

Level 5

Semester (9)

Course Title	Course code
Toxicology and forensic chemistry	PO 904
Therapeutics -I	PO 905
Clinical pharmacokinetics	PP 907
Oncology	PP 908
Clinical nutrition	PP 904
Clinical pharmacology	PO 906

Semester (10)

Course Title	Course code
Therapeutics -II	PO 007
Treatment of dermatological and reproductive diseases	PP 010
Treatment of Pediatrics diseases	PP 011
Treatment of Cardiovascular diseases	PP 012
Gastroenterology	PP 013
Treatment of Respiratory system diseases	PP 014
Drug information	PP 015
Antimicrobial Agents	PM E6
Advanced Pharmaceutical Analysis -Spectroscopy	PC E12
Cosmetic Preparations	PT E13



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المستوى الخامس

Course Specification: Toxicology and Forensic Chemistry

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacology and Toxicology
Course title: Toxicology and Forensic Chemistry

Course code: PO 904

Program on which the course is given	B. Pharm (Clinical Pharmacy) credit hours
Academic Level	Level 5, Second semester, 2023/2024
Date of course specification approval	18/9/2023

A. Basic Information : Course data :

Course title:	Toxicology and Forensic Chemistry	Code: PO 904
Specialization:	Health and Environmental	
Prerequisite:	Pharmacology II	
Teaching credit Hours:	Lecture: 2	Practical: 1
Total Number of units: (credit hours)	3 hours	

B. Professional Information:

1- Course Aims:

Toxicology and Forensic Chemistry course aims to:	
1.	Provide knowledge and understanding of the basic principles of toxicology and forensic chemistry.
2.	Provide comprehensive coverage of the major commonly encountered toxins, drugs and chemotherapeutic agents affecting different body systems and organs.
3.	Provide comprehensive coverage of the impact of toxins encounter on various body organs and tissues

2- Course k. elements:

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

Domain 1- Fundamental Knowledge



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Program K. element no.	Course K. element no.	Course K. element
1.1.4	1.1.4.1	List the mode of the action of drugs and their therapeutic effects as well as 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
2.4.4	2.4.4.1	Recognize toxicity profiles of chemicals and other xenobiotics and investigate poisons in biological samples.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Monitor principles of pharmacological aspects of drugs, unwanted effects and drug interactions.
3.2.4	3.2.4.1	Provide suitable information about toxicity of medicinal agents and other xenobiotics including possible sources, signs, symptoms and treatment options.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.2.2	4.2.2.1	Use artificial technology when possible to present applicable information
4.3.1	4.3.1.1	Apply effective plans to achieve and improve self-practice of pharmacy.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Principles and introduction of toxicology	2



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2	Reactive metabolites and acute toxicity	2
3	Target organ toxicity (kidney)	2
4	Target organ toxicity (liver)	2
5	Target organ toxicity (lung, heart & blood)	2
6	Target organ toxicity (brain & skin)	2
7	Carcinogenesis	2
8	Teratogenesis	2
9	Selective Toxicity	2
10	Heavy metal toxicity (lead, copper & mercury)	2
11	Heavy metal toxicity (iron & cobalt)	2
12	Drug induced toxicity (Digoxin)	2
13	Drug induced toxicity (Methotrexate)	2
14	Drug abuse (self-learning)	2
15	Revision	
16	Final written and oral exam	
Week No.	Practical Topics	Practical credit hours
1.	Acute toxicity determination	1
2.	Cyanide toxicity	1
3.	Cardiac glycosides toxicity	1
4.	CNS stimulant toxicity	1
5.	Insecticide toxicity	1
6.	Nicotine toxicity	1
7.	Acetaminophen toxicity	1



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8	Mid-term exam	
9	Aspirin toxicity	1
10	case study 1 & 2	1
11.	case study 3 & 4	1
12	case study 5 & 6	1
13.	case study 7	1
14	Student activities	1
15	Practical exam	

5. Teaching and Learning Methods:

	Teaching and learning methods
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none"> 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	Practical classes provided with experimental animals for handling and demonstration of toxicities with data shows and white boards for data presentation
5.6	Student seminars and research assignments.

5- Student Assessment:

Assessment methods

Mid Term exam	1.1.8.1, 2.4.4.1, 3.2.1.1, 3.2.4.1
Practical exam	1.1.8.1, 2.4.4.1, 3.2.1.1 , 3.2.4.1, 4.2.2.1, 4.3.1.1



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Final Written exam	1.1.8.1, 2.4.4.1, 3.2.1.1, 3.2.4.1
Oral exam	1.1.8.1, 2.4.4.1, 3.2.1.1, 3.2.4.1, 4.2.2.1, 4.3.1.1

b. Assessment schedule

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

6- Facilities required for teaching and learning

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



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

Study Week	Course contents	Outcomes							
		Domains / Key elements							
		Domain 1		Domain 2	Domain 3		Domain 4		
		1.1.4.1	2.4.4.1	3.2.1.1	3.2.4.1	4.2.2.1	4.3.1.1		
1	Principles and introduction of toxicology	✓						✓	
2	Reactive metabolites and acute toxicity	✓		✓				✓	
3	Target organ toxicity (kidney)		✓		✓			✓	
4	Target organ toxicity (liver)		✓		✓			✓	
5	Target organ toxicity (lung, heart & blood)		✓		✓			✓	
6	Target organ toxicity (brain & skin)	✓	✓		✓				
7	Carcinogenesis								
8	Teratogenesis	✓	✓		✓	✓	✓	✓	
9	Selective Toxicity	✓	✓		✓	✓	✓	✓	
10	Heavy metal toxicity (lead, copper & mercey)	✓	✓	✓	✓	✓	✓	✓	
11	Heavy metal toxicity (iron & cobalt)	✓	✓	✓	✓	✓	✓	✓	
12	Drug induced toxicity (Digoxin)	✓	✓	✓	✓	✓	✓	✓	
13	Drug induced toxicity (Methotroxate)	✓	✓	✓	✓	✓	✓	✓	
14	Drug abuse (self-learning)	✓	✓	✓	✓	✓	✓	✓	
15	Revision	✓	✓	✓	✓	✓	✓	✓	



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Study Week	Course contents	Outcomes						
		Domains / Key elements						
		Domain 1	Domain 2	Domain 3		Domain 4		
		1.1.4.1	2.4.4.1	3.2.1.1	3.2.4.1	4.2.2.1	4.3.1.1	
	B) Practical part							
1	Acute toxicity determination	✓						
2	Cyanide toxicity	✓		✓				
3	Cardiac glycosides toxicity		✓		✓			
4	CNS stimulant toxicity		✓		✓			
5	Insecticide toxicity		✓		✓		✓	
6	Nicotine toxicity	✓	✓		✓			
7	Acetaminophen toxicity	✓	✓	✓	✓	✓	✓	
9	Aspirin toxicity	✓	✓		✓	✓	✓	
10	case study 1 & 2	✓	✓		✓	✓	✓	
12	case study 3 & 4	✓	✓	✓	✓	✓	✓	



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13	case study 5 & 6	✓		✓		✓	✓		✓	✓	
14	Student activities								✓	✓	



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8- List of References

No	Reference	Type
1.	Electronic book prepared by staff members.	Course notes
2.	Lippincott's Pharmacology; illustrated review; Karen Whalen. Wolters Kluwer; 8th edition (2022).	Book
3.	Basic & Clinical Pharmacology; Katzung B.G., & Vanderah T.W. (Eds.). McGraw Hill Lange; 15th edition (2021).	Book
4.	https://www.ncbi.nlm.nih.gov/books/NBK482426/ https://www.ekb.eg	websites

Course Coordinator	Prof. Dr. Manar Ahmed Nader
Head of Department	Prof. Dr. Manar Ahmed Nader

Date: 18/ 9/ 2023



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Fifth Level

Course Specification Therapeutics-1

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacology and toxicology
Course title: Therapeutics I
Course code: PO 905

Program on which the course is given	B. Pharm. (clinical pharmacy) credit hours
Academic Level	Level 5, First semester, 2023/2024
Date of course specification approval	September 2023

1. Basic Information: Course data:

Course title:	Therapeutics I	Code: PO 905
Specialization:	Medical sciences	
Prerequisite:	Pharmacology-2	
Teaching Hours:	Lecture: 2	Practical: 1
Number of units: (credit hours)	3	

2. Course Aims:

- 2.1. Provide knowledge about pharmacotherapy of certain cardiovascular diseases
- 2.2. Provide knowledge about bone disorders pharmacotherapy
- 2.3. Provide knowledge about Kidney disorders management
- 2.4. Inform the students about the pathophysiology of the diseases in brief
- 2.5. Provide coverage on the available drug algorithm that should be followed during treatment
- 2.6. Give an idea about nonpharmacological treatment of different diseases
- 2.7. Provide essential knowledge about treatment of special populations
- 2.8. Give the student an idea about the available dosage forms and dose regimen

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	Articulate knowledge from fundamental sciences to drug appropriateness, effectiveness, and safety in individuals and populations.



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1.1.5	1.1.5.1	Understand pharmacotherapeutic guidelines for management of certain cardiovascular diseases, bone and kidney disorders
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Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Design pharmacologic care plans for management of disorders with reference to their particulate health problems and special considerations
	2.4.3.2	Make decisions for recognized drug-related and pharmaceutical care problems
	2.4.3.3	Recommend pharmacological and non-pharmacological systemic approaches for management of disorders affecting different body organs
	2.4.3.4	Select suitable care plans for patients with special consideration to their particular health issues

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Integrate the proper therapeutic uses of different drugs
	3.2.1.2	Consult healthcare team about the proposed care plan appropriate for the patient

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Share decisions with pharmacy and non-pharmacy team members with effective time management skills
	4.1.2.2	Follow up the treatment plan to solve problems and achieve the desired treatment outcomes
4.3.1	4.3.1.1	Retrieve patient information from different sources to improve professional competencies

4. Contents:

Week No	Topics	Lecture credit hours
1	Therapeutic management of osteoarthritis	2
2	Treatment guidelines for osteoporosis	2



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3	Therapeutic management of rheumatoid arthritis	2
4	Pharmacotherapy for hypertension (part 1)	2
5	Pharmacotherapy for hypertension (part 2)	2
6	Therapeutic management of angina (part 1)	2
7	Therapeutic management of acute coronary syndrome (part 1)	2
8	Therapeutic management of acute coronary syndrome (part 2)	2
9	Pharmacotherapy for heart failure (part 1)	2
10	Pharmacotherapy for heart failure (part2)	2
11	Treatment approaches for acute kidney injury	2
12	Therapeutic management of chronic kidney disease	2
13	Therapeutic management of chronic kidney disease complications (self learning)	2
14	Revision/quiz	2
15	Final written and oral exam	
Week No	Practical topics	Practical credit hours
1	Therapeutic management of osteoarthritis (case study)	1
2	Treatment guidelines for osteoporosis (case study)	1
3	Therapeutic management of rheumatoid arthritis (case study)	1
4	Pharmacotherapy for hypertension (case study)	1
5	Therapeutic management of angina (case study)	1
6	Therapeutic management of acute coronary syndrome (case study)	1
7	Therapeutic management of acute coronary syndrome (case study)	1
8	Mid-term Exam	
9	Pharmacotherapy for heart failure (case study)	1
10	Treatment approaches for acute kidney injury (case study)	1
11	Treatment approaches for acute kidney injury complications (case study)	1
12	Therapeutic management of chronic kidney disease (case study)	1
13	Therapeutic management of chronic kidney disease complications (case study)	1
14	Practical exam	1

5. Teaching and learning Methods:

5.1	Computer aided learning: a. Online 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	Case studies

6. Student Assessment:



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Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.4.1, 1.1.5.1, 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4
2-Practical exam	3.2.1.1, 3.2.1.2
3-Oral	1.1.4.1, 1.1.5.1, 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4, 3.2.1.1, 3.2.1.2, 4.1.2.1, 4.1.2.2, 4.3.1.1
4-Formative Assessment	1.1.4.1, 1.1.5.1, 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4

b- Assessment schedule:

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

c- Weighting of assessments:

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

7. List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2	Michael Katz, Kathryn R. Matthias, Marie Chisholm-Burns (2019)Pharmacotherapy Principle and Practice 5th edition McGraw Hill Professional	Book
3	Pharmacotherapy Handbook; Terry L. Schwinghammer; Joseph T. DiPiro; Vicki Ellingrod; Cecily V. DiPiro. McGraw Hill / Medical; 11th ed. (2021).	Book
4	Schwinghammer's Pharmacotherapy Casebook: A Patient-Focused Approach; Terry L. Schwinghammer; Julia M. Koehler; Jill S. Borchert; Douglas Slain; Sharon K. Park. McGraw Hill / Medical; 12 th ed. (2023).	Book
5	http://www.sciencedirect.com http://www.google.com http://www.pubmed.com https://www.ekb.eg ACCP guidelines (https://www.accp.com/)	websites

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


We	Course contents /	Domain	Domain 2	Domain	Domain 4
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	study)												
5	Therapeutic management of angina (case study)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	Therapeutic management of acute coronary syndrome (case study)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Therapeutic management of acute coronary syndrome (case study)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Pharmacotherapy for heart failure (case study)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	Treatment approaches for acute kidney injury (case study)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Treatment approaches for acute kidney injury complications (case study)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	Therapeutic management of chronic kidney disease (case study)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Therapeutic management of chronic kidney disease complications (case study)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Course Coordinator	Prof. Dr. Manar Ahmed Nader
Head of Department	Prof. Dr. Manar Ahmed Nader 

Date: September 2023



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Course specification
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بكالوريوس الصيدلة الإكلينيكية
Course Specification

Academic year: 2023-2024

Course name: Clinical Pharmacokinetics	اسم المقرر: حركية الدواء الإكلينيكية
Academic Level: Level 5	المستوى الأكاديمي: الخامس
Scientific department: Clinical Pharmacy and Pharmacy Practice	القسم العلمي: الصيدلة الإكلينيكية و الممارسة الصيدلانية
Head of Department: Dr. Moetaza Mahmoud Soliman	رئيس القسم: أ.م. د/ معتزه محمود حسب السيد
Course Coordinator: Dr. Noha Osama Mansour	منسق المقرر: د/ نهي أسامة منصور



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

1- Basic Information: Course data:

Course Title	Clinical Pharmacokinetics
Course Code	PP 907
Prerequisite	Biopharmaceutics and pharmacokinetics
Credit Hours: Lecture	2
Tutorial	1
Total Credit Hours	3 (Credit H)

2- Course Aims:

- Introduce the models of linear and dose-dependent systems in pharmacokinetics
- Pharmacokinetic applications in therapeutic drug monitoring and patient care
- Specific drugs and disease states, effects of age and concomitant drug administration
- Dose Adjustment according to patient characteristics

3- Course Learning Outcomes

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



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DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.7	1.1.7.1	Recognize pharmacokinetic calculations essential for optimization of dosage regimens for optimal patient care.

