1.7.1, 1.1.7.2, 2.2.1.1, 2.2.2.1, 2.2.3.1, 3.2.3.1, 3.2.3.2
4-Oral	1.1.1.1, 1.1.2.2, 1.1.3.1, 1.1.7.1, 1.1.7.2, 2.2.1.1, 2.2.3.1, 3.2.3.1, 3.2.3.2, 4.2.1.1

b. Assessment schedule

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

7- 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	1.1.2.2	1.1.3.1	1.17.1	1.1.7.2	2.2.1.1	2.2.2.1	2.2.3.1	3.2.3.1	3.2.3.2	4.1.2.1	4.2.1.1	4.2.2.1	4.3.2.1
1	Genetic engineering and its applications	✓	✓					✓					✓	✓		
2	Recombinantn DNA technology			✓				✓						✓		
3	Manipulation of living organisms to produce new products				✓			✓						✓		✓
4	DNA manipulation techniques (southern, northern blots and microarray)				✓			✓						✓		✓
5	Western blot		✓				✓		✓					✓	✓	✓
6	Monoclonal antibodies						✓				✓			✓		✓

7	Gene therapy and its applications															
8	Introduction to Biotechnology and Media composition		✓							✓					✓	
9	Fermentation system					✓						✓		✓		
10	Solid State fermentation (SSF)		✓											✓		
11	Products of Fermentation Process	✓	✓													
12	Application of Fermentation Process I									✓					✓	✓
13	Application of Fermentation Process II Bioremediation and its application									✓					✓	✓

14	Revision and quiz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Practical topics																
1	Isolation of soil bacteria	✓							✓					✓	✓	✓
2	Identification and Examination of soil micro-organisms				✓		✓		✓					✓	✓	✓
3	Antimicrobial spectrum of Streptomyces				✓		✓		✓					✓	✓	✓
4	Mutation									✓				✓	✓	✓
5	Polymerase Chain Reaction(PCR)		✓								✓			✓	✓	✓
6	Agarose gel electrophoresis													✓	✓	✓
7	Recombinant DNA technology		✓				✓			✓	✓			✓	✓	✓
9	SDS-PAGE		✓				✓							✓	✓	✓
10	Western blot		✓				✓							✓	✓	✓
11	Northern blot		✓				✓							✓	✓	✓
12	southern blot		✓				✓							✓	✓	✓

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	Sue Carson, Heather Miller, Melissa Srougi, D. Scott Witherow (2019) Molecular Biology Techniques, A Classroom Laboratory Manual, 4th Edition, Academic Press	**Book**
4.	Walsh, G. (2013). Pharmaceutical Biotechnology: Concepts and Applications. E book	**Book**
5.	Adair, J. R., Bickerstaff, G. F., Bugeja, V. C., Cartwright, E. J., Chaplin, M. F., Elles, R., Fussenegger, M. (2009). Molecular biology and biotechnology. Cambridge: Royal Society of Chemistry.	**Book**
6.	http://www.ms-biotech.wisc.edu/biotech-websites.cfm	**websites**
7.	https://www.ekb.eg	**websites**

Course Coordinator	**Prof. Dr. Mona Shaaban**
Mona Shaaban	
Head of Department	**Prof. Dr. El-Sayed E. Habib**

Date: 10/9/2023

Fourth Level

Course Specification Pharmaceutical Microbiology

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Microbiology and Immunology
Course title: Pharmaceutical Microbiology
Course code: PM 704

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

1. Basic Information: Course data:

Course title:	**Pharmaceutical Microbiology**	**Code:** PM704
Specialization:	**Pharmaceutical sciences**	
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 Know different sources of microbial contamination and different methods used for preserving pharmaceutical dosage forms, demonstrating different methods of sterilization and understanding the nature of activity of antimicrobials either single or in combination.

3. Course key elements

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

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program k elements no.	Course k elements no.	Course k. elements
(1.1.1)	**(1.1.1.1)**	Outline the different chemical and physical methods used to control microbial contamination
(1.1.2)	**(1.1.2.1)**	Define different terms related to sterilization
	(1.1.2.2)	Define different terms related to antimicrobial agents

(1.1.3)	**(1.1.3.1)**	Discuss the principles of source of contamination, control of microbial contamination, sanitation, disinfection, and microbiological QC of pharmaceutical products.
(1.1.4)	**(1.1.4.1)**	Classify the antimicrobials including mechanism of action, therapeutic uses, contraindications, adverse drug reactions and drug interactions.
	(1.1.4.2)	Recognize the different methods used for the evaluation of antimicrobial efficacy and factors affecting it

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. elements
(2.2.2)	**(2.2.2.1)**	Decide the most suitable sterilization method to be used for each particular pharmaceutical preparation
	(2.2.2.2)	Recommend good laboratory practice (GLP), good manufacture practice (GMP)
(2.2.4)	**(2.2.4.1)**	Implement different quality control and quality assurance measures for the control of microbial contamination
(2.3.2)	**(2.3.2.1)**	Utilize legal and ethical guidelines to ensure the correct and safe supply of medical products to the general public.

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. elements
(3.2.6)	**(3.2.6.1)**	Develop a greater awareness for the consequences of ingesting prescription medicines and risk from environmental and biological threats to public safety.

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.
(4.3.2)	**(4.3.2.1)**	Practice self-learning to improve professional skills

4. Course Contents:

Week No	Topics	Lecture credit hours	Practical credit hours
1	Physical methods of sterilization	2	
2	Chemical methods of sterilization	2	
3	Quality control of sterilization+ Sterility test and aseptic technique+ Pyrogen test	2	
4	Classifications of Antimicrobial agents & Inhibitors of cell wall synthesis	2	
5	Inhibitors of protein synthesis	2	
6	Inhibitors of nucleic acid synthesis	2	
7	Mechanisms of antibiotic resistance in bacteria + Antibiotic combination		
8	Microbial contamination and preservation of pharmaceutical product+ Evaluation of preservative	2	
9	Antifungal agents	2	
10	Antiviral agents	2	
11	Antiviral agents	2	
12	Evaluation of antibiotics (Antibiotic sensitivity testing +Assay)	2	
13	Evaluation of disinfectants and antiseptics +Pyrogen test	2	
14	Revision and quiz	2	
15	Final written and oral exam		
Week No	**Topics**	**Lecture credit hours**	**Practical credit hours**
1	Methods of sterilization		1
2	Efficiency of sterilization methods and sterility test		1
3	Determination of Concentration exponent of disinfectants		1
4	Determination of MIC by microbroth dilution		1
5	Determination of MIC by broth dilution		1
6	Determination of MIC by agar diffusion		1
7	Determination of MIC by agar dilution		
8	**Mid-term Exam**		--
9	Assay of antibiotics by agar diffusion method		1
10	Determination of antimicrobial susceptibility pattern by disc diffusion method		1
11	Antimicrobial combinations		1

