

Level 4

Semester (7)

Course code	Course Title
PT 416	Biopharmaceutics & Pharmacokinetics.
PG 417	Phytotherapy
PD 411	Medicinal Chemistry (1)
PH 416	Pharmacology (3)
PH 417	Biostatistics
PM 413	Medical Microbiology and Immunology
PP 416	Clinical Pharmacy

Semester (8)

Course code	Course Title
PT 427	Industrial Pharmacy (1)
PA 426	Quality Control of Drugs
PP 427	Pharmacy Practice
PD 422	Medicinal Chemistry (2)
PB 423	Nutrition
PH 428	Therapeutics
PTE 02	Cosmetic Preparations

University: Mansoura
Faculty : Pharmacy
Department : Pharmaceutics
Course title: Biopharmaceutics and pharmacokinetics

Program on which the course is given	B. Pharm
Academic Level	Fourth Level, semester one
Date of course specification approval	20/9/2023

1- Basic Information : Course data :

Course title:	Biopharmaceutics and pharmacokinetics	Code: PT416	
Specialization:	pharmaceutical sciences		
Prerequisite:			
Teaching Hours:	Lecture:2	Practical:1	
Number of units: (credit hours)	3		

2- Course Aims:

1. Understanding the principle of biopharmaceutics in all pharmacokinetic parameters.
2. Solving problems related to the pharmacokinetic parameters(including AUC,half life,total clearance,volume of distribution)
3. Covering the principles of pharmacokinetic (including absorption ,distribution ,metabolism ,and elimination)and drug-drug interactions
4. knowing the basis of selection a particular drug preparation ,route of administration and evaluation of bioavailability of dugs products

3- Course Learning Outcomes

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

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.4	1.1.4.1	Describe the principles of biopharmaceutics and pharmacokinetics; predict the fate of the drug in the body, and summarize the different physiological, physicochemical and dosage form factors affecting drug bioavailability.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.2.4	2.2.4.1	Adopt the principles of biopharmaceutics and pharmacokinetics to determine the plasma drug concentration at certain time after drug administration through intravascular or extravascular routes; and calculate the dose of a drug that will result in a desired plasma drug concentration at certain time.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills.

4- Contents:-

Week No	Topics	No.of hours	Lecture	Practical
1.	Introduction to biopharmaceutics and pharmacokinetics definitions	2	1	-
2.	Pharmacokinetic parameters and sites of drug administration	2	1	-
3.	Pharmacokinetic oral route and absorption introduction	2	1	-
4.	IV infusion and mechanism of drug absorption	2	1	-
5.	Multiple dosing and factors affecting drug absorption	2	1	-
6.	Bioavailability assessment, introduction to drug distribution and factors affecting distribution	2	1	-
7.	Physicochemical properties affecting bioavailability (solubility, particle size, surface area)	2	1	-
8.	Physicochemical properties affecting bioavailability (polymorphism, micellar solubilization) (Mid-term Exam)	2	1	-
9.	Physicochemical properties affecting bioavailability (partition coefficient, in situ salt formation)	2	1	-
10.	Physicochemical properties affecting bioavailability (in situ micronization, complexation) (self-learning)	2	1	-

11.	Physicochemical properties affecting bioavailability (Noyes Whitney equation, chemical stability)	2	1	-
12.	Drug metabolism	2	1	-
13.	Introduction to drug elimination and methods of drug elimination	2	1	
14.	Revision	2	1	-
	Practical topics			
1	Mathematical Fundamentals in pharmacokinetics	2	-	1
2	Rates and orders of Reactions	2	-	1
3	One-Compartment Open Model: Intravenous Bolus Administration	2	-	1
4	Bioavailability. And Noyes Whitney equation	2	-	1
5	IV urinary data(excretion rate method)	2	-	1
6	Henderson-Hasselbalch equation	2	-	1
7	Determination of Ka by residual method	2	-	1
8	Mid-term Exam	-	-	-
9	Problems on determination of Ka by residual method.	2	-	1
10	Multiple Dosing of IV bolus injection	2	-	1
11	Problems on Multiple Dosing of IV bolus injection	2	-	1
12	IV infusion	2	-	1
13	Revision	2	-	1
14 & 15	Practical Exam	-	-	-
15 & 16	Written & Oral Exam	-	-	-

5- Teaching and learning Methods:

5.1	Computer aided learning: a- On line learning through My Mans “Mansoura University” as recorded – video lectures. b- Inter active discussion through My Mans.	Week number
		1-14
5.2	Self-learning	10
5.3	Practical labs using white board, power point presentation and On line learning through My Mans “Mansoura University” as recorded – video Labs.	1-7&9-13
5.4	Class Activity	3-5

6- Student Assessment:

a- Assessment methods:

1-Written exam	1.1.4.1/ 2.2.4.1
2-Practical exam	1.1.4.1/2.2.4.1/ 4.1.2.1/ 4.3.2.1
3-Oral	1.1.4.1/ 2.2.4.1/ 4.1.2.1/ 4.3.2.1
4-Midterm exam	1.1.4.1/ 4.1.2.1/ 4.3.2.1

b- Assessment schedule

Assessment 1	Practical	14th- 15th week
Assessment 2	Mid-term	8thweek
Assessment 3	Oral	15th- 16th week
Assessment 4	Written	15th- 16th week

c- Weighting of assessments


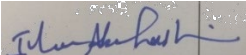
1	Mid-term examination	10 %
2	Final-term examination	50 %
3	Oral examination	15 %
4	Practical examination & Semester work	25 %
Total		100%