DOMAIN 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Adjust the dosage regimen in different special patient populations to optimize the medication use.
3.2.5	3.2.5.1	Advise healthcare professionals about the optimum dosing regimens for different medications with special attention paid to the drugs with narrow therapeutic index

DOMAIN 4: PERSONAL PRACTICE

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

4- Course Contents

Week No.	Lecture Topics	Lecture Credit Hours
1	Pharmacokinetics parameters meaning	2
2	Pharmacokinetics after IV bolus administration	2
3	Pharmacokinetics after Oral administration	2
4	Bioavailability	2
5	Pharmacokinetics after IV infusion	2
6	Multiple dose administration (IV and oral)	2
7	Pharmacokinetics in case of liver disease	2
8	Pharmacokinetics in case of Kidney disease	2
9	Two compartment kinetic models	2



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10	Nonlinear pharmacokinetics	2
11	Vancomycin	2
12	Aminoglycosides	2
13	Therapeutic drug Monitoring: Digoxin	2
14	Therapeutic drug Monitoring: Lithium, (self-learning topic) Revision	2
15	Final written and oral exam	-



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Week No.	Tutorial topics	Credit hours
1	Pharmacokinetics after IV bolus administration	1
2	Pharmacokinetics after Oral administration	1
3	Bioavailability	1
4	Pharmacokinetics after IV infusion	1
5	Multiple dose administration (IV and oral)	1
6	Pharmacokinetics in case of kidney disease and liver disease	1
7	Non-linear pharmacokinetics	1
8	Periodical (midterm exam)	-
9	Vancomycin	1
10	Aminoglycosides	1
11	Therapeutic drug Monitoring: Lithium and Digoxin	1
12	Two compartment model	1
13	Group project: Therapeutic drug Monitoring: theophylline and carbamazepine, revision	2
14	Sheet / and Tutorial exam (OSPE)	-



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5- Teaching and Learning Methods:

	Teaching and learning Methods	Weeks No.	K. elements to be addressed
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none">● Online learning through Mymans "Mansoura university "as recorded – video lectures● Inter active discussion through My Mans	Week 1-14	1.1.7.1, 3.1.1.1, 3.2.5.1
5.2	Self-learning	Week 13	4.3.2.1
5.3	Practical session tutorials	Week 1-13	1.1.7.1,3.1.1.1, 3.2.5.1
5.4	Class Activity: Group discussion offline and online.	Week 1-14	3.1.1.1, 3.2.5.1
5.5	Problem – based learning and brainstorming	Week 1-14	3.1.1.1, 3.2.5.1
5.6	Research assignments	Week 1-14	3.1.1.1, 3.2.5.1, 4.3.2.1



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6- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.7.1, 3.1.1.1, 3.2.5.1, 4.3.2.1
2-Tutorial exam (OSPE)	3.1.1.1, 3.2.5.1, 4.3.2.1
3-Oral	3.1.1.1, 3.2.5.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.7.1, 3.1.1.1, 3.2.5.1

b- Assessment schedule

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

c- Weighing of assessments

1	Periodical (Mid-term) exam	10%
2	Tutorial examination (OSPE)	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
Library	Books



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8- Matrix of knowledge and skills of the course

Study Week No.	Course contents	Outcomes Domains / Key elements			
		Domain 1	Domain 3		Domain 4
		1.1.7.1	3.1.1.1	3.2.5.1	4.3.2.1
1	Pharmacokinetics parameters meaning	√			
2	Pharmacokinetics after IV bolus administration	√			
3	Pharmacokinetics after Oral administration	√			
4	Bioavailability	√		√	
5	Pharmacokinetics after IV infusion	√	√	√	
6	Multiple dose administration (IV and oral)	√		√	
7	Pharmacokinetics in case of liver disease	√	√	√	
8	Pharmacokinetics in case of Kidney disease	√	√	√	
9	Two compartment kinetic models	√			
10	Nonlinear pharmacokinetics	√		√	√
11	Vancomycin	√	√	√	√
12	Aminoglycosides	√	√	√	√
13	Therapeutic drug Monitoring: Digoxin	√	√	√	√
14	Therapeutic drug Monitoring: Lithium, (self-learning topic) Revision	√	√	√	√
Practical topics					
1	Pharmacokinetics after IV bolus administration		√	√	√
2	Pharmacokinetics after Oral administration		√	√	√
3	Bioavailability		√	√	√
4	Pharmacokinetics after IV infusion		√	√	√
5	Multiple dose administration (IV and oral)		√	√	√
6	Pharmacokinetics in case of kidney disease and liver disease		√	√	√
7	Non-linear pharmacokinetics		√	√	√



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Study Week No.	Course contents	Outcomes Domains / Key elements			
		Domain 1	Domain 3		Domain 4
		1.1.7.1	3.1.1.1	3.2.5.1	4.3.2.1
8	Periodical (midterm exam)		√	√	√
9	Vancomycin		√	√	√
10	Aminoglycosides		√	√	√
11	Therapeutic drug Monitoring: Lithium and Digoxin		√	√	√
12	Two compartment model		√	√	√
13	Group project: Therapeutic drug Monitoring: theophylline and carbamazepine, revision		√	√	√



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9- 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.	Clinical Pharmacokinetics, 1st Edition (2006).	Essential Book
4.	Applied Biopharmaceutics and Pharmacokinetics, 7th Edition by Madjackfrost (2016)	Essential Book
6.	Lexicomp, Dynamed Plus and BMJ best practice http://www.pubmed.com http://www.sciencedirect.com/ https://scholar.google.com/ https://www.ekb.eg	Websites

Course Coordinator	Dr. Moetaza Mahmoud Hassab
	<i>Moetaza Soliman</i>
Head of Department	Prof. 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: Oncology (PP 908)	اسم المقرر: علم الأورام
Academic Level: Level 5	المستوى الأكاديمي: الخامس
Scientific department: Clinical Pharmacy and Pharmacy Practice	القسم العلمي: الصيدلة الإكلينيكية والممارسة الصيدلانية
Head of Department: Prof. Dr. Mohamed E. Shams	رئيس القسم: أ.د/ محمد الحسيني شمس
Course Coordinator: Dr. Moetaza Mahmoud Hassab	منسق المقرر: أ.م.د/ معتزة محمود حسب

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	Fifth level, First semester, 2023-2024
Date of course specification approval	7/9/2023

1- Basic Information: Course data:

Course Title	Oncology
Course Code	PP 908
Prerequisite	Pathology & Pharmacology II
Credit Hours: Lecture	2
Tutorial	1
Total Credit Hours	3 (Credit H)

2- Course Aims:

- Introduction to the different types of tumors (solid and hematological malignancies) and their staging
- Each type of malignancy will be addressed with respect to diagnosis and prognosis, treatment options and expected outcomes
- For chemotherapy, students will learn the toxic effects of chemotherapy and how to modify the chemotherapeutic regimens as clinical pharmacists to minimize adverse effects as much as possible.
- Regarding radiotherapy, students will be introduced to the various types of isotopes, their application in different malignancies and how to handle these isotopes safely in the work environment.

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	Describe the risk factors, clinical presentation, relevant laboratory investigation in relation to updated treatment guidelines of different oncological diseases.
1.1.4	1.1.4.1	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.
1.1.6	1.1.6.1	Recognize different scientific resources to make evidence-based clinical decisions.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.3	2.1.3.1	Construct a pharmaceutical patient care plan for management of oncological diseases

DOMAIN 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Interpret monitoring parameters of patient's response and therapeutic agents to manage drug therapy problems effectively.
3.2.1	3.2.1.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.
3.2.4	3.2.4.1	Educate patients about goals of therapy, monitoring of response and the possible side effects of the care plan.
3.2.5	3.2.5.1	Counsel and educate patients to rationalize management of oncological diseases.

DOMAIN 4: Personal Practice

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Contribute with health care team in formulary management activities related to chemotherapy and radiotherapy
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: cell cycle, cell biology, basics of oncology, pathophysiology, staging	2
2	Cancer pathophysiology and staging	2
3	Acute leukemias: Definition, Types, Diagnosis and Assessment, Treatment	2
4	Chronic leukemias: Definition, Types, Diagnosis and Assessment, Treatment	2
5	Breast cancer: Definition, Types, Diagnosis and Assessment.	2
6	Treatment of breast cancer	
7	Gynecologic Malignancies: Definition, Types, Diagnosis and Assessment, Treatment	2

8	Bone Marrow Transplantation: Definition, Indications,	2
9	Complications of bone Marrow Transplantation	2
10	Lung cancer: Definition, Types, Diagnosis, risk factors(self-learning)	2
11	Lung cancer: assessment and treatment	2
12	Supportive care in oncology: Antiemetics	2
13	Supportive care in oncology: Pain Management	2
14	Chemotherapy induced toxicities	2
15	Revision and quiz	2
16	Starting Final written and oral exam	-
Week No.	Tutorial topics	Credit hours
1	Introduction	1
2	Cancer TNM staging	1
3	Acute leukemias: case study	1
4	Chronic leukemias: case study	1
5	Breast cancer: case study	1
6	Treatment options of breast cancer	1
7	Gynecologic Malignancies: case study	1
8	Mid- term exam	-
9	Bone Marrow Transplantation: Definition, Indications,	1
10	Complications of bone Marrow Transplantation	1
11	Lung cancer: case presentation	1
12	Supportive care in oncology: Antiemetics	1
13	Supportive care in oncology: pain management	1
14	Chemotherapy induced toxicities	
15	Sheet / and Tutorial exam	-

5- Teaching and Learning Methods:

5.1	<p>Computer aided learning:</p> <p>a. Lectures using Data show, power Point presentations</p> <p>b. Distance learning</p> <ul style="list-style-type: none"> Online learning through my mans "Mansoura university "as recorded – video lectures 	Week 1-14
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	<ul style="list-style-type: none"> • Inter active discussion through My Mans 	
5.2	Self-learning	Week 10
5.3	Practical session using tutorials	Week 1-13
5.4	Class Activity: Group discussion offline and online.	Week 1-14
5.5	Problem – based learning and brainstorming	Week 1-14
5.7	Role play	Week 10

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.1.1, 1.1.4.1, 1.1.6.1, 4.3.2.1
2-Tutorial exam	2.1.3.1, 3.1.1.1, 3.2.1.1, 3.2.4.1, 3.2.5.1, 4.1.1.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.4.1, 1.1.6.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.4.1, 1.1.6.1

b- Assessment schedule

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

c- Weighing of assessments

1	Periodical (Mid-term) exam	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	Books and mobile applications
Hospital	Oncology rounds

Matrix of knowledge and skills of the course:

Study Week No.	Course contents	Outcomes									
		Domain 1			Domain 2	Domain 3				Domain 4	
		1.1.1.1	1.1.6.1	1.1.4.1	2.1.3.1	3.1.1.1	3.2.1.1	3.2.4.1	3.2.5.1	4.1.1.1	4.3.2.1
1	Introduction: cell cycle, cell biology, basics of oncology, pathophysiology, staging	√									
2	Cancer pathophysiology and staging	√									
3	Acute leukemias: Definition, Types, Diagnosis and Assessment, Treatment	√	√	√							
4	Chronic leukemias: Definition, Types, Diagnosis and Assessment, Treatment	√	√	√							
5	Breast cancer: Definition, Types, Diagnosis and Assessment.	√	√	√							
6	Treatment of breast cancer	√	√	√							
7	Gynecologic Malignancies: Definition, Types, Diagnosis and Assessment, Treatment	√	√	√							
8	Bone Marrow Transplantation: Definition, Indications,	√	√	√							
9	Complications of bone Marrow Transplantation	√	√	√							√
10	Lung cancer: Definition, Types, Diagnosis, risk factors(self-learning)	√	√	√							
11	Lung cancer: assessment and	√	√	√							√

12	Supportive care in oncology: Antiemetics				√		√	√	√	√		√	√
13	Supportive care in oncology: pain management				√		√	√	√	√		√	√
14	Chemotherapy induced toxicities				√		√	√	√	√		√	√

List of Referen ces

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by staff members	Videos on platform
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.	http://www.nccn.org/guidelines/category_1 http://www.sciencedirect.com/ https://scholar.google.com/ http://www.pubmed.com https://www.ekb.eg	Websites

Course Coordinator	Dr. Moetaza Mahmoud Hassab
Head of Department	Prof. Dr. Mohamed E. Shams
	Approval date 7/9/2023



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Course specification
2023- 2024

Course Specification

Academic year: 2023-2024

Course name: Clinical Nutrition	تغذية اكلينيكية : المقرر اسم
Academic Level:5	الخامس: المستوى الأكاديمي
Scientific department: Biochemistry	الكيمياء الحيوية : القسم العلمي
Head of Department:	رئيس القسم :
Dr. Noha Mansour Hassan	أ.م.د/ نهي منصور حسن
Course Coordinator:	: منسق المقرر
Prof. Dr. Laila A. Eissa	أ.د/ ليلي أحمد عيسى

University	Mansoura
Faculty	Pharmacy
Department offering the course	Biochemistry
Department supervising the course	Biochemistry
Program on which the course is given	Bachelor of Pharmacy (Clinical Pharmacy)
Academic Level	fifth level, first semester, 2023-2024
Date of course specification approval	16/9/2023



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A. Basic Information: Course data:

Course Title	Clinical nutrition
Course Code	PB 904
Prerequisite	Registration
Teaching credit Hours: Lecture	1
Practical	1
Total Credit Hours	2(Credit H)

B. Professional Information:

1 .Course Aims:

This course enables the students to:

1. Describe the concepts of nutrition in illness and wellness.
2. Recognize the basic knowledge of macro and micro-nutrients.
3. Learn about the nutritional requirements during different stages of life.
4. Understand the basic knowledge and skills necessary to maintain optimal health and prevent diseases through proper nutrition.
5. Study drug-induced allergy.Study drug-food and food-drug interactions. Recognize the basic nutritional guidelines in obesity, underweight, pregnancy, infancy and diabetes.



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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.



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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 no.	Course K. element
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.