12	Evaluation of antiviral drugs activity		1
13	Revision		1
14	**Practical 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. Interactive 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- Periodical (Mid-term exam) / Course work	(1.1.1.1), (1.1.2.1), (1.1.2.2), (1.1.3.1), (1.1.4.1), (1.1.4.2), (2.2.2.1), (2.2.4.1), (2.3.2.1), (3.2.5.1), (3.2.6.1), (3.2.7.1), (4.3.2.1)
2-Practical exam applying OSPE	(1.1.1.1), (1.1.4.2), (2.2.2.1), (2.2.2.2), (2.2.4.1), (3.1.4.1)
3-Written exam	(1.1.1.1), (1.1.2.1), (1.1.2.2), (1.1.3.1), (1.1.4.1), (1.1.4.2), (2.2.2.1), (2.2.4.1), (2.3.2.1), (3.2.5.1), (3.2.6.1), (4.1.1.1), (4.2.1.1) (4.3.2.1)
4-Oral	(1.1.1.1), (1.1.2.1), (1.1.2.2), (1.1.3.1), (1.1.4.1), (1.1.4.2), (2.2.2.1), (2.2.4.1), (3.2.7.1)

b- Assessment schedule

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

c- Weighting of assessments

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

7. Matrix of course content versus course key elements:

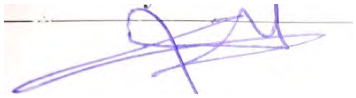
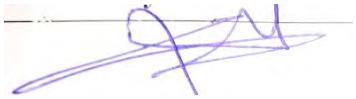
Week	Course contents	Domains / Key elements Outcomes													
		Domain 1						Domain 2				Domain 3		Domain 4	
		1.1.1.1	1.1.2.1	1.1.2.2	1.1.3.1	1.1.4.1	1.1.4.2	2.2.2.1	2.2.2.2	2.2.4.1	2.3.2.1	3.2.6.1		4.1.1.1	4.3.2.1
	A) Theoretical part														
1	Physical methods of sterilization	✓	✓					✓						✓	
2	Chemical methods of sterilization	✓	✓					✓						✓	
3	Quality control of sterilization+ Sterility test and aseptic technique+ Pyrogen test				✓			✓	✓					✓	
4	Classifications of Antimicrobial agents & Inhibitors of cell wall synthesis	✓	✓		✓		✓	✓	✓					✓	✓
5	Inhibitors of protein synthesis						✓		✓	✓				✓	✓
6	Inhibitors of nucleic acid synthesis			✓		✓					✓	✓		✓	
7	Mechanisms of antibiotic resistance in bacteria + Antibiotic combination					✓						✓		✓	✓
8	Microbial contamination and preservation of					✓						✓		✓	✓

	pharmaceutical product+ Evaluation of preservative														
9	Antifungal agents						✓		✓	✓					✓
10	Antiviral agents						✓		✓	✓					✓
11	Antiviral agents						✓		✓	✓					✓
12	Evaluation of antibiotics (Antibiotic sensitivity testing +Assay)	✓	✓		✓		✓	✓	✓					✓	✓
13	Evaluation of disinfectants and antiseptics +Pyrogen test	✓	✓		✓		✓	✓	✓					✓	✓
14	Revision and quiz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B) Practical part														
1	Methods of sterilization	✓	✓					✓						✓	
2	Efficiency of sterilization methods and sterility test	✓	✓					✓						✓	✓
3	Determination of Concentration exponent of disinfectants	✓	✓					✓						✓	✓
4	Determination of MIC by microbroth dilution	✓	✓					✓						✓	✓
5	Determination of MIC by broth dilution			✓	✓	✓	✓				✓			✓	✓
6	Determination of MIC by agar diffusion			✓	✓	✓	✓				✓			✓	✓
7	Determination of MIC by agar dilution			✓	✓	✓	✓				✓			✓	✓

9	Assay of antibiotics by agar diffusion method			✓	✓	✓	✓				✓			✓	✓
10	Determination of antimicrobial susceptibility pattern by disc diffusion method			✓	✓	✓	✓			✓				✓	✓
11	Antimicrobial combinations			✓	✓	✓	✓			✓				✓	✓
12	Evaluation of antiviral drugs activity		✓	✓		✓	✓			✓		✓		✓	✓
13	Revision	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

8. List of References:

No.	Reference	type
1	Lectures notes prepared by staff members	Course notes
2	Cornelissen, C. N., Fisher, B. D., Harvey, R. A., & Harvey, R. A. (2013). Lippincott's illustrated reviews: Microbiology. 3rd edition, Philadelphia: Lippincott Williams & Wilkins.	Book
3.	Gilmore BF, Denyer SP, editors. Hugo and Russell's pharmaceutical microbiology. John Wiley & Sons; 2023.	Book
4	Willey, J. M., Sherwood, L., Woolverton, C. J., & Prescott, L. M. (2008). Prescott, Harley, and Klein's microbiology. 7th edition, New York: McGraw-Hill Higher Education.	Book
5	https://www.pharmamicroresources.com/p/free-technical-articles.html	Website

Course Coordinator:	**Prof. Dr. EL-Sayed E. Habib** 
Head of Department:	**Prof. Dr. EL-Sayed E. Habib** 

Date: 10/9/2023

Mansoura University
Faculty of Pharmacy

Course specification
2023- 2024
Credit hours program
(modified and unified by law)

بكالوريوس الصيدلة الإكلينيكية

Course Specification

:Academic year 2023/2024

Course name: Medicinal Chemistry-II	اسم المقرر: كيمياء دوائية-2
Academic Level: Level 4	المستوى الأكاديمي: الرابع
Scientific department: Medicinal Chemistry	القسم العلمي: الكيمياء الدوائية
Head of Department: Prof. Dr. Mohamed Ahmed Ahmed Mostafa	رئيس القسم: أ.د/ محمد أحمد أحمد مصطفى
Course Coordinator: Prof. Dr. Hussein Ibrahim El-subbagh	منسق المقرر: أ.د. حسين ابراهيم الصباغ

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) (Credit hours)**
Academic Level	Fourth level, second semester, 2023-2024
Date of course specification approval	06/09/2023

1- Basic Information: Course data:

Course Title	**Medicinal Chemistry-II**
Course Code	**PC 810**
Prerequisite	**Medicinal Chemistry-I**
Teaching Hours: Lecture	**2**
Practical	**1**
Total Credit Hours	**3**

2- Course Aims:

This course enables the students to:

Medicinal chemistry II course is a continuation of studying medicinal chemistry aspects of other classes of drugs not covered in the medicinal chemistry course I, including drugs acting on central nervous system, cardiovascular drugs, steroidal hormones and analgesics. The practical part of the course provides the students with advanced in silico studies of drugs, in addition to discussion of certain case studies related to drugs 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
2.4.3	**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 counseling 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 self-learning needs.

4- Course Contents

Week No.	Topics	Credit Hours
1	Drugs affecting CVS: antihypertensives	2
2	Drugs affecting CVS: Diuretics	2
3	Drugs affecting CVS: antianginal	2
4	Drugs affecting CVS: anti-hyperlipidimics	2
5	Drugs affecting CVS: anticoagulants	2
6	Drugs affecting CNS: CNS stimulants-Part I	2
7	Drugs affecting CNS: CNS stimulants-Part II	2
8	Drugs affecting CNS: Benzodiazepines, barbiturates	2
9	Narcotic analgesics	2
10	Non-steroidal anti-inflammatory drugs-Part I	2
11	Non-steroidal anti-inflammatory drugs-Part II	2
12	Male sex hormones	2
13	Female sex hormones	2
14	Glucocorticoids, Antipsychotics (self-learning)	2
16	Final written and oral exams	-
Week No.	**Practical topics**	**Practical Credit hours**

1	Case study (NSAIDs)	**1**
2	Case study (opioid analgesics)	**1**
3	Case study (hormones)	**1**
4	Case study (CNS depressants)	**1**
5	Case study (antipsychotics)-Part I	**1**
6	Case study (antipsychotics)-Part II	**1**
7	Case study exam	**1**
8	**Mid-term Exam**	**-**
9	Chem3D: drawing structures	**1**
10	Chem3D: color, display mode and chembiodraw window	**1**
11	Chem3D: energy minimization and charges calculation	**1**
12	Chem3D: overlay structures	**1**
13	Chem3D: structures' surfaces mapping	**1**
14	Chem3D: structures' surfaces visualization	**1**
15	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, 2.4.3.1, 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**	15th week
Assessment 3	**Written exam**	16th week
ssessment 4	**Oral exam**	16th 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	1.1.2.1	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
1-5	Drugs affecting CVS: antihypertensive, Diuretics, antianginal, anti-hyperlipidimics, anticoagulants	√									√	
6	Drugs affecting CNS: CNS stimulants-Part I				√	√	√	√				√
7	Drugs affecting CNS: CNS stimulants-Part II									√		
8	Drugs affecting CNS: Benzodiazepines, barbiturates		√					√			√	
9	Narcotic analgesics		√	√		√			√		√	
10	Non-steroidal anti-inflammatory drugs-Part I		√			√	√					√
11	Non-steroidal anti-inflammatory drugs-Part II		√			√	√					√
12	Male sex hormones		√			√	√					√
13	Female sex hormones		√			√	√					√