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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 of clinical nutrition	1
2	assessment of nutrition	1
3	Macronutrients and calculation of calories, Vitamins and minerals (role in metabolism – clinical significance)	1
4	Basal metabolic rate (BMR) - Recommended daily allowance (RDA),energy balance	1
5	Dietary care for patient with hepatic disorders	1
6	Dietary care for patient with renal disorders	1
7	Nutritional requirement for pediatrics	1



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8	Dietary care for patients with obesity	-
9	Gut microbiota and human health	1
10	Self-learning (cardiac diseases) and nutritional management of diabetes mellitus	1
11	Dietary care for cancer patients	1
12	Dietary care for pregnant and lactation	1
13	Total Parenteral Nutrition	1
14	Enteral nutrition, Nutrigenomics	1
15	Final written and oral exam	-
Practical topics		
Week No	Topics	No. of hours
1	Lab instructions and safety	1
2	Assessment of Nutrition	1
3	Diet and digestive system	1
4	Diet and renal Disease	1
5	Diet and Osteoporosis	1
6	Nutrition in celiac disease	1
7	Nutritional requirements during life stages (geriatrics,pediatrics)	1
8	Periodical exam	
9	Diet and sport care	1



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10	Enteral nutrition	1
11	Parental Nutrition	1
12	Nutrition management in different types of anemia	1
13	Nutrition management in Pregnancy	1
14	Practical Exam	1

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 <ul style="list-style-type: none"> • On line learning through my mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans 	1-5,7-13
5.2	Self-learning	13
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-5,7-13
5.4	Class Activity: Group discussion offline and online.	8
5.5	Problem – based learning and brainstorming	8
5.6	Research assignments	12
5.7	Formative assignments	3 & 9



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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, 3.1.1.1, 3.2.2.1, 4.1.2.1, 4.2.1.1, 4.2.2.1
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	1.1.1.1, 1.1.5.1, 2.1.2.1, 2.4.3.1, 2.5.2.1, 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	Practical	14 th week
Assessment 2	Periodical	8 th week
Assessment 3	Oral	15 th week
Assessment 4	Written	15 th week

c. Weighing of assessments

1.	Periodical examination	10 %
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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:

W e e k	Course content s / K. element s	Domain1					Domain2			Domain 3		Domain4				
		1.1.1 .1	1. 1.	1. 1.	1. 1.	1. 1.	2. 1.	2. 1.	2. 1.	3. 1.	3. 1.	4. 1.	4. 1.	4. 1.	4. 1.	4. 1.
1	Introduc tion of clinical nutriton	√				√		√		√						



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2	assessment of nutrition	√		√		√	√		√	√							
3	Macronutrients and calculation of calories, Vitamins and minerals (role in metabolism – clinical significance)	√	√		√	√				√			√	√	√		
4	Basal metabolic rate (BMR) - Recommended daily allowance (RDA), energy balance	√	√		√	√		√	√	√	√		√	√	√		



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5	Dietary care for patient with hepatic disorders	√	√	√	√				√	√				√	√			
6	Dietary care for patient with renal disorders	√	√		√	√	√							√	√			
7	Nutritional requirement for pediatrics	√	√			√								√	√		√	√
8	Dietary care for patients with obesity		√		√	√	√	√		√	√			√	√	√	√	√
9	Gut microbiota and human health	√			√			√		√					√			



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10	Self-learning (cardiac diseases) and nutritional management of diabetes mellitus	√	√		√				√				√		√		
11	Dietary care for cancer patients	√	√				√			√				√			
12	Dietary care for pregnant and lactation	√	√			√			√		√			√	√		
13	Parenteral nutrition	√	√		√		√		√	√				√	√		
14	Enteral nutrition , Nutrigenomics	√		√		√		√	√		√		√				



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Practical Topics																	
1	Lab instructions and safety		✓	✓	✓			✓	✓	✓			✓		✓	✓	✓
2	Assessment of Nutrition	✓	✓		✓	✓		✓		✓			✓	✓		✓	✓
3	Diet and digestive system	✓			✓	✓		✓		✓		✓		✓		✓	✓
4	Diet and renal Disease	✓				✓		✓		✓		✓		✓	✓	✓	✓
5	Diet and Osteoporosis	✓			✓		✓		✓		✓		✓			✓	✓
6	Nutrition in celiac disease	✓	✓	✓		✓		✓	✓			✓	✓	✓	✓	✓	✓
7	Nutritional requirements during life	✓			✓	✓		✓	✓			✓		✓		✓	✓



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	stages (geriatrics, pediatrics)																
9	Diet and sport care	√	√		√	√		√	√	√	√		√	√	√	√	√
10	Enteral nutrition				√	√	√		√	√		√		√		√	
11	Parental Nutrition	√	√		√	√		√		√		√		√		√	
12	Nutrition management in different types of anemia	√		√		√		√	√		√		√		√		
13	Nutrition management in Pregnancy	√	√		√			√	√		√		√	√			

8- List of References



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2023- 2024

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, 6 th edition, 2017.	Books
5.	William's basic nutrition and diet therapy, Staci Nix, Elsevier, 16 th edition, 2020	Books
6.	Basic nutrition, Lori A. Smolin, Ph.D. and Mary B. Grosvenor, M.S., R.D., Chelsea house, 3 rd 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	Prof. Dr. Laila A. Eissa
Head of Department	Dr. Noha Mansour Hassan

Date: 16/9/2023



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



المستوى الخامس

Course Specification: Clinical Pharmacology

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacology & Toxicology
Course title: Clinical Pharmacology
Course code: PO 906

Program on which the course is given	B. Pharm (Modified and unified bylaw of Clinical Pharmacy Program)
Academic Level	Level 5, First semester, 2023/2024
Date of course specification approval	18/ 9/ 2023

1. Basic Information: Course data:

Course title:	Clinical Pharmacology	Code: PO 906
Specialization:	Medical sciences	
Prerequisite:	Pharmacology 1	
Teaching credit Hours:	Lecture: 2	Practical: 1
Total Number of units: (credit hours)	3 hours	

2. Course Aims:

At the end of the course the student should be able to describe mechanism of action, biological effects, and therapeutic applications of CNS-acting agents, anti-inflammatory agents, chemotherapeutic agents, and hormonal agents.

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	List the mechanism of action of drugs, therapeutic effects and evaluate their suitability, efficacy and safety in individuals.

Domain 2: Professional and Ethical Practice



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Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Evaluate pharmaceutical care plans to manage numerous disorders with reference to their particulate health problems and special considerations.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.4	3.1.4.1	Point out the pathogenesis, treatment and prevention of infections/diseases and their treatment and prevention.
3.2.6	3.2.6.1	Provide public awareness on rational use of drugs

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Demonstrate the creation of knowledge or practices in the field of pharmacy and participate independently and collaboratively in the delivery of health services
4.3.2	4.3.2.1	Present principles of continuing professional development including assessing own learning needs and developing a plan to meet these needs.

4- Course Contents:

Week No	Topics	Lecture credit hours
1	Anxiolytics drugs	2
2	Sedative and hypnotic	2
3	Antiparkinsonian drugs	2
4	Antipsychotic and antiepileptic drugs	2
5	Antibacterial drugs	2
6	Antibacterial drugs	2
7	Antibacterial drugs	2
8	Drugs for diabetes mellitus	2



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9	Adrenal steroids and related drugs	2
10	Thyroid drugs	2
11	Antifungal drugs	2
12	Antiviral drugs	2
13	Anti- depressant drugs (self-learning)	2
14	Revision/quiz	2
15	Final written and oral exam	
Week No	Practical Topics	Practical credit hours
1	Hypnotics	1
2	Antiparkinsonism drugs	1
3	Analgesics	1
4	Antiepileptic drugs	1
5	Antipsychotic Drugs	1
6	Case study (Antibacterial drugs)	1
7	Case study (Antifungal drugs)	1
8	Mid-term Exam	-
9	Case study (Antiviral drugs)	1
10	Case study (Thyroid diseases)	1
11	Case study (Diabetes)	1
12	Case study (Adrenal diseases)	1
13	Case study (Anti-depressant)	1
14	Practical Exam	1

5- Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none"> • 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.

6- Student Assessment:



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Assessment methods

1. Mid Term exam	1.1.4.1, 2.1.7.1, 2.4.3.1
2. Practical exam	1.1.4.1, 2.1.7.1, 2.4.3.1, 3.1.4.1, 3.2.6.1, 3.2.1.1, 4.1.2.1, 4.3.2.1
3. Final Written exam	1.1.4.1, 2.1.7.1, 2.4.3.1, 3.1.4.1, 3.2.6.1, 3.2.1.1
4. Oral exam	1.1.4.1, 2.1.7.1, 2.4.3.1, 4.3.2.1

b. Assessment schedule

Assessment 1	Mid-term	8 th week
Assessment 2	Practical	14 th week
Assessment 3	Written	15 th week
Assessment 3	Oral	15 th 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- Facilities required for teaching and learning

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



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

Study Week	Course contents	Outcomes					
		Domains / Key elements					
		Domain 1	Domain 2	Domain 3		Domain 4	
	1.1.4.1	2.4.3.1	3.1.4.1	3.2.6.1	4.1.2.1	4.3.2.1	
1	Anxiolytics drugs	√	√	√	√		
2	Sedative and hypnotic	√	√	√	√		
3	Antiparkinsonian drugs	√	√	√	√		
4	Antipsychotic and antiepileptic drugs	√	√	√	√		
5	Antibacterial drugs	√	√	√	√	√	√
6	Antibacterial drugs	√	√	√	√	√	√
7	Antibacterial drugs	√	√	√	√	√	√
8	Drugs for diabetes mellitus	√	√	√	√	√	√
9	Adrenal steroids and related drugs	√	√	√	√	√	√
10	Thyroid drugs	√	√	√	√	√	√
11	Antifungal drugs	√	√	√	√	√	√
12	Antiviral drugs	√	√	√	√	√	√
13	Anti- depressant drugs (self-learning)	√	√	√	√	√	√
	Practical topics						



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1	Hypnotics	√	√	√	√		
2	Antiparkinsonism drugs	√	√	√	√		
3	Analgesics	√	√	√	√		
4	Antiepileptic drugs	√	√	√	√		
5	Antipsychotic Drugs	√	√	√	√	√	√
6	Case study (Antibacterial drugs)	√	√	√	√	√	√
7	Case study (Antifungal drugs)	√	√	√	√	√	√
9	Case study (Antiviral drugs)	√	√	√	√	√	√
10	Case study (Thyroid diseases)	√	√	√	√	√	√
11	Case study (Diabetes)	√	√	√	√	√	√
12	Case study (Adrenal diseases)	√	√	√	√	√	√
13	Case study (Anti-depressant)	√	√	√	√	√	√




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9- List of References

No	Reference	Type
1.	Katzung B, Kruidering-Hall M, Tuan RL, Vander TW, Trevor A (2021). Katzung and Trevor's Pharmacology Examination and Board Review 13 th edition Publisher: McGraw Hill Lange	Reference textbook
2.	Ritter J, Flower R, Henderson G, Loke YK, MacEwan D, Rang H (2020) Rang and Dale's pharmacology 9 th edition Publisher: Elsevier	Reference textbook
3.	Whalen K, Panavelil TA (2014) Lippincott Illustrated Reviews: Pharmacology, 6 th Edition Philadelphia: Lippincott Williams & Wilkins	Reference textbook
4.	Rollins D, Blumenthal D (2021), Workbook and case book for Goodman and Gilman's pharmacological basis of therapeutics 12 th edition Publisher: McGraw Hill Lange	Reference textbook
5	Electronic book prepared by staff members	Course notes
6	ACCP guidelines (https://www.accp.com/)	Internet sources
7	Egyptian Knowledge Bank (https://www.ekb.eg/)	Internet sources

Course Coordinator	Prof. Dr. Ghada M Suddek
Head of Department	Prof. Dr. Manar Ahmed Nader 

Date: 18/9/ 2023



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Level five

Course Specification: Therapeutics II

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacology and toxicology
Course title: Therapeutics II
Course code: PO 007

Program on which the course is given	B. Pharm (Clinical Pharmacy-Credit hours)
Academic Level	Level 5, Second semester, 2023/2024
Date of course specification approval	18/9/2023

1. Basic Information: Course data:

Course title:	Therapeutics II	Code: PO 007
Specialization:	Medical sciences	
Prerequisite:	Pharmacology-2	
Teaching Hours:	Lecture: 2	Practical: 1
Number of units: (credit hours)	3	

2. Course Aims:

- 2.1. Provide knowledge about pharmacotherapy of certain cardiovascular diseases
- 2.2. Provide knowledge about bone disorders pharmacotherapy
- 2.3. Provide knowledge about Kidney disorders management
- 2.4. Inform the students about the pathophysiology of the diseases in brief
- 2.5. Provide coverage on the available drug algorithm that should be followed during treatment
- 2.6. Give an idea about nonpharmacological treatment of different diseases
- 2.7. Provide essential knowledge about treatment of special populations
- 2.8. Give the student an idea about the available dosage forms and dose regimen

3. Course k. elements:

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

Domain 1- Fundamental Knowledge



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Program K. element no.	Course K. element no.	Course K. element
1.1.4	1.1.4.1	Articulate knowledge from fundamental sciences to drug appropriateness, effectiveness, and safety in individuals and populations.
1.1.5	1.1.5.1	Understand pharmacotherapeutic guidelines for management of hepatic viral infections, central disorders, endocrine disorders and women's health

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Design pharmacologic care plans for management of disorders with reference to their particulate health problems and special considerations
	2.4.3.2	Make decisions for recognized drug-related and pharmaceutical care problems
	2.4.3.3	Recommend pharmacological and non-pharmacological systemic approaches for management of disorders affecting different body organs
	2.4.3.4	Select suitable care plans for patients with special consideration to their particular health issues

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Integrate the proper therapeutic uses of different drugs
	3.2.1.2	Consult healthcare team about the proposed care plan appropriate for the patient

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Share decisions with pharmacy and non-pharmacy team members with effective time management skills
	4.1.2.2	Follow up the treatment plan to solve problems and achieve the desired treatment outcomes
4.3.1	4.3.1.1	Retrieve patient information from different sources to improve professional competencies



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4. Contents:

Week No	Topics	Lecture credit hours
1	Therapeutic management of Anxiety	2
2	Therapeutic management of schizophrenia	2
3	Tourette syndrome	2
4	Therapy of Enuresis	2
5	Pharmacotherapy for bipolar disorders	2
6	Therapeutic management of autism	2
7	Attention defects Hyperactive children therapy	2
8	Pharmacotherapy for sleep disorders (part 1)	2
9	Pharmacotherapy for sleep disorders (part 2)	2
10	Pharmacotherapy for Multiple sclerosis	2
11	Obesity	2
12	Eating disorders	2
13	Headache	2
14	Therapeutic management of pain (self learning)	2
15	Revision/Quiz	2
16	Final theoretical exam	-
Week No	Practical topics	Practical credit hours
1	Therapeutic management of Anxiety case study	1
2	Therapeutic management of schizophrenia case study	1
3	Tourette syndrome case study	1
4	Therapy of Enuresis case study	1
5	Pharmacotherapy for bipolar disorders case study	1
6	Therapeutic management of autism case study	1
7	Attention defects Hyperactive children therapy case study	1
8	Periodical (Mid-term exam)	--
9	Pharmacotherapy for sleep disorders case study	1
10	Pharmacotherapy for Multiple sclerosis case study	1
11	Obesity case study	1
12	Eating disorders case study	1
13	Headache case study	1
14	Pain case study	1