14	**Glucocorticoids, Antipsychotics (self-learning)**		√				√		√							√
1-14	**Practical topics: Case study (NSAIDs, opioid analgesics, hormones, CNS depressants, antipsychotics), Chem3D: drawing structures, color, display mode and chembiodraw window, energy minimization and charges calculation, overlay structures, structures' surfaces**			√	√					√	√			√		

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", 7th edition, (David A. Williams, Thomas L. Lemke & William O. Foye, Editors), Lippincott Williams & Wilkins, 2012	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	Book
5	Graham L. Patrick; "An Introduction to Medicinal Chemistry" Oxford University Press, USA; 6th edition, 2017	Book
6	http://www.sciencedirect.com/ http://www.google.com / http://www.pubmed.com / http://www.ekb.eg	Websites

Course Coordinator	**Prof. Dr. Hussein Ibrahim El-subbagh**
Head of Department	**Prof. Dr. Mohamed Ahmed Ahmed Mostafa**

Date:

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة الإكلينيكية

Course Specification

Academic year: 2023-2024

Course name: **Clinical Pharmacy-2**	اسم المقرر: صيدلة إكلينيكية-2
Academic Level: **Level 4**	المستوى الأكاديمي: الرابع
Scientific department: **Clinical Pharmacy and Pharmacy Practice**	القسم العلمي: الصيدلة الإكلينيكية والممارسة الصيدلية
Head of Department: **Prof.Dr. Mohammed Elhusseiny Shams**	رئيس القسم: أ.د/ محمد الحسيني شمس
Course Coordinator: **Dr. Noha Osama Mansour**	منسق المقرر: د/ نهى أسامة منصور

University	Mansoura
Faculty	Pharmacy
Department offering the course	Clinical Pharmacy and Pharmacy Practice
Department supervising the course	Clinical Pharmacy and Pharmacy Practice
Program on which the course is given	**B. Pharm.** **(Clinical Pharmacy)**
Academic Level	Fourth level, second semester, 2022-2023
Date of course specification approval	7-9-2023

1- Basic Information: Course data:

Course Title	**Clinical Pharmacy II**
Course Code	**PP-804**
Prerequisite	**Clinical Pharmacy 1**
Credit Hours: Lecture	**2**
Tutorial	**1**
Total Credit Hours	**3 (Credit H)**

2- Course Aims:

The aim of course is to familiarize the student with the basis of evidence based clinical pharmacy practice in management of CNS and endocrine disorders. The course also aims to develop principles of patient-centered pharmacotherapy of general psychiatric and endocrine disorders.

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
1.1.4	**1.1.4.1**	Describe the appropriateness, effectiveness, and safety of different medications in specific individuals and populations to optimize patients' outcomes.
1.1.5	**1.1.5.1**	Recall the principles of basic pharmaceutical sciences to solve drug related problems in certain case scenarios.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.1	**2.1.1.1**	Conduct pharmaceutical care plans for specific clinical cases according to the patients' needs and history.
2.4.3	**2.4.3.1**	Evaluate drug-related problems and adapt pharmaceutical care plans that consider actions and decisions taken for patient management.

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 regimen based on the disease and drug history to optimize medication use.
3.2.2	**3.2.2.1**	Optimize drug use with respect to the principles of clinical pharmacy practice.
3.2.5	**3.2.5.1**	Collaborate with other healthcare professionals and manage the patient care plan as needed. Consult the healthcare team about the rational drug use

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.2.1	**4.2.1.1**	Use verbal and non-verbal communication skills when dealing with patients and health professionals.
4.3.2	**4.3.2.1**	Practice self-learning to improve professional skills

4- Course Contents

Week No.	Lecture Topics	Lecture Credit Hours
1	**Evaluation of Psychiatric Illness**	2
2	**Schizophrenia**	2
3	**Mania**	2
4	**Depression**	2
5	**Anxiety**	2
6	**Parkinson's Disease**	2
7	**Bipolar Disorder**	2
8	**Attention deficit and hyperactive disorders (ADHD)**	2
9-10	**Diabetes Type 1 &2**	4
11	**Thyroid disorders**	2
12	**Obesity** **Polycystic Ovarian Syndrome (self-learning)**	2
13	**Substance Use Disorders**	2
14	**Sleep Disorders (Self-learning)**	2
15	**Revision and quiz**	2
16	Starting final theoretical and oral exam	-

Week No.	Tutorial topics	Credit hours
1	Evaluation of Psychiatric Illness	1
2	Case study: Schizophrenia	1
3	Case study: Mania and Bipolar Disorder	1
4	Case study: Depression	1
5	Case study: Anxiety	1
6	Case study: Parkinson's Disease	1
7	Case study: Attention deficit and hyperactive disorders	1
8	Midterm exam	1
9-10	Case studies: Diabetes	2
11	Case study: Thyroid Disorder	1
12	Case study: Substance use disorders	1
13	**Case study:** Obesity	1
14	**Case study:** Polycystic ovarian Syndrome	1
15	Tutorial 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. Power point (PPT) presentations	Week 1-15
5.2	Tutorial sessions using patient case studies	Week 1-14
5.3	Self-learning	Week 12,14
5.4	Formative Assignments	Week 1-15
5.5	Class Activity Discussion / brainstorming / problem solving / role play.	Week 1-15

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1
2-Tutorial exam	1.1.5.1, 2.1.1.1, 3.1.1.1, 4.2.1.1, 4.3.2.1
3-Oral	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1, 4.2.1.1
4-Formative Assessment	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1, 4.3.2.1

b- Assessment schedule

Assessment 1	**Periodical (midterm)**	8th week
Assessment 2	**Tutorial**	15th week
Assessment 3	**Written**	16th week
Assessment 4	**Oral**	16th week

c- Weighing of assessments

1	**Mid-term examination & Semester work**	10%
2	**Practical examination using 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
Library	Text books

8- Matrix of knowledge and skills of the course

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Evaluation of Psychiatric Illness						√			
Schizophrenia					√	√			
Mania	√	√		√	√		√		
Depression	√	√	√		√		√		
Anxiety			√				√		
Parkinson's Disease			√				√		
Bipolar Disorder									
Attention deficit and hyperactive disorders (ADHD)	√					√			
Diabetes Type 1 &2				√			√		
Thyroid disorders				√			√		
Obesity **Polycystic Ovarian Syndrome (self-learning)**				√			√		√

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Substance Use Disorders				√			√		√
Sleep Disorders (Self-learning)	√	√	√	√	√	√	√		
Revision and quiz	√	√	√	√	√	√	√		
Tutorial topics • Evaluation of Psychiatric Illness • Case study: Schizophrenia • Case study: Mania and Bipolar Disorder • Case study: Depression • Case study: Anxiety • Case study: Parkinson's Disease • Case study: Attention deficit and hyperactive disorders • Midterm exam • Case studies: Diabetes • Case study: Thyroid Disorder • Case study: Substance use disorders		√	√		√	√		√	√

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
• Case study: Obesity • Case study: Polycystic ovarian Syndrome									

9- List of References

No	Reference	Type
1.	Lecture notes prepared by teaching staff	Course notes
2.	Clinical Pharmacy and Therapeutics by Roger Walker and Catherine Whittlesea, 2022.	Essential Book
3.	A Pathophysiologic Approach, Eleventh Edition By: Joseph T. DiPiro, Gary C. Yee, L. Michael Posey, Stuart T. Haines, Thomas D. Nolin Published: June 2020 ISBN: 978126011681623.	Essential Book
4.	Stokley's drug interaction, 11th Ed, by Karen Baxter (2016).	Essential Book
5.	Lexicomp, Dynamed Plus , Pubmed and BMJ best practice http://www.pubmed.com https://www.ekb.eg/.	Websites

Course Coordinator	**Dr. Noha Osama Mansour**
Head of Department	**Dr. Mohamed Elhusseiny Shams**

Date: 7-9-2023

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

Level-4
Clinical Pharmacy Students
(Credit Hour System)

Course Specification Phytotherapy

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacognosy
Course title: **Phytotherapy**
Course code: PG807

Program on which the course is given	B. Pharm (Clinical Pharmacy)
Academic Level	Level 4, Second semester, 2020/2021
Date of course specification approval	6 9 / 2023

1. Basic Information: Course data:

Course title:	**Phytotherapy**	**Code: PG-807**
Specialization:	**Pharmaceutical**	
Prerequisite:	**Phytochemistry-2**	
Teaching Hours:	**Lecture: 2**	**Practical: 1**
Number of units: (credit hours)	**3**	

2. Course Aims:

2.1 Understanding the concept of phytotherapy, complementary and alternative medicine
2.2 Acquiring a good knowledge about the different types of complementary and alternative medicine as phytotherapy and herbal remedies, homeopathy, aromatherapy, flower remedies, chiropractic, acupuncture, cupping, crystal therapy and reflexology

3. Course key 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 the concept of phytotherapy, complementary and alternative medicine

1.1.3	1.1.3.1	Identify the principles and methods of quality control of herbal drugs and formulations
1.1.4	1.1.4.1	Explain the mechanism of action, therapeutic uses and adverse drug reactions of plants used in phytotherapy
1.1.5	1.1.5.1	Select drugs from natural origin to be used for treatment of diseases of the different systems.

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.
2.3.1	2.3.1.1	Apply different qualitative and quantitative analytical, chemical, microscopical and biological methods for the quality control of herbal drugs and formulations

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.3	3.2.3.1	Utilize naturally occurring drugs for preparation of herbal formulations that can be used safely for treatment of different body systems diseases.

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.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills.

4. Contents:

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1	Introduction to phytotherapy	2	2	
2	Forms of complementary and alternative medicine which do not use medicinal plants, Traditional Systems of Herbal Medicine, Traditional Chinese Medicine (TCM), Ayurveda	2	2	
3	The Greek and Roman Contribution, The Middle Ages and Islamic Contribution, Herbal medicine today, Herbal products regulation	2	2	
4	The gastrointestinal system	2	2	
5	The eye, The ear, nose and oropharynx	2	2	
6	Supportive Therapies for Stress, Aging and Debility	2	2	
7	The cardiovascular system	2	2	
8	The central nervous system	2	2	
9	The endocrine system	2	2	
10	The respiratory system	2	2	
11	The renal system	2	2	
12	Herbal formulation and dosage forms	2	2	
13	Herb-drug interactions	2	2	
14	Revision and research assignment	2	2	
15	Final written and oral exams			
Practical topics				
Week No	**Topics**	**No. of hours**	**Lecture credit hours**	**Practical credit hours**
1	Introduction: Traditional Systems of Herbal Medicine, Traditional Chinese Medicine (TCM), Ayurveda	2		1
2	Extraction methods & apparatus	2		1
3	Peptic ulcer assay	2		1
4	Anti-inflammatory assay	2		1

5	Analgesic assay	2		1
6	ABTS anti-oxidant assay	2		1
7	Brine shrimp Cytotoxic assay	2		1
8	Herbal drugs + Case studies + Seminars	2		1
9	Herbal drugs + Case studies + Seminars	2		1
10	Herbal drugs + Case studies + Seminars	2		1
11	Herbal drugs + Case studies + Seminars	2		1
12	Herbal drugs + Case studies + Seminars	2		1
13	Revision	2		1
14	Practical exam	--		--

5. Teaching and learning Methods:

	Teaching and Learning Methods	Week No.
5.1	Computer aided learning: a. Online learning through my mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans • PowerPoint presentation	1-14
5.2	Practical session using laboratory equipment and through platform	1-13
5.3	Self-learning	13
5.4	Class Activity: Group discussion offline and online.	11
5.5	Research assignments	13
5.6	Case study	9-12

6. Student Assessment:

a- Assessment methods

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1., 1.1.3.1, 1.1.4.1, 1.1.5.1, 2.2.1.1, 2.3.1.1, 3.2.3.1, 4.2.1.1, 4.3.2.1
2-Practical exam	2.2.1.1, 2.3.1.1, 3.2.3.1, 4.2.1.1, 4.1.2.1
3-Oral	1.1.1.1, 1.1.3.1, 1.1.4.1, 1.1.5.1, 2.2.1.1, 2.3.1.1, 3.2.3.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1., 1.1.4.1, 1.1.5.1, 1.1.3.1, 4.2.1.1

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

N0.	Reference	Type
1	- Michael Heinrich, Joanne Barnes, Simon Gibbons and Elizabeth M. Williamson;"Fundamentals of pharmacognosy and phytochemistry"2nd edition 2018 Elsevier Ltd.	Book
2	- Kerry Bone and Simon Mills," Principles and practice of phytotherapy" 2017 Elsevier Ltd.	Book
3	- Phytotherapies: Efficacy, Safety, and Regulation edited by Iqbal Ramzan, 2015	Book

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	1.1.3.1	1.1.4.1	1.1.5.1	2.2.1.1	2.3.1.1	3.2.3.1	4.1.2.1	4.2.1.1	4.3.2.1
1	Introduction to phytotherapy	✓	✓						✓		
2	Forms of complementary and alternative medicine which do not use medicinal plants, Traditional Systems of Herbal Medicine, Traditional Chinese Medicine (TCM), Ayurveda			✓	✓						
3	The Greek and Roman Contribution, The Middle Ages and Islamic Contribution, Herbal medicine today, Herbal products regulation			✓	✓					✓	
4	The gastrointestinal system	✓									
5	The eye, The ear, nose and oropharynx			✓	✓					✓	
6	Supportive Therapies for Stress, Aging and Debility		✓	✓	✓				✓		✓
7	The cardiovascular system			✓	✓					✓	✓
8	The central nervous system			✓	✓					✓	✓
9	The endocrine system										
10	The respiratory system	✓	✓	✓							
11	The renal system	✓	✓	✓							
12	Herbal formulation and dosage forms		✓	✓	✓						
13	Herb-drug interactions	✓	✓	✓	✓						
14	Revision and research assignment	✓	✓	✓	✓						
	Practical topics										
1	Introduction: Traditional Systems of Herbal Medicine, Traditional Chinese Medicine (TCM), Ayurveda					✓	✓	✓	✓	✓	
2	Extraction methods & apparatus						✓	✓	✓	✓	✓
3	Peptic ulcer assay						✓	✓	✓	✓	✓

4	Anti-inflammatory assay						✓	✓	✓	✓	✓
5	Analgesic assay						✓	✓	✓	✓	✓
6	ABTS anti-oxidant assay					✓	✓	✓	✓	✓	
7	Brine shrimp Cytotoxic assay				✓	✓	✓	✓	✓		
8	Herbal drugs + Case studies + Seminars				✓	✓	✓	✓	✓		
9	Herbal drugs + Case studies + Seminars				✓	✓	✓	✓	✓		
10	Herbal drugs + Case studies + Seminars				✓	✓	✓	✓	✓		
11	Herbal drugs + Case studies + Seminars				✓	✓	✓	✓	✓		
12	Herbal drugs + Case studies + Seminars				✓	✓	✓	✓	✓		
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.	- Michael Heinrich, Joanne Barnes, Simon Gibbons and Elizabeth M. Williamson;"Fundamentals of pharmacognosy and phytochemistry", 2nd edition 2015 Elsevier Ltd.	Book
4.	- Kerry Bone and Simon Mills," Principles and practice of phytotherapy", 2017 Elsevier Ltd.	Book
5.	- Phytotherapies: Efficacy, Safety, and Regulation edited by Iqbal Ramzan, 2015	Book
6.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	**websites**

Course Coordinator	**Prof. Dr. ……**
Head of Department	**Prof. Dr.** Mahmoud Fahmy Elsebaie

Date: 6 / 9 / 2023

Fourth level

Course Specification: Pharmaceuticals analysis and quality control

University:	Mansoura University (MU)
Faculty:	Pharmacy
Department:	Pharmaceutical analytical chemistry
Course title:	Pharmaceutical Analysis and Quality Control
Course code:	PC 808

Program on which the course is given	B. Pharm (Clinical Pharmacy)
Academic Level	Level 4, second semester, 2023-2024
Date of course specification approval	10/9/2023

1. Basic Information : Course data :

Course title:	Pharmaceutical Analysis and Quality Control	**Code:** PC 808
Specialization:	Pharmaceutical sciences	
Prerequisite:	Pharmaceutical Analytical chemistry-II	
Teaching credit Hours:	**Lecture:** 2	**Practical:** 1
Total Number of units: (credit hours)	3 hours	

2. Course Aims:

This course enables students to:

1- Give the principle and overall definition of quality control, chemical impurities, types and its control, sampling, documentation, recording procedures and Pharmacopoeias monographs.