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15	Practical exam	1
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5. Teaching and learning Methods:

	Teaching and Learning Method
5.1	Computer aided learning: a. Online 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	Practical session through tutorials
5.4	Case study

6. Student Assessment

a. Assessment methods

Written exam	1.1.4.1, 1.1.5.1, 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4
Practical exam	3.2.1.1, 3.2.1.2
Oral	1.1.4.1, 1.1.5.1, 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4, 3.2.1.1, 3.2.1.2, 4.1.2.1, 4.1.2.2, 4.3.1.1
Periodical (Mid-term exam)	1.1.4.1, 1.1.5.1, 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4

b. Assessment schedule:

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

8.	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2	Michael Katz, Kathryn R. Matthias, Marie Chisholm-Burns (2019)Pharmacotherapy Principle and Practice 5th edition McGraw Hill Professional	Book



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3	Pharmacotherapy Handbook; Terry L. Schwinghammer; Joseph T. DiPiro; Vicki Ellingrod; Cecily V. DiPiro. McGraw Hill / Medical; 11th ed. (2021).	Book
4	Schwinghammer's Pharmacotherapy Casebook: A Patient-Focused Approach; Terry L. Schwinghammer; Julia M. Koehler; Jill S. Borchert; Douglas Slain; Sharon K. Park. McGraw Hill / Medical; 12 th ed. (2023).	Book
5	http://www.sciencedirect.com http://www.google.com http://www.pubmed.com https://www.ekb.eg ACCP guidelines (https://www.accp.com/)	websites

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

Week No.	Course contents / K. elements	Domain 1		Domain 2				Domain 3		Domain 4		
		1.1.4.1	1.1.5.1	2.4.3.1	2.4.3.2	2.4.3.3	2.4.3.4	3.2.1.1	3.2.1.2	4.1.2.1	4.1.2.2	4.3.1.1
	A)Theoretical part											
1	Therapeutic management of Anxiety	✓	✓	✓	✓	✓	✓	✓				
2	Therapeutic management of schizophrenia	✓	✓	✓	✓	✓	✓	✓	✓			
3	Tourette syndrom	✓	✓	✓	✓	✓	✓	✓	✓			
4	Therapy of Enuresis		✓		✓	✓	✓		✓			
5	Pharmacotherapy for bipolar disorders	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
6	Therapeutic management of autism	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Attention defects Hyperactive children therapy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	Pharmacotherapy for sleep	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



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	disorders (part 1)											
9	Pharmacotherapy for sleep disorders (part 2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	Pharmacotherapy for Multiple sclerosis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Obesity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	Eating disorders	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Headache			✓	✓	✓	✓	✓	✓	✓	✓	✓
14	Therapeutic management of pain (self learning)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	Quiz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Week No.	Course contents / K. elements	Domain 1		Domain 2				Domain 3		Domain 4		
		1.1.4.1	1.1.5.1	2.4.3.1	2.4.3.2	2.4.3.3	2.4.3.4	3.2.1.1	3.2.1.2	4.1.2.1	4.1.2.2	4.3.1.1
	B)Practical part											
1	Therapeutic management of Anxiety case study	✓	✓	✓	✓	✓	✓	✓				
2	Therapeutic management of schizophrenia case study	✓	✓	✓	✓	✓	✓	✓	✓			
3	Tourette syndrome case study	✓	✓	✓	✓	✓	✓	✓	✓			



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4	Therapy of Enuresis case study		✓			✓	✓	✓		✓			
5	Pharmacotherapy for bipolar disorders case study	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
6	Therapeutic management of autism case study	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Attention defects Hyperactive children therapy case study	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Pharmacotherapy for sleep disorders case study	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
10	Pharmacotherapy for Multiple sclerosis case study	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Obesity case study	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
12	Eating disorders case study	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Headache case study				✓	✓	✓	✓	✓	✓	✓	✓	✓
14	Pain case study	✓	✓	✓	✓		✓	✓	✓	✓		✓	



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Course Coordinator	Prof. Dr. Rania ramadan
Head of Department	Prof. Dr. Manar Ahmed Nader 

Date: 18/9/2023

Course specification

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بكالوريوس الصيدلة الإكلينيكية

Course Specification Academic year: 2023-2024

Course name: Treatment of Dermatological and Reproductive Diseases	اسم المقرر: علاج الأمراض الجلدية والتناسلية
Academic Level: Fifth Level	المستوى الأكاديمي: الخامس
Scientific department: Clinical Pharmacy & Pharmacy Practice Department	القسم العلمي: الصيدلة الإكلينيكية والممارسة الصيدلانية
Head of Department: Dr. Mohamed Elhusseiny Shams	رئيس القسم: أ.د/ محمد الحسيني شمس
Course Coordinator: Dr. Heba Ahmed Abdelazeem	منسق المقرر: د/ هبة عبد العظيم

Course specification

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

A- Basic Information: Course data:

Course Title	Treatment of Dermatological and Reproductive Diseases
Course Code	PP 010
Prerequisite	Pathology & pharmacology-II
Credit Hours: Lecture	1
Tutorial	1
Total Credit Hours	2 (Credit H)

2 - Course Aims:

This course aims at identifying skin structure and function, different types of skin infections and sexually transmitted disease. In addition to musculoskeletal disorders such as osteoarthritis, osteomyalgia, gout and hyperuricemia.

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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	Mention signs and symptoms, pharmacological and non-pharmacological management of different dermatological, sexually transmitted, and musculoskeletal diseases.
1.1.4	1.1.4.1	Recognize the different pharmacological categories of drugs used in different skin conditions, musculoskeletal diseases, and sexually transmitted diseases, and proper selection of suitable drug according to patient's specific factors.
1.1.7	1.1.7.1	Outline updated clinical guidelines, that is important in

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Determine suitable therapeutic approach and monitoring plan to achieve prespecified targets in musculoskeletal, skin conditions.
2.4.3	2.4.3.1	Educate healthcare professional about dermatological ,and musculoskeletal drugs' drug interactions, contraindications, and adverse effects. .

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Apply the evidence-based guidelines in dose adjustment in in special population,
3.2.5	3.2.5.1	Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices.

DOMAIN 4: PERSONAL PRACTICE

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Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Participate in case presentation to health care professionals and colleagues, to improve presentation and communication skills.
4.3.2	4.3.2.1	Search pertaining literature to update knowledge in this field to improve personal practice.

4- Course Contents

Week No.	Lecture Topics	Lecture Credit Hours
1	Introduction to the common dermatologic problems	1
2	Acne vulgaris <ul style="list-style-type: none">• Etiology and pathophysiology• Clinical presentation	1
3	Treatment of acne	1
4	Psoriasis <ul style="list-style-type: none">• Etiology and pathophysiology• Clinical presentation• Treatment.	1
5	Atopic dermatitis <ul style="list-style-type: none">• Etiology and pathophysiology• Clinical presentation• Treatment.	1
6	Dermatologic drug reactions and common skin conditions <ul style="list-style-type: none">• Structure and function of the skin.• Patient assessment.• Drug induced cutaneous reactions.	1

7	Skin and soft tissue infection <ul style="list-style-type: none">• Etiology and pathophysiology.• Folliculitis, furuncles, and carbuncles• Treatment.	1
8	Superficial fungal infection <ul style="list-style-type: none">• Oropharyngeal and esophageal candidiasis	1
9	Sexually transmitted disease <ul style="list-style-type: none">• Gonorrhea	1
10	Sexually transmitted disease <ul style="list-style-type: none">• Syphilis	1

11-12	Osteoarthritis and osteomalacia <ul style="list-style-type: none"> ● Etiology and pathophysiology ● Clinical presentation ● Non-pharmacological management. ● Pharmacological management. 	2
13-14	Gout and hyperuricemia <ul style="list-style-type: none"> ● Etiology (self-learning) ● pathophysiology ● Clinical presentation ● Non-pharmacological management ● Pharmacological management 	2
15	Revision and quiz	2
16	Starting Written and oral final exam	-
Week No.	Tutorial topics	Credit hours
1	Case presentation: Acne vulgaris	1
2	Case presentation: Psoriasis	1
3	Case presentation: Atopic dermatitis	1
4	Case presentation: Dermatologic drug reactions and common skin conditions	1
5	Case presentation: Skin and soft tissue infection	1
6	Case presentation: Superficial fungal infection	1
7	Case presentation: Sexually transmitted disease"syphilis"	1
8	Periodical (Mid-Term) Exam	-
9	Sexually transmitted disease"gonorrhoea"	
10-11	Case presentation: Osteoarthritis and osteomalacia	2
12-13	Group project: Gout and hyperuricemia (self-learning)	
14	Case presentation: tinea capitis	2
13	Sheet / and Tutorial exam	-

5- Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none"> • Online learning through my mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans 	Week 1-15
5.2	Self-learning	Week 13,14
5.3	Practical session using tutorials	Week 1-7, 9-14
5.4	Class Activity: Group discussion offline and online.	Week 1-15
5.5	Problem – based learning and brainstorming	Week 1-15
5.6	Research assignments	Week 1-15
5.7	Role play	Week 13&14

6- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1/ 1.1.4.1/ 1.1.7.1/ 3.2.1.1/ 3.2.5.1/ 4.3.2.1
2-Tutorial exam	2.1.1.1/ 2.4.3.1/ 3.2.1.1/ 3.2.5.1/ 4.1.1.1/ 4.3.2.1
3-Oral	1.1.1.1/ 1.1.4.1/ 1.1.7.1/3.2.1.1/ 3.2.5.1/ 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1/ 1.1.4.1/ 1.1.7.1/3.2.1.1/ 3.2.5.1

b- Assessment schedule

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

c- Weighing of assessments

1	Periodical (Mid-term) exam	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
Laboratory facilities	Data show – computers, internet, round tables
Hospital	Dermatology round
Library	Reference books

8- Matrix of knowledge and skills of the course:

Study Week No	Course contents	Outcomes Domains / Key elements									
		Domain 1			Domain 2		Domain 3		Domain 4		
		1.1.1.1	1.1.4.1	1.1.7.1	2.1.1.1	2.4.3.1	3.2.1.1	3.2.5.1	4.1.1.1	4.3.2.1	
1	Acne vulgaris	√	√	√			√	√			
2	Psoriasis	√	√	√				√			
3	Atopic dermatitis	√	√	√			√	√			
4	Dermatologic drug reactions and common skin conditions	√	√	√			√	√			
5	Skin and soft tissue infection	√	√	√			√	√			
6	Superficial fungal infection	√	√	√			√	√			
7	Periodical (Mid-Term) Exam										
8	Sexually transmitted disease	√	√	√			√	√			
9, 10	Osteoarthritis and osteomalacia	√	√	√				√			
11, 12	Gout and hyperuricemia (self-learning)	√	√	√			√	√		√	
13	Revision	√	√	√			√	√		√	
1-7,9-14	Tutorial Topics										
1	Case presentation: Acne vulgaris				√	√	√	√	√	√	

Study Week No.	Course contents	Outcomes Domains / Key elements									
		Domain 1			Domain 2		Domain 3		Domain 4		
		1.1.1.1	1.1.4.1	1.1.7.1	2.1.1.1	2.4.3.1	3.2.1.1	3.2.5.1	4.1.1.1	4.3.2.1	
2	Case presentation: Psoriasis				√	√	√	√	√	√	
3	Case presentation: Atopic dermatitis				√	√	√	√	√	√	
4	Case presentation: Dermatologic drug reactions and common skin conditions				√	√	√	√	√	√	
5	Case presentation: Skin and soft tissue infection				√	√	√	√	√	√	
6	Case presentation: Superficial fungal infection				√	√	√	√	√	√	
7	Case presentation: Sexually transmitted disease "syphilis"				√	√	√	√	√	√	
8	Periodical (Mid-Term) Exam				√	√	√	√	√	√	
9	Sexually transmitted disease "gonorrhea"				√	√	√	√	√	√	
10-11	Case presentation: Osteoarthritis and osteomalacia				√	√	√	√	√	√	
12-13	Group project: Gout and hyperuricemia (self-learning)				√	√	√	√	√	√	
14	Case presentation: tinea capitis				√	√	√	√	√	√	

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.	Dipiro's Pharmacotherapy: A Pathophysiologic Approach. J. DiPiro, R.L. Talbert, G. Yee, G. Matzke, B. Wells, and L.M. Posey; McGraw- Hill, 11 th edition, 2020	Essential Book
4	Egyptian knowledge bank website https://www.ekb.eg/ . http://www.sciencedirect.com/ https://scholar.google.com/ http://www.pubmed.com	Websites

Course Coordinator	Dr. Heba Ahmed Abdelazeem
Head of Department	Pof.Dr. Mohamed Elhousseiny Shams
	Approval date 7/9/2023



بكالوريوس الصيدلة الإكلينيكية Course Specification

Academic year: 2023-
2024

Course name: Treatment of Pediatrics diseases	اسم المقرر: علاج أمراض الأطفال
Academic Level: Level 5	المستوى الأكاديمي: الخامس
Scientific department: Clinical Pharmacy and Pharmacy Practice	القسم العلمي: الصيدلة الإكلينيكية والممارسة الصيدلانية
Head of Department:	رئيس القسم:
Prof.Dr/ Mohamed Elhusseiny Shams	أ.د/ محمد الحسيني شمس

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



Mansoura University
Faculty of Pharmacy
Clinical Pharmacy
Program



Course specification

2023/2024

Credit hr Program

1- Basic Information: Course data:

Course Title	Treatment of Pediatrics diseases
Course Code	PP 011
Prerequisite	Pathology & Pharmacology II
Credit Hours: Lecture	2
Tutorial	1
Total Credit Hours	3 (Credit H)

2- Course Aims:

This course will cover the following topics:

- Definition of infant, neonate, child and adolescent
- Introduction to the essential nutritional requirements for each age category
- Congenital infantile disorders affecting the different body systems (cardiovascular, respiratory, endocrine and renal disorders)
- Conditions considered as pediatric emergencies and how to manage them



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Course specification

2023/2024

Credit hr Program

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	Describe the risk factors, clinical presentation, relevant laboratory investigation in relation to updated treatment guidelines of different pediatric diseases.
1.1.4	1.1.4.1	Identify the different pharmacological and nonpharmacological options in management of various pediatric diseases.
1.1.6	1.1.6.1	Recognize updated scientific resources to make evidence-based clinical decisions.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Construct a pharmaceutical patient care plan for acute and chronic pediatric diseases.