2- Recognizing different methods of analysis, assay tolerances, stability testing of pharmaceuticals (ICH Guidelines), stability indicating assay methods (SIAM).

3- Knowing validation of stability indicating assay methods and predicted stability.

4- Factors affecting drug degradation, Drug expiration, Drug withdrawal from the market. Pharmaceutical regulations according to FDA & EMA (European medicine agency) and ISO and BSI. Drug-excipient interactions and adduct formation.

3. Course 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 the principles of different pharmaceutical sciences
1.1.2	1.1.2.1	Use appropriate terminology and recall the analysis of pharmaceutical compounds using GLP guidelines and validation procedures.
1.1.3	1.1.3.1	List the different analytical techniques for analyze and assure quality of drugs from synthetic and natural origin
1.1.4	1.1.4.1	Distinguish good manufacturing practice and quality control criteria in pharmaceutical industry and critical analysis

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.2	2.1.2.1	Propose suitable methods of chemical analysis for materials from different origin.
2.2.2	2.2.2.1	Apply Good Manufacturing Practice (GMP) guidelines including principles of quality control related to pharmaceutical industry.
2.2.3	2.2.3.1	Use instruments and different kinds of simulation software to design analytical processes for quality control and quality assurance of raw materials and pharmaceutical products.
2.2.4	2.2.4.1	Implement quality control and quality assurance, calculations, biostatical analysis as per the needs of pharmaceutical industry.
2.3.1	2.3.1.1	Select and apply appropriate methods, resources and procedures for handling and disposal of synthetic/natural materials.
2.3.2	2.3.2.1	Choose best practice and adhere to high ethical, legal and safety standards for management of pharmaceutical materials/products.
2.5.1	2.5.1.1	Determine the different pharmacokinetic parameters from the supplied biological data.

2.6.2	**2.6.2.1**	Practice guidelines of drug promotion, sales, marketing, accounting, and outcomes of pharmacoeconomic analysis.

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.
4.2.2	**4.2.2.1**	Use technology whenever possible to present relevant information.
4.3.1	**4.3.1.1**	Use effective strategies to manage and improve self-practice of pharmacy. Practice guidelines of drug promotion, sales, marketing, accounting, and outcomes of pharmacoeconomic analysis.
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	Introduction to Quality control (QC)	2	
2	Chemical Purity of drugs and Official Methods to QC.	2	
3	Specifications of Dosage Forms.	2	
4	Sampling and documentation.	2	
5	Analytical methods of analysis; Gravimetric; Titrimetric	2	
6	Analytical methods of analysis; Electrochemical.	2	
7	Application on electrochemical analysis	2	
8	Molecular Absorption Spectrometry and their applications in drug analysis	2	
9	Atomic Absorption Spectrometry and their applications in drug analysis	2	
10	Validation of analytical methods according to ICH Guidelines.	2	
11	Typical validation characteristics which should be considered, specificity, linearity, range and accuracy, precision, detection	2	

	limit, quantitation limit, robustness, and system suitability testing.		
12	Drug excipient interaction.	2	
13	Introduction on stability indicating assay methods (SIAM)	2	
14	Stability indicating assay methods (SIAM): different pathways of degradation of pharmaceutical drugs.	2	
15	Revision and quiz	2	
16	**Final written and oral exam**	-	
Week No	**Practical Topics**	**Lecture credit hours**	**Practical credit hours**
1	Pharmacopeial monographs		1
2	Validation of Analytical procedures		1
3	Assay of Glacial Acetic acid		1
4	Validation of Analytical procedures		1
5	Assay of Indomethacin in Indocid Capsules		1
6	Assay of Aspirin in Rivo® Tablets		1
7	Problems on validation		1
8	**Periodical Exam**		
9	Assay of zinc content in dosage forms		1
10	Assay of Magnesium content in dosage forms.		1
11	Assay of Calcium content in Calcinate Ampoules		1
12	Assay of Depovit ampoules		1
13	Naftazone and validation quiz		1
14	Haemojet ampoules		1
15	**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
5.4	Class Activity: Group discussion offline and online.
5.5	Formative Assignments

6. Student Assessment:

a- Assessment Methods:

Periodical exam	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1, 2.2.2.1
Practical exam	2.1.2.1, 2.2.3.1, 2.2.4.1, 2.3.1.1, 2.3.2.1, 2.6.2.1, 4.1.1.1
Final Written exam	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1, 2.2.2.1, 2.5.1.1
Oral exam	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1,4.3.1.1

b- Assessment schedule

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

c- Weighing of assessments

1	**Periodical examination**	10%
2	**Practical examination**	25%
3	**Final written examination**	50%
4	**Oral examination**	15%
Total		100%

7. Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Laboratory facilities	Water baths, glassware, chemicals, electronic balance
Library	Books and Pharmacopoeia

8. 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	1.1.2.1	1.1.3.1	1.1.4.1		2.1.2.1	2.2.2.1	2.2.3.1	2.2.4.1	2.3.1.1	2.3.2.1	2.5.1.1	2.6.2.1	4.1.1.1	4.2.2.1	4.3.1.1	4.3.2.1
	A) Theoretical part																	
1	Introduction to Quality control (QC)	▯			▯													
2	Chemical Purity of drugs and Official Methods to QC.	▯			▯								▯					
3	Specifications of Dosage Forms.	▯			▯													
4	Sampling and documentation.	▯			▯													
5	Analytical methods of analysis; Gravimetric; Titrimetric	▯		▯									▯		▯		▯	
6	Analytical methods of analysis; Electrochemical.	▯		▯											▯		▯	

7	Application on electrochemical analysis	▯		▯										▯		▯	
8	Molecular Absorption Spectrometry and their applications in drug analysis	▯		▯										▯		▯	
9	Atomic Absorption Spectrometry and their applications in drug analysis		▯			▯	▯	▯	▯	▯	▯	▯	▯		▯			
10	Validation of analytical methods according to ICH Guidelines.			▯	▯											▯	▯
11	Typical validation characteristics which should be considered, specificity, linearity, range and accuracy, precision, detection limit, quantitation limit, robustness, and system suitability testing.			▯	▯						▯			▯	▯	▯	▯

12	Drug excipient interaction.				▯	▯							▯		▯	▯	▯	▯
13	Introduction on stability indicating assay methods (SIAM)				▯	▯									▯	▯	▯	▯
14	Stability indicating assay methods (SIAM): different pathways of degradation of pharmaceutical drugs.				▯	▯									▯	▯	▯	▯
15	Revision and quiz	▯	▯				▯	▯					▯		▯	▯	▯	▯	▯
	B) Practical part																	
1	Pharmacopeial monographs		▯		▯		▯	▯				▯			▯	▯	▯	▯	▯
2	Validation of Analytical procedures		▯		▯		▯	▯				▯			▯	▯	▯	▯	▯
3	Assay of Glacial Acetic acid		▯		▯		▯	▯				▯	▯		▯	▯	▯	▯	▯
4	Validation of Analytical procedures		▯		▯		▯	▯				▯			▯	▯	▯	▯	▯

5	Assay of Indomethacin in Indocid Capsules																
6	Assay of Aspirin in Rivo® Tablets																
7	Problems on validation																
9	Assay of zinc content in dosage forms																
10	Assay of Magnesium content in dosage forms.																
11	Assay of Calcium content in Calcinate Ampoules																
12	Assay of Depovit ampoules																
13	Naftazone and validation quiz																
14	Haemojet ampoules																

9. List of References

No.	Reference	type
1	Practical course notes prepared by the department staff members	Course notes
2	Theoretical course Notes "Quality Control of Drugs" prepared by staff members	Course notes
3	Skoog, D. A. Holler, F. J. and Crouch, S.R. "Principles of Instrumental Analysis". 7th ed., Thomson, Belmont, USA (2016)	Book
4	Christian, G.D. and O'Reilly, J.E., in "Instrumental Analysis" 6th Ed., Prentice Hall, New Jersy (2013).	Book
5	Daniel C. Harris. "Quantitative Chemical Analysis". 8th ed., W.H. Freeman and Company, New York, (2010)	Book
6	Miller JC & Miller JN Statistics and Chemometrics for Analytical Chemistry, 6th edn. Pearson Education Limited: Harlow, England (2010).	Book
7	Different pharmacopoeias: USP 2016; BP 2016 and EP 2016.	Book
8	ICH Harmonized Tripartite Guideline, Validation of Analytical Procedures: Text and Methodology, Q2(R1), Current Step 4 Version, Parent Guidelines on Methodology Dated November 6, 1996, Incorporated in November 2005. at: http://www.ich.org/LOB/media/MEDIA417.pdf.	Website
9	ICH Harmonized Tripartite Guidelines. Stability testing of new drug substances and products, Q1A (R2) (2003). Accessed 25 October 2010 at: http://www.ich.org/LOB/media/MEDIA419.pdf	Website
10	https://www.ekb.eg http://www.sciencedirect.com http://www.google scholar.com http://www.pubmed.com	Website

Course Coordinator	**Prof. Dr. FathAlla FathAlla Belal**
Head of Department	**Prof. Dr. Jenny Jeehan Mohamed Nasr**

Date: 10/9/2023

بكالوريوس الصيدلة الاكلينيكية

Course Specification

Academic year: 2023/2024

Course name: Clinical Biochemistry	**اسم المقرر :** كيمياء حيويه اكلينيكية
Academic Level:5	**المستوى الأكاديمي :**الرابع
Scientific department: Biochemistry	**القسم العلمي :** الكيمياء الحيوية
Head of Department: Dr. Noha M.H. Abdel- Rahman	**رئيس القسم :** د/ نهى منصور حسن عبدالرحمن
Course Coordinator:	**منسق المقرر :**

University	Mansoura
Faculty	Pharmacy
Department offering the course	Biochemistry
Department supervising the course	Biochemistry
Program on which the course is given	B. Pharm (Clinical Pharmacy),
Academic Level	Forth Level, Semester two, 2023-2024
Date of course specification approval	16/9/2023

A. Basic Information: Course data:

Course Title	Clinical Biochemistry
Course Code	**PB 803**
Prerequisite	Biochemistry 2
Teaching credit Hours: Lecture	2
Practical	1
Total Credit Hours	3(Credit H)

B. Professional Information:

1 .Course Aims:

This course enables the students to:

1 Develop the ability to select chemical investigation those are appropriate to the diagnosis of disease and for the management of treatments.
2 Understand the diagnostic value of plasma non-functional enzymes.
3 Study the functional state of: Liver, Kidney, Heart, Bone and GIT, in health and disease
4 Study the Inborn Errors of Metabolism of Carbohydrates, Protein, Amino acids and Lipids
5 Understand Tumor Markers.
6 Study the disorders of Collagen and Plasma Proteins.
7 Maintain a responsible and critical attitude in the use of the diagnostic services provided by Clinical Biochemistry and Laboratory based specialists

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**	Identify the fundamental basis of pharmaceutical, medical, social and behavioral sciences as well as management of different health conditions.
1.1.2	**1.1.2.1**	Utilize important pharmaceutical and medical terminology, abbreviations and symbols in pharmacy practice.
1.1.4	**1.1.4.1**	Articulate knowledge from fundamental sciences to evaluate drugs' action, therapeutic effects and their appropriateness, effectiveness, and safety in individuals and populations.
1.1.5	**1.1.5.1**	Define the principles, practice and critical understanding of fundamental sciences to solve problems related to human health.
1.1.6	**1.1.6.1**	Make evidence-informed professional decisions through analysis and application of relevant scientific literature and other scientific resources.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.2	**2.1.2.1**	Make use of the principles of professional codes of ethics, preserving patients' rights and respecting population diversity.
2.4.3	**2.4.3.1**	Make decisions regarding recognized drug-related and pharmaceutical care problems.
2.5.2	**2.5.2.1**	Identify relevant and necessary evidence-based information about a patient's health-related care needs.

Domain 3: Pharmaceutical Care

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

	no.	
3.1.1	**3.1.1.1**	Adjust a dosage regimen for a patient based on knowledge of different biochemical, metabolic and immunological changes related to disease or concomitant drug therapy.
3.2.2	**3.2.2.1**	Use the principles of clinical pharmacology and clinical nutrition and the necessary technical skills to rationalize the use of medicines and medical devices.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	**4.1.2.1**	Gather information and analyze data, point out problems and present solutions, participate independently and collaboratively with other team members in the healthcare system.
4.2.1	**4.2.1.1**	Make use 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**	Employ 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**	Encourage continuous professional development by practicing self and independent learning.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Introduction & Inborn Errors of Metabolism	2
2	Carbohydrate metabolism disorders	2
3	Blood glucose & Diabetes Mellitus	2
4	Liver function Tests	2
5	Diagnostic enzymology	2
6	Water, electrolytes and hydrogen ion disorders	**2**

7	Lipid disorders	2
8	Kidney function Tests	2
9	Cardiac function test	2
10	Respiratory disorders	2
11	Amino acid metabolism disorders	2
12	Collagen and Plasma proteins disorders	2
13	Tumor markers	2
14	Disorders of nucleic acids, purine and pyrimidine metabolism.	2
15	Revision /quiz	2
16	**Final written and oral exam**	**-**
Practical topics		
Week No	**Topics**	**No. of hours**
1	Lab safety and the use of laboratory.	1
2	Patient Sample collection	1
3	Laboratory Diagnosis of Diabetes Mellitus/ Complications of Diabetes Mellitus	1
4	Oral Glucose Tolerance Test/**case study.**	1
5	Mineral disturbance in diabetes	1
6	Clinical cases on Diabetes Mellitus	1
7	Tests for Evaluation of Liver Function (Total protein, ALT, AST).	**1**
8	**Mid-term Exam**	**-**
9	Determination of serum bilirubin (total and direct) /**case study**	1
10	Tumor markers.	1
11	Acute myocardial infarction/**Presentation**.	1
12	Diagnosis of renal dysfunction/ **Presentation**.	1
13/14	Revision/ case study	2
15	Practical Exam	-

4- Teaching and learning Methods:

No	Teaching and learning Methods	Week
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	1-14
5.2	Self-learning	13
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-14
5.4	Class Activity: Group discussion offline and online.	8
5.5	Problem – based learning and brainstorming	8
5.6	Research assignments	12

5- 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, 1.1.5.1, 1.1.6.1, 2.1.2.1, 2.4.3.1, 2.5.2.1
2-Practical exam	2.4.3.1, 2.5.2.1, 4.1.2.1, 4.2.2.1, 4.3.1.1
3-Oral exam	1.1.1.1, 1.1.5.1, 2.1.2.1, 2.4.3.1, 2.5.2.1, 3.1.1.1, 3.2.2.1, 4.1.2.1, 4.2.2.1, 4.3.1.1
4- Periodical (Mid-term exam) / case study	1.1.1.1, 1.1.6.1, 2.5.2.1, 4.1.1.1, 4.3.2.1

b. Assessment schedule

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

c. Weighing 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 %

6- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory facilities	Microscopes- chemicals- glass wares- white board