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Course specification

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Credit hr Program

DOMAIN 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Interpret monitoring parameters of patient's response and therapeutic agents to manage drug therapy problems effectively.
3.2.4	3.2.4.1	Educate patients about goals of therapy, monitoring of response and the possible side effects of the care plan.
3.2.5	3.2.5.1	Counsel and educate patients to rationalize management of pediatric diseases. Collaborate with healthcare team to optimize individualized patient care plan and manage drug therapy related problems.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Contribute with health care team in formulary management activities related to drugs for pediatric patients
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

4- Course Contents

A) Theoretical part

Week No.	Lecture Topics	Lecture Credit Hours
1	Introduction to the course	2



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Program



Course specification

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Credit hr Program

2	Sepsis: Signs and symptoms, Early versus late onset neonatal sepsis, Cerebrospinal fluid findings	2
3	Treatment Regimens for Sepsis	2



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Program



Course specification

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Credit hr Program

4	Meningitis: Meningitis Sequelae, Empiric Antibiotic of Meningitis, Chemoprophylaxis of Bacterial Meningitis	2
5	Respiratory syncytial virus infection: Clinical Presentation, Risk Factors for Severe Disease, Prophylaxis, Treatment	2
6	Otitis media: Clinical Presentation, Risk factors, Common Pathogens, Signs & Symptoms, Treatment, Complications, Prevention Strategies	2
7	Immunization 1: Recommended Schedule, Combination vaccines, Interchangeability of products, Barriers to Routine Immunization	2
8-9	Immunization 2: Considerations in Special Populations	4
109	Pediatric seizure disorders: Incidence of Pediatric Seizures, Febrile Seizures, Treatment Options Based on Seizure Type,	2
11	Pediatric seizure disorders 2: Comparison of Available Antiseizure Drugs	2
12-13	Attention-deficit/hyperactivity disorder: Clinical Presentation, Classification, Treatment Options	4
14	Toxicology: Poison Control Center Overview; Pediatric Poisonings; Management of Select Agents; Select Antidotes (self-learning).	2
15	Revision and quiz	2
16	Starting the final written and oral exam	-

B) Tutorial part:



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Course specification

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Credit hr Program

Week No.	Tutorial topics	Credit hours
1	introduction	1
2	sepsis	
3	Meningitis	1
4	Respiratory syncytial virus infection	1
5	Otitis media	1
6	Immunization 1	1
7	Immunization 2	1
8	Periodical (Mid-Term Exam)	1
9	Pediatric seizure disorders 1	1
10	Pediatric seizure disorders 2	1
11-12	Attention-deficit/hyperactivity disorder	2
13-14	Pharmacokinetic and pharmacodynamic changes in pediatric	2
15	Sheet / and Tutorial exam	-

5-Teaching and Learning Methods:

Teaching and learning method		Week no.	K. element to be addressed
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning	Week 1-15	1.1.1.1, 1.1.4.1, 1.1.6.1



Mansoura University
Faculty of Pharmacy
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Program



Course specification
2023/2024

Credit hr Program

	<ul style="list-style-type: none"> ● Online learning through my mans "Mansoura university" as recorded – video lectures ● Inter active discussion through My Mans 		
5.2	Self-learning	Week 13-14	4.3.2.1
5.3	Practical session using tutorials	Week 1-7 Week 9-14	2.1.1.1, 3.1.1.1, 3.2.4.1, 3.2.5.1
5.4	Class Activity: Group discussion offline and online.	Week 1-7 Week 9-14	4.1.1.1, 4.3.2.1
5.5	Problem – based learning and brainstorming	Week 1-7 Week 7-14	4.1.1.1, 4.3.2.1
5.7	Role play	Week 12-13	4.1.1.1, 4.3.2.1

6-Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.1.1, 1.1.4.1, 1.1.6.1, 4.3.2.1
2-Tutorial exam	1.1.6.1, 2.1.1.1, 3.1.1.1, 3.2.4.1, 3.2.5.1, 4.1.1.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.4.1, 1.1.6.1, 4.3.2.1
4-Periodical (Mid-term exam/ Course work)	1.1.1.1, 1.1.4.1, 1.1.6.1



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Course specification

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Credit hr Program

a- Assessment schedule

Assessment 1	Periodical (Mid-term exam)	Week 8
Assessment 2	Practical examination using tutorial	15 th week
Assessment 3	Written exam	starting 16 th week
Assessment 4	Oral exam	Starting 16 th week

b- Weighing of assessments

1	Periodical (Mid-term) exam	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	Books and mobile applications
Hospital	Pediatrics rounds

8- List of References

No	Reference	Type
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Mansoura University
Faculty of Pharmacy
Clinical Pharmacy
Program



Course specification
2023/2024

Credit hr Program

1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by staff members	Videos on platform
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.	Nelson Textbook of Pediatrics. Twenty first Edition. Philadelphia, PA: Elsevier, 2020. By: Robert M. Kliegman, MD and Joseph St. Geme, MD Published: April 2019 ISBN: 9780323529501	Essential Book
5.	http://www.sciencedirect.com/ http://www.scholar.google.com/ http://www.pubme.com https://www.ekb.eg	Websites



Mansoura University
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Course specification

2023/2024

Credit hr Program

9.1- Matrix 1. of knowledge and skills of the course

Study Week No.	Course contents	Outcomes Domains / key elements								
		Domain 1			Domain 2	Domain3			Domain 4	
		1.1.1.1	1.1.4.1	1.1.6.1	2.1.1.1	3.1.1.1	3.2.4.1	3.2.5.1	4.1.1.1	4.3.2.1
1	Introduction	√	√	√						
2	Sepsis: Signs and symptoms, Early versus late onset neonatal sepsis, Cerebrospinal fluid findings	√	√	√						
3	Treatment Regimens for Sepsis	√	√	√						
4	Meningitis: Meningitis Sequelae, Empiric Antibiotic of Meningitis, Chemoprophylaxis of Bacterial Meningitis	√	√	√						
5	Respiratory syncytial virus infection: Clinical Presentation, Risk Factors for Severe Disease, Prophylaxis, Treatment	√	√	√						

6	Otitis media: Clinical Presentation, Risk factors, Common Pathogens, Signs & Symptoms, Treatment, Complications, Prevention Strategies	√	√	√						
7	Immunization 1: Recommended Schedule, Combination vaccines, Interchangeability of products, Barriers to Routine Immunization	√	√	√						
8-9	Immunization 2: Considerations in Special Populations	√	√	√						
10	Pediatric seizure disorders: Incidence of Pediatric Seizures, Febrile Seizures, Treatment Options Based on Seizure Type,	√	√	√						

11	Pediatric seizure disorders 2: Comparison of Available Antiseizure Drugs	√	√	√						
12-13	Attention-deficit/hyperactivity disorder: Clinical Presentation, Classification, Treatment Options	√	√	√						
14	Toxicology: Poison Control Center Overview; Pediatric Poisonings; Management of Select Agents; Select Antidotes (self-learning).	√	√						√	
15	Revision and quiz	√	√	√						

B) Tutorial part:										
Study Week No.	Course contents	Domain 1			Domain 2	Domain3			Domain 4	
		1.1.1.1	1.1.4.1	1.1.6.1	2.1.1.1	3.1.1.1	3.2.4.1	3.2.5.1	4.1.1.1	4.3.2.1
		1	introduction			√	√	√	√	√
2	sepsis			√	√	√	√	√	√	√
3	Meningitis			√	√	√	√	√	√	√
4	Respiratory syncytial virus infection			√	√	√	√	√	√	√
5	Otitis media			√	√	√	√	√	√	√
6	Immunization 1			√	√	√	√	√	√	√
7	Immunization 2			√	√	√	√	√	√	√

8	Periodical (Mid-Term Exam)										
9	Pediatric seizure disorders 1			√	√	√	√	√	√	√	√
10	Pediatric seizure disorders 2			√	√	√	√	√	√	√	√
11-12	Attention-deficit/hyperactivity disorder			√	√	√	√	√	√	√	√
13-14	Pharmacokinetic and pharmacodynamic changes in pediatric			√	√	√	√	√	√	√	√

Course Coordinator	Dr. Hadeel abuleneen
Head of Department	Prof.Dr. Mohamed Elhousseiny Shams Approval date: 7/9/2023



Mansoura University
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Course specification
2023/2024
Credit hr Program

بكالوريوس الصيدلة الإكلينيكية Course Specification

Academic year: 2023/2024

Course name: Treatment of cardiovascular disease (PP 012)	اسم المقرر: العلاج الدوائي لأمراض القلب
Academic Level: Level 5	المستوى الأكاديمي: الخامس
Scientific department: Clinical Pharmacy & Pharmacy Practice	القسم العلمي: الصيدلة الإكلينيكية و الممارسة الصيدلانية
Head of Department: Prof. Dr/ Mohamed El-Husseiny Shams	رئيس القسم أ.د/ محمد الحسيني شمس
Course Coordinator: Prof. dr. Ghada suddek	منسق المقرر أ.د/ غادة صديق



Mansoura University
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Course specification
2023/2024
Credit hr Program

University	Mansoura
Faculty	Pharmacy
Department offering the course	1- Pharmacology and toxicology department 2- Cardiology department- faculty of medicine
Department supervising the course	Clinical Pharmacy & Pharmacy Practice Department
Program on which the course is given	B. Pharm.
Academic Level	Fifth level, second semester, 2023-2024
Date of course specification approval	7/9/2023

A. Basic Information: Course data:

Course Title	Management of Cardiovascular Disease
Course Code	PP 012
Prerequisite	Pharmacology-II
Credit : Lecture	2
Practical sessions using tutorial	1
Total Credit Hours	3 (Credit H)

B. Professional Information:

1. Course Aims:

This course aims at providing students with fundamental knowledge in main diseases affecting the cardiovascular system including: signs and symptoms, pathophysiology, evidence-based management approaches for dyslipidemias, hypertension, coronary artery disease, acute coronary syndromes, heart failure. In addition to providing patient counseling and monitoring for the previous disorders.



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Course specification
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Credit hr Program

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	Mention signs and symptoms, pharmacological and non-pharmacological management of different cardiovascular diseases.
1.1.4	1.1.4.1	Recognize the different pharmacological categories of drugs used in cardiovascular patients, and proper selection of suitable drug according to patient's specific factors.
1.1.7	1.1.7.1	Outline updated clinical guidelines, that is important in

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Educate healthcare professional about cardiovascular drugs' major drug interactions, contraindications, and adverse effects.

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Apply the principles of pharmacokinetics and evidence-based guidelines in dose adjustment in heart failure patients.
3.2.5	3.2.5.1	Provide education and counseling to patients, healthcare professionals and communities to achieve safe and cost-effective use of medicines.



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Course specification
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DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Participate in case presentation to health care professionals and colleagues, to improve presentation and communication skills.
4.3.2	4.3.2.1	Search pertaining literature to update knowledge in this field to improve personal practice.

4- Course Contents

Week nu.	Lecture Topics	Lecture Credit Hours
1	Introduction to the course	2
2	Hypertension. (Part 1) <ul style="list-style-type: none"> ● Essential hypertension ● Secondary hypertension ● Classification of Blood Pressure in Adults ● Non-pharmacological measurement Pharmacotherapy	2
3	Hypertension. (Part 2) <ul style="list-style-type: none"> ● Pharmacotherapy (cont.) ● Compelling conditions 	2



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Course specification
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4	Chronic heart failure <ul style="list-style-type: none">● Pathophysiology● Clinical presentation	2
5	Chronic heart failure <ul style="list-style-type: none">● Management of chronic heart failure.	2
6	Acute decompensated heart failure <ul style="list-style-type: none">● Pathophysiology● Clinical presentation● Management of acute decompensated heart failure.	2
7	Stable ischemic heart disease. <ul style="list-style-type: none">● Pathophysiology● Clinical presentation● Treatment of stable ischemic heart disease	2
8	Acute coronary syndrome-1 <ul style="list-style-type: none">● Pathophysiology and Types of acute coronary syndrome	2
9	Acute coronary syndrome-2 <ul style="list-style-type: none">● Treatment of acute coronary syndrome	2
10	Dyslipidemia-1 <ul style="list-style-type: none">● Types of dyslipidemia● Non-pharmacological management	2
11	Dyslipidemia -2 Pharmacological management of dyslipidemia	2
12	Venous thromboembolism-1 <ul style="list-style-type: none">● Pathophysiology● Non-Pharmacological management of VTE	2



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Credit hr Program

13	Venous thromboembolism-2 • Pharmacological management of VTE	2
14	Pharmacotherapy of stroke Types of stroke(self learning)	2
15	Revision and quiz	2
16	Start of final written exam	--
Week No.	Tutorial topics	Credit hours
1	Introduction to the course	1
2	Case presentation: Hypertension	
3	Case presentation: Hypertension	1
4	Case presentation: Chronic heart failure	1
5	Case presentation: Acute decompensated heart failure	1
6	Case presentation: Stable ischemic heart disease.	1
7	Case presentation: Acute coronary syndrome.	1
8	Mid-term exam	-
9	Case presentation: Dyslipidemia	1
10	Case presentation: Dyslipidemia-2	1
11	Case presentation: deep vein thrombosis	1
12	Case presentation: pulmonary embolism	1
13	Case presentation: stroke	1
14	Revision and Group project: Pulmonary arterial hypertension prevention	1
15	Practical exam	-



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Course specification
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5- Teaching and Learning Methods:

	Teaching and Learning Methods:	Weeks No.	Key elements to be addressed
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none"> Online learning through mymans "Mansoura University" as recorded – video lectures Inter active discussion through Mymans 	Week 1-15	1.1.1.1, 1.1.4.1, 1.1.7.1, 2.4.3.1, 3.2.1.1, 3.2.5.1.
5.2	Self-learning	Week 14	4.1.1.1, 4.3.2.1.
5.3	Practical session using tutorials	Week 1-14	2.4.3.1, 2.4.3.1, 3.2.1.1, 3.2.5.1.
5.4	Class Activity: Group discussion offline and online.	Week 5-15	4.1.1.1, 4.3.2.1,
5.5	Problem – based learning and brainstorming	Week 5-15	4.1.1.1, 4.3.2.1.
5.6	Research assignments	Week 1-15	4.1.1.1, 4.3.2.1.
5.7	Role play	Week 12	4.1.1.1, 4.3.2.1

6- Student Assessment:

a- Assessment Methods:



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Course specification
2023/2024
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Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1/ 1.1.4.1/ 1.1.7.1/ 3.2.1.1/ 3.2.5.1/ 4.3.2.1
2-Practical exam applying OSCE	2.4.3.1/ 2.4.3.1/ 3.2.1.1/ 3.2.5.1 / 4.1.1.1 / 4.3.2.1
3-Oral exam	1.1.1.1/ 1.1.4.1/ 1.1.7.1/3.2.1.1/ 3.2.5.1/ 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1/ 1.1.4.1/ 1.1.7.1/3.2.1.1/ 3.2.5.1

a- Assessment schedule

Assessment 1	Periodical (Mid-term exam)	Week 7-9
Assessment 2	Tutorial examination	14 th week
Assessment 3	Written exam	Starting in Week 15
Assessment 4	Oral exam	Starting in week 15

b- Weighing of assessments

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



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Course specification
2023/2024
Credit hr Program

6- Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Laboratory facilities	Data show – computers, internet, round tables
Hospital	Cardiology round
Library	Reference books

5- List of References

No	Reference	Type
1.	Electronic book prepared by staff members.	Course notes
2.	Recorded videos prepared by staff members	Videos on platform
3.	Dipiro's Pharmacotherapy: A Pathophysiologic Approach. J. DiPiro, R.L. Talbert, G. Yee, G. Matzke, B. Wells, and L.M. Posey; McGraw-Hill, 11 th edition, 2020	Essential Book
4.	Caitlin M Gibson, Cardiology II. ACCP Updates in Therapeutics © 2018 Pharmacotherapy	Essential Book
5.	http://www.pubmed.com http://www.sciencedirect.com/ https://scholar.google.com/ https://www.ekb.eg	Websites

5- Matrix of knowledge and skills of the course

Study Week No.	Course contents	Outcomes									
		Domains / Key elements									
		Domain 1			Domain 2		Domain 3		Domain 4		
		1.1.1.1	1.1.4.1	1.1.7.1	2.4.3.1	2.4.3.1	3.2.1.1	3.2.5.1	4.1.1.1	4.3.2.1	
Theoretical part:											
	Introduction to the course	√	√	√			√	√			
	Hypertension	√	√	√			√	√			
	Hypertension	√	√	√			√	√			
	Chronic heart failure	√	√	√			√	√			
	Chronic heart failure	√	√	√			√	√			
	Acute decompensated heart failure	√	√	√			√	√			
	Stable ischemic heart disease.	√	√	√			√	√			
	Acute coronary syndrome-1	√	√	√			√	√			
	Acute coronary syndrome-2	√	√	√			√	√			
	Dyslipidemia-1	√	√	√			√	√			
	Dyslipidemia-2	√	√	√			√	√			
	Venous thromboembolism-1	√	√	√			√	√			

Venous thromboembolism-2	√	√	√				√	√			√
Pharmacotherapy of stroke	√	√	√				√	√			√
Revision and quiz	√	√	√				√	√			√

Practical topics

Introduction to the course					√	√		√	√		√	√
Case presentation: Hypertension					√	√		√	√		√	√
Case presentation: Hypertension					√	√		√	√		√	√
Case presentation: Chronic heart failure					√	√		√	√		√	√
Case presentation: Acute decompensated heart failure					√	√		√	√		√	√
Case presentation: Stable ischemic heart disease.					√	√		√	√		√	√
Case presentation: Acute coronary syndrome.					√	√		√	√		√	√
Case presentation: Dyslipidemia					√	√		√	√		√	√
Mid-term exam												
Case presentation: Dyslipidemia					√	√		√	√		√	√
Case presentation: deep vein					√	√		√	√		√	√

thrombosis											
Case presentation: pulmonary embolism				√	√		√	√		√	√
Case presentation: stroke				√	√		√	√		√	√
Revision and Group project: Pulmonary arterial hypertension prevention				√	√		√	√		√	√

Course Coordinator	Prof. Dr. Ghada suddek
Head of Department	Prof. Dr/ Mohamed El-Husseiny Shams <i>Mohamed Elhusseiny</i> Approval date: 7/9/2023

Course specification

2023/2024

Clinical Pharmacy Program

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(Clinical Pharmacy) بالوريوس الصيدلة الإكلينيكية

Course Specification

Academic year: 2023/2024

Course name: Treatment of respiratory system diseases	اسم المقرر: علاج أمراض الجهاز التنفسي
Academic Level: Level 5	المستوى الأكاديمي: الخامس
Scientific department: Clinical Pharmacy and Pharmacy Practice	القسم العلمي: الصيدلة الإكلينيكية والممارسة الصيدلانية
Head of Department: Prof. Dr. Mohamed Elhousseiny Shams	رئيس القسم: أ.د/ محمد الحسيني السديعي شمس
Course Coordinator:	منسق المقرر:

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

Course specification

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1- Basic Information: Course data:

Course Title	Management of respiratory system diseases
Course Code	PP 014
Prerequisite	Pathology and pharmacology II
Credit Hours: Lecture	2
Tutorial	1
Total Credit Hours	3 (Credit H)

2- Course Aims:

- This course covers the following topics: bronchial asthma, chronic obstructive pulmonary disease, cystic fibrosis, drug induced respiratory problems, respiratory tract infections and pulmonary hypertension.
- Each topic will be addressed with respect to etiology and precipitating factors of the disease, classical signs and symptoms, required laboratory investigations and their significance, non-pharmacological as well as pharmacological management of the disease, scores or biomarkers used to monitor progress or deterioration.

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	Describe the risk factors, clinical presentation, relevant laboratory investigation in relation to updated treatment guidelines of different respiratory diseases.
1.1.4	1.1.4.1	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.
1.1.6	1.1.6.1	Recognize different scientific resources to make evidence-based informed professional decisions.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

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Program K. element no.	Course K. element no.	Course K. element
2.1.3	2.1.3.1	Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team.

DOMAIN 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Interpret monitoring parameters of patient's response and therapeutic agents to manage drug therapy problems effectively.
3.2.1	3.2.1.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.
3.2.4	3.2.4.1	Educate patients about goals of therapy, monitoring of response and the possible side effects of the care plan.
3.2.5	3.2.5.1	Provide patient counseling to rationalize management of diseases affecting gastro-intestinal system.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Contribute with healthcare team in formulary management activities related to the drugs affecting the respiratory tract
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	Bronchial Asthma 1: diagnosis, classification of severity and control	2
2	Bronchial Asthma 2: pharmacologic treatment	2
3	Bronchial Asthma 3: Guidelines, action plan and exacerbation	2
4	Chronic obstructive pulmonary disease 1: Definition and Diagnosis	2
5	Chronic obstructive pulmonary disease 2: Assessment, Factors Determining Severity of COPD	2
6	Chronic obstructive pulmonary disease 3: Therapy Goals, Management of Stable COPD	2
7	Chronic obstructive pulmonary disease 4: Management of Acute Exacerbations of Chronic COPD	2
8	Pulmonary hypertension: Definition, Diagnosis and Assessment, Treatment	2
9	Cystic fibrosis: General Principles, Patient Assessment	2
10	Cystic fibrosis: Goals of Therapy, Treatment	2
11	Upper and lower respiratory tract infections: Definition, Types (self-learning)	2
12	Upper and lower respiratory tract infections: Diagnosis and Assessment, Treatment	2
13	Drug-induced pulmonary problems: Definition, Diagnosis	2
14	Drug-induced pulmonary problems: Assessment, Treatment	2
15	Revision and quiz	2
16	Starting the final written and oral exam	-

Week No.	Tutorial topics	Credit hours
1	Bronchial Asthma: diagnosis, classification of severity and control	1
2	Bronchial Asthma: pharmacologic treatment	1
3	Bronchial Asthma: Guidelines, action plan and exacerbation	1
4	Chronic obstructive pulmonary disease 1	1
5	Chronic obstructive pulmonary disease 2	1
6	Chronic obstructive pulmonary disease 3	1
7	Pulmonary hypertension	1
8	Mid-term exam	-
9	Cystic fibrosis part 1	1
10	Cystic fibrosis part 2	1
11	Group project: Upper respiratory tract infections	1
12	Drug-induced pulmonary problems, Part 1	1
13	Drug-induced pulmonary problems, Part 2	1
14	Revision and activity	1
15	Practical exam	-

5- Teaching and Learning Methods:

No	Teaching and Learning Methods	Week	Key elements to be addressed
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none"> Online learning through mymans "Mansoura University "as recorded – video lectures Interactive discussion through My Mans 	Week 1-15	1.1.1.1/1.1.4.1/ 1.1.6.1/2.1.3.1/ 3.1.1.1/3.2.1.1 3.2.4.1/3.2.5.1
5.2	Self-learning	Week 11	4.1.1.1/4.3.2.1
5.3	Practical session using tutorials	Week 1-14	1.1.1.1/1.1.4.1/ 1.1.6.1/2.1.3.1/ 3.1.1.1/3.2.1.1 3.2.4.1/3.2.5.1
5.4	Class Activity: Group discussion offline and online.	Week 1-15	4.1.1.1/4.3.2.1
5.5	Problem – based learning and brainstorming	Week 1-15	4.1.1.1/4.3.2.1
5.7	Role play	Week 11	4.1.1.1/4.3.2.1

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.1.1, 1.1.4.1, 1.1.6.1, 4.3.2.1
2-Tutorial exam	2.1.3.1, 3.1.1.1, 3.2.1.1, 3.2.4.1, 3.2.5.1, 4.1.1.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.4.1, 1.1.6.1, 4.3.2.1
4- Periodical (Mid-term exam)	1.1.1.1, 1.1.4.1, 1.1.6.1

b- Assessment schedule

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

c- Weighing of assessments

1	Periodical (Mid-term) exam	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	Books and mobile applications
Hospital	Respiratory rounds

8- List of References

No	References	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by staff members	Videos on platform
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.	http://www.sciencedirect.com/ https://scholar.google.com/ http://www.pubmed.com https://www.ekb.eg	websites

9.1- Matrix1. of knowledge and skills of the course

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Study Week No	Course contents												
		Domain 1			Domain 2	Domain 3				Domain 4			
		1.1.1.1	1.1.4.1	1.1.6.1	2.1.3.1	3.1.1.1	3.2.1.1	3.2.4.1	3.2.5.1	4.1.1.1	4.3.2.1		
A) Theoretical part:													
1	Bronchial Asthma 1: diagnosis, classification of severity and control	√											
2	Bronchial Asthma 2: pharmacologic treatment		√	√									
3	Bronchial Asthma 3: Guidelines, action plan and exacerbation		√	√									
4	Chronic obstructive pulmonary disease 1: Definition and Diagnosis	√	√	√									
5	Chronic obstructive pulmonary disease 2: Assessment,	√	√	√									

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	Factors Determining Severity of COPD													
6	Chronic obstructive pulmonary disease 3: Therapy Goals, Management of Stable COPD	√	√	√										
7	Chronic obstructive pulmonary disease 4: Management of Acute Exacerbations of Chronic COPD	√	√	√										
8	Pulmonary hypertension: Definition, Diagnosis and Assessment, Treatment	√	√	√										√
9	Cystic fibrosis: General Principles, Patient Assessment	√	√	√										√
10	Cystic fibrosis: Goals of Therapy, Treatment	√	√	√										√

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11	Upper and lower respiratory tract infections: Definition, Types (self-learning)	√	√	√								√
12	Upper and lower respiratory tract infections: Diagnosis and Assessment, Treatment	√	√	√								√
13	Drug-induced pulmonary problems: Definition, Diagnosis	√	√	√								√
14	Drug-induced pulmonary problems: Assessment, Treatment	√	√	√								√
15	Revision and quiz	√	√	√								√
B) Tutorial part:												
1	Bronchial Asthma: diagnosis, classification of severity and control				√	√	√	√	√	√	√	√
2	Bronchial Asthma:				√	√	√	√	√	√	√	√

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	pharmacologic treatment											
3	Bronchial Asthma: Guidelines, action plan and exacerbation				√	√	√	√	√	√	√	√
4	Chronic obstructive pulmonary disease 1				√	√	√	√	√	√	√	√
5	Chronic obstructive pulmonary disease 2				√	√	√	√	√	√	√	√
6	Chronic obstructive pulmonary disease 3				√	√	√	√	√	√	√	√
7	Pulmonary hypertension				√	√	√	√	√	√	√	√
8	Mid-term exam											
9	Cystic fibrosis part 1				√	√	√	√	√	√	√	√
10	Cystic fibrosis part 2				√	√	√	√	√	√	√	√
11	Group project: Upper respiratory tract infections				√	√	√	√	√	√	√	√
12	Drug-induced pulmonary problems, Part 1				√	√	√	√	√	√	√	√

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13	Drug-induced pulmonary problems, Part 2					√		√	√	√	√		√	√
14	Revision and activity					√		√	√	√	√		√	√

Course Coordinator	
Head of Department	Prof. Dr. Mohamed Elhusseiny Shams



Mansoura University

Faculty of Pharmacy

Clinical Pharmacy Program



Course specification

2023- 2024



بكالوريوس الصيدلة الإكلينيكية

Course Specification

Academic year: 2023-2024

Course name: Drug information	اسم المقرر: معلومات دوائية
Academic Level: Level 5	المستوى الأكاديمي: الخامس
Scientific department: Clinical Pharmacy and Pharmacy Practice	القسم العلمي: الصيدلة الإكلينيكية والممارسة الصيدلانية
Head of Department Dr. Mohamed Elhusseiny Shams	رئيس القسم: د. محمد الحسيني شمس
Course Coordinator: To be nominated	منسق المقرر: سيتم ترشيحه



Clinical Pharmacy Program

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) Credit hours
Academic Level	Level 5, Second semester, 2023-2024
Date of course specification approval	7/9/2023

A. Basic Information: Course data:

Course Title	Drug information
Course Code	PP 015
Prerequisite	Pharmacology II, Clinical Pharmacy II
Teaching credit Hours: Lecture	1
Tutorial	-
Total Credit Hours	(1 Credit H)

B. Professional Information:**1 .Course Aims:**

This course enables the students to:

1. Define and understand Pharmacovigilance drug information and poison information centers especially Egyptian Pharmacovigilance center.
2. Determine all activities relating to the detection, assessment, understanding and prevention of adverse effects or any other medicine-related problem.
3. Identify, measure, and compare the costs, risks, and benefits of programs, services, or therapies and determining which alternative produces the best health outcome for the resource invested.

**Clinical Pharmacy Program****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
1.1.6	1.1.6.1	Utilize economic informatics to improve the quality of life and analysis of the cost of drug therapy to healthcare systems, manage resources and optimize patient safety and understand Pharmacoeconomics.
1.1.7	1.1.7.1	Collect and analyze drug information, relating to the detection, assessment, understanding and prevention of adverse effects or any other medicine-related problem

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.5.2	2.5.2.1	Retrieve, interpret, and evaluate evidence-based information needed in pharmacy profession especially Pharmacoeconomics.

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.3	3.2.3.1	Integrate best available evidence for application of non-conventional therapy into pharmacy practice that uses cost-benefit, cost-effectiveness, cost-minimization, cost-of-illness and cost-utility analyses to compare pharmaceutical products and treatment strategies.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.2.1.1	Demonstrate effective communication skills verbally, non-verbally, and to improve public health and safety in relation to the use of medicines.
4.3.2	4.3.2.1	Promote continuous professional development by practicing self and independent learning to detect problems related to the use of medicines and communicate the findings in a timely manner and to contribute to the assessment of benefit, harm, effectiveness and risk of medicines.