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

Week No.	Course contents / K. elements	Domain1					Domain2			Domain3		Domain4				
		1.1.1.1	1.1.2.1	1.1.4.1	1.1.5.1	1.1.6.1	2.1.2.1	2.4.3.1	2.5.2.1	3.1.1.1	3.2.2.1	4.1.2.1	4.2.1.1	4.2.2.1	4.3.1.1	4.3.2.1
1	Introduction & Inborn Errors of Metabolism	√						√								
2	Carbohydrate metabolism disorders	√		√		√	√		√	√						
3	Blood glucose & Diabetes Mellitus	√	√		√	√				√		√	√	√		
4	Liver function Tests	√	√		√	√	√	√	√	√	√	√	√	√		
5	Diagnostic enzymology	√	√	√	√				√	√			√	√		
6	Water, electrolytes and hydrogen ion disorders	√	√		√	√	√						√	√		
7	Lipid disorders	√	√			√						√	√		√	
9	Kidney function Tests		√		√	√		√		√	√		√	√	√	√
10	Cardiac function test	√		√	√	√		√	√	√	√				√	√
11	Respiratory disorders		√		√		√	√		√						
12	Amino acid metabolism disorders	√				√						√	√		√	√
13	Collagen and Plasma proteins disorders		√		√	√	√	√		√	√		√	√	√	
14	Tumor markers	√		√	√	√		√	√	√	√				√	√

	Practical topics																		
1	Lab safety and the use of laboratory.		√	√	√			√	√	√			√		√	√	√		
2	Patient Sample collection		√		√	√			√	√			√		√		√		
3	Laboratory Diagnosis of Diabetes Mellitus/ Complications of Diabetes Mellitus	√		√	√			√		√		√			√		√		
4	Oral Glucose Tolerance Test/case study.		√	√	√			√	√	√			√		√	√	√		
5	Mineral disturbance in diabetes	√		√	√			√		√		√			√		√		
6	Clinical cases on Diabetes Mellitus																		√
7	Tests for Evaluation of Liver Function (Total protein, ALT, AST).		√		√	√			√		√		√			√		√	
9	Determination of serum bilirubin (total and direct) /case study	√	√	√				√	√			√			√	√	√		√
10	Tumor markers.																		
11	Acute myocardial infarction/Presentation .																		
12	Diagnosis of renal	√	√	√				√	√			√	√		√	√		√	

	dysfunction/ Presentation.																		
13/14	Revision/ case study		√		√			√								√	√		√

8- 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.	Nutrition therapy and pathophysiology, Marcia Nelms and Kathryn P. Sucher,Wadsworth, Inc,4th edition,2020.	Books
4.	Nutrition for health and health care,Linda Kelly DeBruyne and Kathryn Pinna, Cengage learning, 6th edition,2017.	Books
5.	William's basic nutrition and diet therapy, Staci Nix, Elsevier, 16th edition,2020	Books
6.	Basic nutrition, Lori A. Smolin, Ph.D. and Mary B. Grosvenor, M.S., R.D., Chelsea house,3rd edition, 2019.	Books
7.	www.nutrition.gov/topics/healthy-living-and-weight/weight-management-youth www.nutrition.gov/topics/diet-and-health-conditions www.nutrition.gov/topics/diet-and-health-conditions/cancer https://www.ekb.eg	Web sites

Course Coordinator	To be nominated
Head of Department	Dr. Noha M.H. Abdel- Rahman

Date: 16 /9/ 2023

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة

Course Specification

Academic year: 2023-2024

Course name: Drug marketing	اسم المقرر: التسويق الدوائي
Academic Level: Level 4	المستوى الأكاديمي: الرابع
Scientific department: **Clinical Pharmacy & Pharmacy Practice Department**	القسم العلمي: قسم الصيدلة الإكلينيكية والممارسة الصيدلية
Head of Department: **Dr. Mohamed Elhusseiny Shams**	رئيس القسم: أ.د/ محمد الحسيني شمس
Course Coordinator: **Dr. Mona Mohamed El tamalawy**	منسق المقرر: د/مني محمد فتحي الطملاوي

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

1- Basic Information: Course data:

Course Title	**Drug marketing**
Course Code	**PP-806**
Prerequisite	**Registration**
Teaching Hours: Lecture	**1**
Tutorial	**0**
Total Credit Hours	**1 (Credit H)**

2- Course Aims:

2.1. Introduce the major concepts in management and marketing in the different fields of pharmacy practice.
2.2. Understand the different application involved in different management system.
2.3. Organizing the different properties, applications of health economics and health technology assessment.
2.4. Overview on different types of economic evaluation and budget impact analysis.

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**	Define the different basic knowledge of pharmaceutical marketing 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.
1.1.7	**1.1.7.1**	Analyze evolving evidence, that may be applicable to solve pharmaceutical marketing problems.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element	Course K. element	Course K. element

no.	no.	
2.1.1	**2.1.1.1**	Organize and apply legal professional requirements to healthcare team in competitive analysis and sale force management.
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**	Interpret the basic principles involved in managing financial, and customer behavior and marketing research.
2.6.2	**2.6.2.1**	Conduct guidelines of drug promotion , market segmentation, accounting and budget impact analysis.

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.
4.1.2	**4.1.2.1**	Create or practices independent participation in the field of pharmacy and collaboration in the delivery of health services.
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.

4- Course Contents

Week No.	Topics	Lecture Hours
1	Presentation Skills guide	1
2	Structuring the presentation organizing and gathering presentation materials	1
3	Structuring the presentation	1
4	Pharmacists' effective communication with patients	1
5	Pharmacists' effective communication with healthcare team members	1
6	Oral presentation: tips for conducting oral presentations (dealing with speech anxiety)	1
7	Oral presentation: tips for conducting oral presentations (developing a personal style of presentation).	1

8	Effective presentations design and delivery: visual aids and supporting materials, use PowerPoint ® effectively	1
9	Confident and Effective Delivery of a Presentation: Common mistakes	1
10	Non-Verbal Communication: Why non-verbal communications are unique	1
11	Non-Verbal Communication: Elements of non-verbal communication	1
12	Communication: Interpersonal Communication.	1
13	Communication: One-way Communication (Self-learning)	1
14	Mechanism of health care market	1
15	**Starting of Written 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. Power point (PPT) presentations**	**Week 1-14**
5.2	**Self-learning**	**Week 13**
5.3	**Formative assignments**	**Week 1-14**
5.4	**Class activity discussion / Brainstorming / problem solving**	**Week 1-14**

6- Student Assessment:

a- Assessment Methods:

1-Written exam	**1.1.1.1/ 1.1.6.1/ 1.1.7.1/ 2.1.1.1/ 2.4.3.1 /2.6.1.1/2.6.2.1/ 4.1.1.1/4.1.2.1/ 4.3.2.1**
2-Formative Assessment	**1.1.1.1/ 1.1.6.1/ 1.1.7.1/ 2.1.1.1/ 2.4.3.1 /2.6.1.1/2.6.2.1**

b- Assessment schedule

Assessment 1	**Course work**	6-9th week
Assessment 2	**Written**	Starting in 15th week

Other assessment		

c- Weighing of assessments

1	**Mid-term examination**	10%
3	**Final-term examination**	90%
5	**Other types of assessment**	
Total		100%

7- Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Library	Books and Pharmacopoeia

8- Matrix of knowledge and skills of the course

Course contents	Outcomes Domains / Key elements											
	Domain 1				Domain 2					Domain 4		
	1.1.1.1	1.1.6.1	1.1.7.1		2.1.1.1	2.4.3.1	2.6.1.1	2.6.2.1		4.1.1.1	4.1.2.1	4.3.2.1
Presentation Skills guide	√	√			√	√				√	√	
Structuring the presentation organizing and gathering presentation materials	√	√			√	√	√	√		√	√	
Structuring the presentation	√	√	√		√	√				√	√	√
Pharmacists' effective communication with patients	√	√	√		√	√				√	√	
Pharmacists' effective communication with healthcare team members	√	√	√		√	√	√	√		√	√	
Oral presentation: tips for conducting oral presentations (dealing with speech anxiety)	√	√			√	√				√	√	√
Oral presentation: tips for conducting oral presentations (developing a personal style of presentation).												
Effective presentations design and delivery: visual aids and supporting materials, use PowerPoint ® effectively	√	√			√	√				√	√	
Confident and Effective Delivery of a Presentation: Common mistakes	√	√			√	√				√	√	
Non-Verbal Communication: Why non-verbal communications are	√	√	√				√	√			√	√

unique												
Non-Verbal Communication: Elements of non-verbal communication	√	√	√				√	√			√	√
Communication: Interpersonal Communication.	√	√	√				√	√			√	√
Communication: One-way Communication (Self-learning)	√	√	√				√	√			√	√
Mechanism of health care market												
Presentation Skills guide	√	√	√				√	√			√	√

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.	"**Pharmacoeconomics : From theory to practice**", (2 nd edition) Renee J.G. Arnold, CRC Press, New York , (August 2020).	**Book**
4.	**"Pharmaceutical Marketing Principles, Environment, and Practice"** (1st edition), Eugene Mick Kolassa, James Greg Perkins, Bruce R Siecker, CRC Press, (2002).	**Book**
5.	**"Pharmacy Administration"** (2nd edition), Beijing, China Shimin Yang, Medical Technique Press, (2006)**.**	**Book**
6.	https://www.researchgate.net/publication/325023106 http://www.sciencedirect.com / http://www.google.com / http://www.pubmed.com https://www.ekb.eg/web/guest/home	**Websites**

Course Coordinator	**Dr. Mona Mohamed Eltamalawy**
Head of Department	**Dr. Mohamed Elhusseiny SHams**

Date: 7/9/2023

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بكالوريوس الصيدلة الإكلينيكية

Course Specification

Academic year: 2023-2024

Course name: Drug Interactions	**اسم المقرر:** تفاعلات الدواء
Academic Level: Level Four	**المستوى الأكاديمي:** المستوى الرابع
Scientific department: Pharmacology and toxicology dep.	**القسم العلمي:** الأدوية والسموم
Head of Department: Prof. Manar Ahmed Nader	**رئيس القسم:** ا.د/ منار أحمد نادر
Course Coordinator: Prof. Nashwa Abu-Elsaad	**منسق المقرر:** ا.د/ نشوى أبو السعد

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology and toxicology dep.
Department supervising the course	Pharmacology and toxicology dep.
Program on which the course is given	**B. Pharm. (Clinical Pharmacy) Credit hours**
Academic Level	Level 4, Second semester, 2023-2024
Date of course specification approval	September 2023

A. Basic Information: Course data:

Course Title	Clinical Pharmacology
Course Code	PO 803
Prerequisite	Pharmacology II
Teaching credit Hours: Lecture	2
: Practical	1
Total Credit Hours	3

B. Professional Information:

1. Course Aims:

This course enables the students to:

Provide knowledge about classification of drug interaction
Provide knowledge about mechanisms underlying drug interaction
Provide knowledge about food and herbal drug interaction
Provide knowledge about drug-disease interaction
Inform the students about the basics of pharmacogenetics drug interaction
Provide coverage on the high-risk groups for drug interaction
Provide essential knowledge about special classes of drug-drug interaction

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
1.1.4	1.1.4.1	Recall and memorize the classification, pharmacokinetics and contraindications of drugs adverse drug reactions
	1.1.4.2	Define impact of food, disease state, herbs and pharmacogenetics on drug effect
	1.1.4.3	Recognize different classes of drug-drug interaction including cardiovascular, antimicrobial, analgesics, CNS, antidiabetic drugs

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Correlate food, herb and beverages intake with possible adverse drug interactions
	2.4.3.2	Assess possible drug-drug interactions and 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	Apply appropriate management to decrease risks of drug-drug interaction and different other drug adverse reaction
	3.2.1.2	Evaluate and revise the prescribed therapeutic approach

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Retrieve patient information from different sources to improve professional competencies
4.3.1	4.3.1.1	Follow up the treatment precautions to solve problems and achieve the desired treatment outcomes

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Introduction to drug interaction	2
2	Food drug interaction	2
3	Herbal drug interaction	2
4	Pharmacogenetics and drug interaction	2
5	Cardiovascular drug interaction	2
6	Centrally acting drugs interaction	2
7	Antibiotics drug interaction	2
8	Antifungal drug interaction	2
9	Antihistaminic drugs interaction	2
10	Analgesic drugs interaction	2
11	Antidiabetic drugs interaction	2
12	Contraceptives interaction	2
13	Self-learning (Drug interaction in pediatrics)	2
14	Revision/quiz	2
15	**Final written and oral exam**	

4- Teaching and Learning Methods:

4.1	**Advanced Lectures**
4.2	**Hybrid learning**
4.3	**Self-learning**
4.4	**Problem based learning**
4.5	**Computer aided learning**
4.6	**Case studies**
4.7	**Practical/ tutorial**

5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	**1.1.4.1, 1.1.4.2, 1.1.4.2, 2.4.3.1, 2.4.3.2, 3.2.1.1, 3.2.1.2**
2-Oral	**1.1.4.1, 1.1.4.2, 1.1.4.2, 2.4.3.1, 2.4.3.2, 3.2.1.1, 3.2.1.2, 4.1.2.1, 4.1.2.2**
3- Periodical (Mid-term exam) / Course work	**1.1.4.1, 1.1.4.2, 1.1.4.2, 2.4.3.1, 2.4.3.2, 4.1.2.1, 4.1.2.2**
4- Practical / tutorial	**1.1.4.1, 1.1.4.2, 1.1.4.2, 2.4.3.1, 2.4.3.2, 3.2.1.1, 3.2.1.2, 4.1.2.1, 4.1.2.2**

b. Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	8th week
Assessment 2	Practical /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/tutorial	25%
2	Final-term examination	50%
3	Oral examination	15%
Total		100%

6- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.

- Laboratory facilities	Data show- Computers, Internet. white board

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

Week No.	Course contents / K. elements	Domain 1				Domain 2			Domain 3			Domain 4	
		1.1.4.1	1.1.4.2	1.1.4.3		2.4.3.1	2.4.3.2		3.2.1.1	3.2.1.2		4.1.2.1	4.3.1.1
1	Introduction to drug interaction	✓	✓			✓			✓	✓			
2	Food drug interaction	✓		✓			✓		✓	✓			
3	Herbal drug interaction	✓		✓			✓		✓	✓			
4	Pharmacogenetics and drug interaction	✓		✓			✓		✓	✓			
5	Cardiovascular drug interaction	✓		✓			✓		✓	✓		✓	✓
6	Centrally acting drugs interaction	✓		✓			✓		✓	✓		✓	✓
7	Antibiotics drug interaction	✓		✓			✓		✓	✓		✓	✓
8	Antifungal drug interaction	✓		✓			✓		✓	✓		✓	✓
9	Antihistaminic drugs interaction	✓		✓			✓		✓	✓		✓	✓
10	Analgesic drugs interaction	✓		✓			✓		✓	✓		✓	✓
11	Antidiabetic drugs interaction	✓	✓			✓			✓	✓		✓	✓

12	Contraceptives interaction	✓	✓			✓			✓	✓		✓	✓
13	Self-learning (Drug interaction in pediatrics)	✓	✓			✓			✓	✓		✓	✓
14	Revision/quiz	✓	✓			✓			✓	✓		✓	✓

8- 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.	Claire L Preston (2019) Stockley's Drug Interactions 12th edition Chicago: Pharmaceutical Press	**Book**
4.	Lakshman Delgoda Karalliedde, Simon Clarke, Ursula Gotel nee Collignon, Janaka Karalliedde (2016) Adverse drug interaction A Handbook for Prescribers, 2nd edition. Taylor and Francis Group.	**Book**
6.	http://www.sciencedirect.com http://www.googlescholar.com http://www.pubmed.com https://www.ekb.eg ACCP guidelines (https://www.accp.com/)	**websites**

Course Coordinator	**Prof. Nashwa Abu-Elsaad**
Head of Department	**Prof. Manar Ahmed Nader**

Date: 18 / 9 / 2023