Clinical Pharmacy Program

3- Course Contents:

Week No.	Topics	Credit Hours
1	Introduction to the course	1
2	Pharmacovigilance	1
3	Adverse Drug Reactions	1
4	Introduction to the Egyptian Pharmacovigilance center	1
5	The Yellow Card/ Individual Case Safety Report (ICSR)	1
6	Most commonly reported ADRs	1
7	Drug design and clinical trails	1
8	Data presentation	1
9	Pharmacoeconomics	1
10	The cost - Partial economic evaluations	1
11	Cost- effectiveness analysis	1
12	Cost utility analysis	1
13	Full economic evaluations	1
14	Humanistic Evaluation Methods (self- learning)	1
15	Revision and quiz	1
16	Starting the final written and oral exam	-

4- Teaching and Learning Methods:

	Teaching and learning method	Week number	K. elements to be addressed
4.1	Lectures using white board.	1-15	1.1.6.1, 1.1.7.1, 2.5.2.1, 3.2.3.1
4.2	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none"> On line learning through mymans "Mansoura university "as recorded – video lectures Inter active discussion through My Mans	1-15	1.1.6.1, 1.1.7.1, 2.5.2.1, 3.2.3.1
4.3	Self-learning	14	4.2.1.1, 4.3.2.1
4.4	Class Activity: Group discussion offline and online.	1-15	2.5.2.1, 3.2.3.1, 4.2.1.1, 4.3.2.1
4.5	Problem – based learning and brainstorming	1-15	2.5.2.1, 3.2.3.1, 1.1, 4.3.2.1
4.6	Research assignments	1-15	2.5.2.1, 3.2.3.1, 4.2.1.1, 4.3.2.1



5- Student Assessment:

a- Assessment Methods:

Periodical (midterm)/ course work	1.1.7.1, 4.2.1.1, 4.3.2.1
Written exam	1.1.6.1, 1.1.7.1, 2.5.2.1, 3.2.3.1, 4.2.1.1, 4.3.2.1
Oral exam	1.1.6.1, 1.1.7.1, 2.5.2.1, 3.2.3.1, 4.2.1.1, 4.3.2.1

b- Assessment schedule

Assessment 1	Periodical (Mid-term exam)	8 th week
Assessment 2	Written exam	Starting in 16 th week
Assessment 2	Oral exam	Starting in 16 th week

c- Weighing of assessments

1	Periodical (Mid-term) exam / Course work	10%
2	Oral examination	15%
3	Final written examination	75%
Total		100%

6- Facilities required for teaching and learning

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

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

Study Week	Course contents	Outcomes Domains / Key elements					
		Domain 1		Domain 2	Domain 3	Domain 4	
		1.1.6.1	1.1.7.1	2.5.2.1	3.2.3.1	4.2.1.1	4.3.2.1
1	Introduction to the course		√			√	√
2	Pharmacovigilance		√			√	√
3	Adverse Drug Reactions		√			√	√
4	Introduction to the Egyptian		√			√	√



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	Pharmacovigilance center							
5	The Yellow Card/ Individual Case Safety Report (ICSR)		√				√	√
6	Most commonly reported ADRs		√				√	√
7	Drug design and clinical trails		√				√	√
8	Data presentation		√				√	√
9	Pharmacoeconomics		√				√	√
10	The cost - Partial economic evaluations	√		√		√		
11	Cost- effectiveness analysis	√					√	√
12	Cost utility analysis	√		√		√		
13	Full economic evaluations	√		√		√		
14	Humanistic Evaluation Methods (self- learning)	√		√		√		
15	Revision and quiz	√		√		√		



Clinical Pharmacy Program

8- List of References

No	Reference	Type
1.	-Guidelines for Detecting & Reporting Adverse Drug Reactions In Egypt- 2020 Version 01 Individual Case Safety Reports. --Liu, Yifei. "Essentials of Pharmacoeconomics." American Journal of Pharmaceutical Education vol. 73,5 (2022): 94.	Reference textbooks
2.	Electronic book prepared by staff members	Course notes
3.	Recorded videos prepared by staff members	Videos on platform
4.	https://www.ekb.eg/ https://www.google scholar.com/ https://www.pubmed.com/ https://www.sciencedirect.com/	Official Websites

Course Coordinator	To be nominated
Head of Department	Dr Mohamed ELhusseiny Shams Date: 7/9/2023



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



Fifth level	Course Specification of Antimicrobial Agents
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University: Mansoura University (MU)
Faculty: Pharmacy
Department: Microbiology and Immunology
Course title: Antimicrobial Agents
Course code: PM E05

Program on which the course is given	B. Pharm (Credit hours)
Academic Level	Level 5, Second semester, 2023/2024
Date of course specification approval	10/9/2023

1. Basic Information: Course data:

Course title:	Antimicrobial Agents	Code: PM E05
Specialization:	Discretionary	
Prerequisite:	-----	
Teaching Hours:	Lecture: 1	Practical: 1
Number of units: (credit hours)	2	

2. Course Aims:

On completion of the course, the student will be able to provide students with information about factor affecting choice of antimicrobial agent, about the specific mechanism of action of different antimicrobial major antimicrobial associated problems, how to detect the specific mechanism of resistance for different antimicrobials and infection prevention and control practices.

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
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1.1.1	1.1.1.1	Outline the different classes of antimicrobial agents and their use in treatment of pathogenic bacteria.
1.1.3	1.1.3.1	Identify the source of infection and outline methods for infection prevention.
1.1.4	1.1.4.1	Recognize the mechanism of action of each antimicrobial agent against the microbe for complete patient recovery.
	1.1.4.2	Illustrate the requirements for successful antimicrobial therapy.
1.1.5	1.1.5.1	Recognize problems and adverse effects associated with the use of antimicrobials.
	1.1.5.2	Understand the crucial role of the laboratory in detecting antimicrobial resistance
	1.1.5.3	Outline and explain approaches used to overcome microbial resistance

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Utilize different measures to monitor and control of infection
2.2.1	2.2.1.1	Utilize different laboratory test for detecting antimicrobial resistance
2.4.3	2.4.3.1	Apply rational prescribing by adhering to the principles of the stewardship program for treatment and prophylaxis.

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
3.1.3	3.1.3.1	Explain the laboratory methods to detect antimicrobial resistance and resistance mechanisms and their limitations.
3.2.6	3.2.6.1	Explain the importance of antimicrobial formularies, consumption data and prescribing policies and processes to monitor use of antimicrobials

Domain 4: Personal Practice:



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Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Able to solve problems, decision making and time management
4.1.2	4.1.2.1	Understand ethical, legal and safety guidelines
	4.1.2.2	Use effective team work to evaluate information and solving the problems.
4.2.1	4.2.1.1	Communicate efficiently in a scientific and easy language, by verbal and written means, regardless of the person's condition.
4.3.2	4.3.2.1	Apply independent education to promote continuous professional development.

4. Contents:

Week No	Topics	Lecture credit hours
1	Orientation of the course and Introduction to antimicrobial agents	1
2	Requirements for successful antimicrobial therapy	1
3	Problems associated with the use of antimicrobials	1
4	Rational and irrational use of antibiotics	1
5	Antimicrobial stewardship	1
6	Monitor and control of infection (Chain of infection)	1
7	Standard methods for infection prevention	1
8	Personal Protective Equipment	--
9	Waste management	1
10	Bioassay of antibiotics	1
11	Mechanism of antimicrobial resistance	1
12	Classification of β -Lactamase and phenotypic detection of ESBL and AmpC	1
13	Phenotypic detection of AmpC	1
14	Phenotypic detection of carbapenemase and strategies to minimize resistance	1



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15	Revision and quiz	1
16	Final Theoretical exam	-



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Week No	Topics	Practical credit hours
1	Laboratory safety measures and principles of Disk Diffusion Testing	1
2	Determination of antimicrobial susceptibility pattern	1
3	Detection of methicillin resistant <i>Staphylococcus aureus</i> .	1
4	Detection of Extended spectrum beta lactamases (ESBLs) producing strains. 1- Initial screening tests. 2- Phenotypic confirmatory tests: A- Broth dilution test	1
5	Detection of Extended spectrum beta lactamases (ESBLs) producing strains. Phenotypic confirmatory tests: B-Double-disc approximation test	1
6	Detection of ampC enzymes	1
7	Detection of Metallo-betalactamases	1
8	Mid-term Exam	--
9	Modified Hodge Test for Carbapenemase Detection	1
10	Assay of efflux pump ● Efflux pump activity by EtBr cartwheel method	1
11	Assay of efflux pump ● MIC Determination in the presence of efflux pump inhibitor	1
12	Activity assessment	1
13	Infection prevention control Standard measures	1
14	Revision	1
15	Practical exam applying OSPE	-

5. Teaching and learning Methods:

Teaching and Learning Methods	
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 for practical sessions



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	<ul style="list-style-type: none"> • 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
5.5	Research assignments

6. Student Assessment:

a- Assessment methods

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam) / Course work	1.1.3.1, 1.1.4.2, 1.1.5.1, 1.1.5.3, 2.1.1.1, 2.4.3.1, 4.1.2.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
2-Practical exam	1.1.3.1, 1.1.4.1, 2.1.1.1, 2.2.1.1, 2.4.3.1, 3.1.2.1, 3.1.3.1, 3.2.6.1, 4.1.2.2.
3-Written exam	1.1.1.1, 1.1.3.1, 1.1.4.1, 1.1.4.2, 1.1.5.1, 1.1.5.2, 1.1.5.3, 2.1.1.1, 2.2.1.1, 2.4.3.1, 3.1.2.1, 3.1.3.1, 3.2.6.1

b- Assessment schedule

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

c- Weighting of assessments

1	Periodical (Mid-term exam) Practical examination and tutorial	25 %
2	Written exam	75 %
Total		100%

7. List of References

No.	Reference	type
1	Electronic book prepared by staff members	Book
2	Gualerzi, C. O., Brandi, L., & Fabbretti, A. (2014). Antibiotics: Targets, mechanisms and resistance. Weinheim: Wiley-VCH.	Book
3	https://www.cdc.gov/handhygiene/providers/index.html	Website
4	https://www.uptodate.com/contents/infection-prevention-precautions-for-preventing-transmission-of-infection	Website



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5	http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html .	Website
6	Simon RJ Maxwell: Rational prescribing: the principles of drug selection. Clinical Medicine 2016 Vol 16, No 5: 459–64	Journal
7	Richard Ofori-Asenso and Akosua Adom Agyeman : Irrational Use of Medicines—A Summary of Key Concepts. Pharmacy 2016, 4, 35; doi:10.3390/pharmacy4040035	Journal
8	CDC. Core Elements of Hospital Antibiotic Stewardship Programs. Atlanta, GA: US Department of Health and Human Services, CDC; 2014. Available at http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html .	Website
9	https://www.pharmatutor.org/articles/microbial-assay-antibiotics	Website
10	https://medcraveonline.com/JABB/phenotypic-cofirmatory-disc-diffusion-test-pcddt-double-disc-synergy-test-ddst-e-test-os-diagnostic-tool-for-detection-of-extended-spectrum-beta-lactamase-esbetal-producing-uropathogens.html	Website
11	https://0810o8mo2-1105-y-https-www-webofscience-com.mplbci.ekb.eg/wos/bci/full-record/BCI:BCI202200167675?SID=F5asOPXJmHNrZTuNrCq	Egyptian knowledge bank



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Matrix 1: Course content and course key elements:

Course contents	Week No.	Course Key Elements									
		Domain 1						Domain 2			
		1.1.1.1	1.1.3.1	1.1.4.1	1.1.4.2	1.1.5.1	1.1.5.2	1.1.5.3	2.1.1.1	2.2.1.1	2.4.3.1
Orientation of the course and Introduction to antimicrobial agents	1	✓		✓	✓		✓	✓			✓
Requirements for successful antimicrobial therapy	2	✓		✓	✓		✓	✓			✓
Problems associated with the use of antimicrobials	3	✓		✓	✓		✓	✓			✓
Rational and irrational use of antibiotics	4	✓		✓	✓		✓	✓			✓
Antimicrobial stewardship	5		✓		✓			✓	✓		
Monitor and control of infection (Chain of infection)	6		✓		✓			✓	✓		
Standard methods for infection prevention	7		✓		✓			✓	✓		
Personal Protective Equipment	8		✓		✓			✓	✓		
Waste management	9	✓		✓		✓				✓	✓
Bioassay of antibiotics	10	✓		✓		✓				✓	✓
Mechanism of antimicrobial resistance	11	✓		✓	✓	✓	✓			✓	✓
Classification of β -Lactamase and phenotypic detection of ESBL and AmpC	12	✓		✓	✓	✓	✓				✓
Phenotypic detection of AmpC	13	✓		✓	✓	✓	✓				✓



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Phenotypic detection of carbapenemase and strategies to minimize resistance	14	✓		✓	✓	✓	✓				✓
Revision and quiz	15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Course contents	Week No.	Course Key Elements							
		Domain 3			Domain 4				
		3.1.2.1	3.1.3.1	3.2.6.1	4.1.1.1	4.1.2.1	4.1.2.2	4.2.1.1	4.3.2.1
Orientation of the course and Introduction to antimicrobial agents	1		✓	✓	✓		✓	✓	✓
Requirements for successful antimicrobial therapy	2		✓	✓	✓		✓	✓	✓
Problems associated with the use of antimicrobials	3		✓	✓	✓		✓	✓	✓
Rational and irrational use of antibiotics	4		✓	✓	✓		✓	✓	✓
Antimicrobial stewardship	5	✓				✓	✓	✓	✓
Monitor and control of infection (Chain of infection)	6	✓				✓	✓	✓	✓
Standard methods for infection prevention	7	✓				✓	✓	✓	✓
Personal Protective Equipment	8	✓				✓	✓	✓	✓
Waste management	9		✓		✓		✓	✓	
Bioassay of antibiotics	10		✓		✓		✓	✓	



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Mechanism of antimicrobial resistance	11		✓		✓		✓	✓	
Classification of β -Lactamase and phenotypic detection of ESBL and AmpC	12		✓		✓		✓	✓	
Phenotypic detection of AmpC	13		✓		✓		✓	✓	
Phenotypic detection of carbapenemase and strategies to minimize resistance	14		✓		✓		✓	✓	

Course contents	Week No.	Course Key Elements									
		Domain 1							Domain 2		
		1.1.1.1	1.1.3.1	1.1.4.1	1.1.4.2	1.1.5.1	1.1.5.2	1.1.5.3	2.1.1.1	2.2.1.1	2.4.3.1
B) Practical part											
Laboratory safety measures and principles of Disk Diffusion Testing	1			✓						✓	✓
Determination of antimicrobial susceptibility pattern	2			✓						✓	✓
Detection of methicillin resistant <i>Staphylococcus aureus</i> .	3			✓						✓	✓
Detection of Extended spectrum beta lactamases (ESBLs) producing strains. 1- Initial screening tests. 2- Phenotypic confirmatory tests:	4			✓						✓	✓



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A- Broth dilution test											
Detection of Extended spectrum beta lactamases (ESBLs) producing strains. Phenotypic confirmatory tests:	5			✓						✓	✓
B-Double-disc approximation test											
Detection of ampC enzymes	6			✓						✓	✓
Detection of Metallo-betalactamases	7			✓						✓	✓
Modified Hodge Test for Carbapenemase Detection	9			✓						✓	✓
Assay of efflux pump ● Efflux pump activity by EtBr cartwheel method	10			✓						✓	✓
Assay of efflux pump ● MIC Determination in the presence of efflux pump inhibitor	11			✓					✓	✓	✓
Activity assessment	12		✓		✓			✓	✓		✓
Infection prevention control Standard measures	13		✓		✓			✓	✓		✓
Revision	14		✓	✓	✓			✓	✓	✓	✓



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Course contents	Week No.	Course Key Elements							
		Domain 3			Domain 4				
		3.1.2.1	3.1.3.1	3.2.6.1	4.1.1.1	4.1.2.1	4.1.2.2	4.2.1.1	4.3.2.1
Laboratory safety measures and principles of Disk Diffusion Testing	1		✓						
Determination of antimicrobial susceptibility pattern	2		✓						
Detection of methicillin resistant <i>Staphylococcus aureus</i> .	3		✓						
Detection of Extended spectrum beta lactamases (ESBLs) producing strains. 1- Initial screening tests. 2- Phenotypic confirmatory tests: A- Broth dilution test	4		✓						
Detection of Extended spectrum beta lactamases (ESBLs) producing strains. Phenotypic confirmatory tests: B-Double-disc approximation test	5		✓		✓		✓		
Detection of ampC enzymes	6		✓		✓		✓		
Detection of Metallo-betalactamases	7		✓		✓		✓		
Modified Hodge Test for Carbapenemase Detection	9		✓		✓		✓		



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<u>Assay of efflux pump</u> ● Efflux pump activity by EtBr cartwheel method	10		✓		✓		✓		
<u>Assay of efflux pump</u> ● MIC Determination in the presence of efflux pump inhibitor	11		✓		✓		✓		
Activity assessment	12	✓	✓	✓	✓		✓		
Infection prevention control Standard measures	13	✓	✓	✓	✓		✓		
Revision	14	✓	✓	✓	✓		✓		



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Course Coordinator:	Prof. Dr. Rasha M. Fathy Barwa <i>Rasha Barwa</i>
Head of Department:	Prof. Dr. EL-Sayed E Habib <i>[Signature]</i>

Date: 10/9/2023



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Fifth level

Course Specification: Advanced Pharmaceutical
Analysis-Spectroscopy

Course Specification

Academic year: 2023-2024

Course name: Advanced Pharmaceutical Analysis-Spectroscopy	اسم المقرر: تحاليل صيدلانية متقدمة – تحليل طيفي
Academic Level: Level 5	المستوى الأكاديمي: الخامس
Scientific department: Pharmaceutical analytical chemistry	القسم العلمي: الكيمياء التحليلية الصيدلانية
Head of Department: Prof. Dr. jenny Gihan Mohamed Ahmed Nasr	رئيس القسم: أ.د/ جيني جيهان محمد أحمد نصر
Course Coordinator: Prof. Dr. Manal Ibrahim Eid	منسق المقرر: أ.د/ منال إبراهيم عيد



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University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutical analytical chemistry
Department supervising the course	Pharmaceutical analytical chemistry
Program on which the course is given	B. Pharm (Clinical Pharmacy), credit hours
Academic Level	Level 5, First semester, 2023-2024
Date of course specification approval	10/9/2023

1- Basic Information: Course data:

Course Title	Advanced Pharmaceutical Analysis- Spectroscopy
Course Code	PC E12
Prerequisite	Registration
Teaching Hours: Lecture	1
Practical/Tutorial	1
Total Credit Hours	2

2. Course Aims:

1. Orienting the students to recall the basic principles of the advanced pharmaceutical analysis methods such as derivative spectrophotometry, synchronous spectrofluorimetric, chemiluminescence, and flow injection analysis.
2. Knowing applications of these methods to assess pharmaceutical compounds in pharmaceutical and biological matrices.
3. Recognizing the requirements for pharmaceutical industry, such as quality control and quality assurance of pharmaceutical products.

3. Course Key Elements

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



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DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Identify the advanced spectroscopic methods involved in pharmaceutical analysis such as derivative spectrophotometry, synchronous spectrofluorimetric, chemiluminescence, flow injection analysis, and lab-on-a-chip techniques.
1.1.3	1.1.3.1	Recognize the principles of spectrometry to identify and analyze pharmaceutical compounds in raw materials, pharmaceutical preparations, and biological fluids.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Design new green analytical methods for the identification and quantification of pharmaceutical compounds in different pharmaceutical formulations.
2.2.3	2.2.3.1	Demonstrate how to use the available spectrometric instruments and software for the assay of single and multicomponent dosage forms.
2.2.4	2.2.4.1	Explain calculations and statistical analysis in assessment and validation of the developed methods.
2.3.1	2.3.1.1	Select appropriate green methods for handling and disposal of chemicals used in pharmaceutical analysis to avoid direct contact with hazardous chemicals.
2.3.2	2.3.2.1	Select best practices and adhere to high safety standards for management of pharmaceutical raw materials and pharmaceutical products.
2.5.3	2.5.3.1	Perform research studies and data analysis.



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DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Communicate effectively in team working.
4.1.2	4.1.2.1	Retrieve and analyze information to solve problems, and work individually or effectively in a team.
4.2.2	4.2.2.1	Utilize artificial technology to present relevant information.
4.3.1	4.3.1.1	Use effective strategies to manage and improve self-practice of pharmacy.
4.3.2	4.3.2.1	Apply principles of self-learning to improve professional skills

4. Course Contents

Week No.	Topics	Lecture credit Hours
1	Application of UV-Vis spectroscopy: qualitative and quantitative analysis. Fundamentals of UV-Vis spectroscopy, its application in qualitative analysis, Beer's law, problems on Beer's law.	1
2	Determination of pKa by spectrophotometric titrations.	1
3	Quantitative application of UV-Vis spectroscopy: mathematical derivatization. Fundamentals of derivative spectroscopy and its applications.	1
4	Quantitative application of UV-Vis spectroscopy: chemical derivatization: Chemical derivatization of compounds of low molar absorptivity, examples and applications.	1
5	Reaction stoichiometric determination by Job's method, molar ratio method, and limiting logarithmic method	1
6	Conventional and synchronous spectrofluorimetry: fundamentals and applications. Fluorescence and phosphorescence phenomena, Factors affecting fluorescence, fluorescence quantum efficiency, and advantages and disadvantages of spectrofluorimetry.	1
7	Quantitative applications of spectrofluorimetry. Analysis of inorganic compounds, organic compounds, and biochemical species, micellar enhancement of fluorescence, synchronous spectrofluorimetry, derivative synchronous spectrofluorimetry.	1
8	Fundamentals of chemiluminescence. Definition, types, advantages, and examples.	1



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9	Applications of chemiluminescence. Quantitative applications of chemiluminescence in analysis of inorganic, organic, and biochemical species: analysis of toxic gases, analysis of biomolecules, and analysis of cancer calls.	1
10	Flow injection analysis: fundamentals. Definition, advantages, and examples.	1
11	Flow injection analysis: applications. Quantitative applications of flow injection analysis for the assay of pharmaceutical compounds in pharmaceutical and biological matrices.	1
12	Lab-on-a-Chip technology: fundamentals and applications. Introduction, advantages, applications.	1
13	Green chemistry principles: Introduction and illustration of the twelve principles of green chemistry. Greenness assessment approaches: analytical eco-scale and GAPI approaches and how to apply such techniques on the developed methods (self-learning).	1
14	Revision and quiz	1
15	Final written and oral exam	--
Week No.	Practical Topics	Tutorial credit hours
1.	Beer's law (introduction and problems solving).	1
2.	Determination of pKa by spectrophotometry (algebraic method).	1
3.	Determination of pKa by spectrophotometry (graphical method).	1
4.	Determination of reaction stoichiometry by Job's method.	1
5.	Determination of reaction stoichiometry by molar ratio method.	1
6.	Determination of reaction stoichiometry by limiting logarithmic method.	1
7.	Derivative spectrophotometric analysis of aspirin and methocarbamol binary mixture.	1
8.	Periodical Exam	
9.	Derivative synchronous spectrofluorimetric determination of binary and ternary mixtures.	1
10.	Spectrofluorimetric analysis of pregabalin via its reaction with certain fluorogenic reagents.	1
11.	Greenness assessment by GAPI approach.	1



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12.	Greenness assessment by analytical eco-scale approach.	1
13.	Seminars	1
14	Sheet / and Practical exam	--

5. Teaching and Learning Methods:

No.	Teaching and Learning Methods:
4.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none"> ● Online learning through my mans "Mansoura university "as recorded – video lectures ● Interactive discussion through My Mans
4.2	Practical session using chemicals and laboratory equipment and/ or tutorials and discussion
4.3	Self-learning
4.4	Formative Assignments
4.5	Class Activity Discussion / Brainstorming / problem solving
4.6	Tutorial

6. Student Assessment:

a- Assessment Methods:

Assessment Methods	K. elements to be assessed
1-Written exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1, 2.3.1.1, 2.3.2.1, 2.5.3.1, 4.1.1.1, 4.1.2.1, 4.2.2.1, 4.3.1.1
2-Practical examination and tutorial	2.2.1.1, 2.2.3.1, 2.2.4.1, 2.3.1.1, 4.1.1.1, 4.1.2.1, 4.2.2.1, 4.3.1.1, 4.3.2.1
3-Oral exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1, 2.3.1.1, 2.3.2.1, 2.5.3.1
4- Periodical exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 4.2.2.1

b- Assessment schedule

Assessment 1	Periodical exam	8 th week
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Assessment 2	Practical examination and tutorial	14 th week
Assessment 3	Written exam	15 th week
Assessment 4	Oral exam	15 th week

Weighing of assessments

1	Periodical exam	10%
2	Practical examination and tutorial	25%
3	Final-term examination	50%
4	Oral examination	15%
Total		100%

6.

Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory facilities	Chemicals- Glass wares- White board



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7. Matrix of knowledge and skills of the course

Week No.	Course contents / K. elements	Domain 1		Domain 2					Domain 4					
		1.1.1. 1	1.1.3. 1	2.2.1. 1	2.2.3. 1	2.2.4. 1	2.3.1. 1	2.3.2. 1	2.5.3. 1	4.1.1.1	4.1.2.1	4.2.1.1	4.3.1.1	4.3.2. 1
1	Application of UV-Vis spectroscopy: qualitative and quantitative analysis. Fundamentals of UV-Vis spectroscopy, its application in qualitative analysis, Beer's law, problems on Beer's law.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
2	Determination of pKa by spectrophotometric titrations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
3	Quantitative application of UV-Vis spectroscopy: mathematical derivatization. Fundamentals of derivative spectroscopy and its applications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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4	Quantitative application of UV-Vis spectroscopy: chemical derivatization: Chemical derivatization of compounds of low molar absorptivity, examples and applications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Reaction stoichiometric determination by Job's method, molar ratio method, and limiting logarithmic method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
6	Conventional and synchronous spectrofluorimetry: fundamentals and applications. Fluorescence and phosphorescence phenomena, Factors affecting fluorescence, fluorescence quantum efficiency, and advantages and disadvantages of spectrofluorimetry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								



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7	Quantitative applications of spectrofluorimetry. Analysis of inorganic compounds, organic compounds, and biochemical species, micellar enhancement of fluorescence, synchronous spectrofluorimetry, derivative synchronous spectrofluorimetry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Fundamentals of chemiluminescence. Definition, types, advantages, and examples.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Applications of chemiluminescence. Quantitative applications of chemiluminescence in analysis of inorganic, organic, and biochemical species: analysis of toxic gases, analysis of biomolecules, and analysis of cancer calls.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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10	Flow injection analysis: fundamentals. Definition, advantages, and examples.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
11	Flow injection analysis: applications. Quantitative applications of flow injection analysis for the assay of pharmaceutical compounds in pharmaceutical and biological matrices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Lab-on-a-Chip technology: fundamentals and applications. Introduction, advantages, applications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Green chemistry principles: Introduction and illustration of the twelve principles of green chemistry. Greenness assessment approaches: analytical eco-scale and GAPI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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	approaches and how to apply such techniques on the developed methods (self-learning).														
14	Revision and quiz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Practical topics</u>															
1	Beer's law (introduction and problems solving).				<input type="checkbox"/>	<input type="checkbox"/>									
2	- Determination of pKa by spectrophotometry (algebraic method).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	- Determination of pKa by spectrophotometry (graphical method).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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4	- Determination of reaction stoichiometry by Job's method.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	- Determination of reaction stoichiometry by molar ratio method.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	- Determination of reaction stoichiometry by limiting logarithmic method.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	- Derivative spectrophotometric analysis of aspirin and methocarbamol binary mixture.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	- Derivative synchronous spectrofluorimetric determination of binary and ternary mixtures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	- Spectrofluorimetric analysis of pregabalin via its reaction with certain fluorogenic reagents.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	- Greenness assessment by GAPI approach.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	- Greenness assessment by analytical eco-scale approach.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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13	-	Seminars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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.	Fundamentals of Analytical Chemistry, Douglas A.; Skoog; Donald M.; West, F. James Holler; Stanely, R. Crouch, Belmont, CA, USA 9th ed. (2014).	Essential Book
4.	Quantitative Chemical Analysis, Daniel C. Harris, 6th ed., W.H. Freeman and Company, New York (2003).	Essential Book
5.	Instrumental Methods of Chemical Analysis, Galan W. Ewing, 5th Ed. McGraw-hill book company, New York (1995).	Essential Book
6.	Practical Pharmaceutical Chemistry, Beckett, A. H. and Stenlake, J. B. 4th ed., Cambridge, England (1988).	Essential Book
7.	https://www.ekb.eg http://www.sciencedirect.com http://www.google scholar.com http://www.pubmed.com	Websites

Course Coordinator	Prof. Dr. Manal Ibrahim Eid <i>M. Eid</i>
Head of Department	Prof. Dr. Jenny Geehan Mohamed Ahmed Nasr <i>Jenny Geehan Nasr</i>

Date: 10/9/2023



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بكالوريوس الصيدلة الإكلينيكية

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



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University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutics
Department supervising the course	Pharmaceutics
Program on which the course is given	B. Pharm. (Credit hours) (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.



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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
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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



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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



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	<ul style="list-style-type: none"> ● 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:

e- 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

f- Assessment schedule

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



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Acne vulgaris cream , Shampoo										
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9- 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.	Harrys cosmeticology, Martin M Rieger (Editor). Publisher: chemical publisher, chemical publishing company ,8 th 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
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Date: 20/9/2023