7 - List of References

N0.	Reference	Type
1	British Pharmacopoeia, Vol., I, 2017th Ed., The Stationery Office, London, U. K., (2017)	Course notes
2	Martindale, The complete Drug Reference,40th ^h Ed.,sweetman,S.C.,ed.The pharmaceutical press,London,U.K.(2020)	Books
4	Applied Biopharmaceutics and Pharmacokinetics, 6 th Edition by Madjackfrost(2012)	Open books
6.	http://www.sciencedirect.com http://www.google.com http://www.pubmed.com https://www.ekb.eg/web/guest/home www.pharmacy.wsu.edu/courses/ http://www.fda.gov/downloads/RegulatoryInformation/Guidances/ucm128204	Websites

8- Matrix of knowledge and skills of the course

Study Week	Course contents	Domain 1		Domain 2	Domain 4	
		1.1.3.1		2.2.4.1	4.1.2.1	4.3.2.1
1.	Introduction to biopharmaceutics and pharmacokinetics definitions	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
2.	Pharmacokinetic parameters and sites of drug administration	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Pharmacokinetic oral route and absorption introduction			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	IV infusion and mechanism of drug absorption	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
5.	Multiple dosing and factors affecting drug absorption			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Bioavailability assessment, introduction to drug distribution and factors affecting distribution	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
7.	Physicochemical properties affecting bioavailability (solubility, particle size, surface area)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Physicochemical properties affecting bioavailability (polymorphism, micellar solubilization)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Physicochemical properties affecting bioavailability (partition coefficient, in situ salt formation)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Physicochemical properties affecting bioavailability (in situ micronization, complexation) (self-learning)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Physicochemical properties affecting bioavailability (Noyes Whitney equation, chemical stability)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Drug metabolism	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
13.	Introduction to drug elimination and methods of drug elimination	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
14.	Revision	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Course Coordinator :	Prof.Dr./ Mahasen Mohamed Abdelhady Meshaly 
Head of department	Prof. Dr/ Irhan Ibrahim Abu Hashim 



Mansoura University
Faculty of Pharmacy
Quality Assurance Unit
Credit Hours Program
Course Specification
2023- 2024



بكالوريوس الصيدلة (ساعات معتمده – Credit Hours)

Course Specification

Academic year: 2023/2024

Course name: Phytotherapy	اسم المقرر : العلاج بالأعشاب
Academic Level: level 4	المستوى الأكاديمي : الرابع
Scientific department: Pharmacognosy	القسم العلمي : العقاقير
Head of Department: Prof. Mahmoud Fahmi Elsebai	رئيس القسم :
Course Coordinator: Prof. Dr. Amal Atwa Sallam	منسق المقرر : أ.م.د/ أمل عطوة سلام



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Program on which the course is given	B. Pharm
Academic Level	Level 4, First semester
Date of course specification approval	9/2023

1- Basic Information : Course data :

Course Title	Phytotherapy
Course Code	PG 417
Prerequisite	Pharmacognosy 1
Teaching credit Hours: Lecture	2
: Practical	1
Total Credit Hours	3

2- Course Aims:

1. Identify the concepts of phytotherapy, different types of complementary and alternative medicines with emphasis on herbal remedies, nutritional supplements, homeopathies, aromatherapy.
2. know guidelines for prescribing herbal medicinal drugs on the basis of the pharmacological properties of these drugs including therapeutic uses, mechanism of action, dosage, adverse reactions, contraindications & drug interactions.
3. Gain an understanding of medicinal plants portfolios in relation to phytopharmaceuticals in the Egyptian Market.

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	Identify the different types of complementary and alternative medicines including aromatherapy.
	1.1.1.2	Recognize the concept of phytotherapy, complementary and alternative medicine including aromatherapy.
1.1.3	1.1.3.1	Identify the main sources of herbal drugs used in phytotherapy and aromatherapy and their phytoconstituents responsible for the activity
1.1.4	1.1.4.1	Explain the mechanism of action, therapeutic uses and adverse drug reactions of plants used in phytotherapy and aromatherapy.
1.1.5	1.1.5.1	Apply fundamentals of herbal medicine to find suitable formulations for different diseases.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Select drugs from natural origin to be used for treatment of diseases of the different systems.
2.3.1	2.3.1.1	Recognize the appropriate methods for preparation and handling of herbal drug formulations used in phytotherapy.

Domain 3: Pharmaceutical Care

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



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	3.2.3.2	Suggest the suitable food items that help with the phytomedicine in treatment of certain disease.
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Domain 4: Personal Practice:

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

4- Contents :-

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Introduction: Forms of complementary and alternative medicine which do not use medicinal plants, Traditional Systems of Herbal Medicine, Traditional Chinese Medicine (TCM), Ayurveda. Herbal products regulation	2	2	
2.	Aromatherapy	2	2	
3.	Important natural products used in phytotherapy of the gastrointestinal system	2	2	
4-5	Important natural products used in phytotherapy of the cardiovascular system	4	4	
6	Important natural products used in phytotherapy of the respiratory system and the endocrine system	2	2	



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7	Important natural products used in phytotherapy of the musculoskeletal system and the reproductive system Formulation of herbal drugs	2	2	
8	Important natural products used in phytotherapy of the central nervous system and the renal system	2	2	
9	Important natural products used in phytotherapy of the eye, the ear, nose and orthopharynx	2	2	
10	Supportive Therapies for Stress, Aging and Debility	2	2	
11	Nutrition in different diseases	2	2	
12	Herb-drug interactions	2	2	
13	Herbal drugs used in obesity (self-learning).	2	2	
14	Revision & Quiz	2	2	
15	Week 15 Final written & oral			
	Practical topics			
1	Identification of powdered: Leaves (Senna leaflets, Rosemary), Herbs (Peppermint and Thyme)	2		1
2	Identification of powdered Seeds: (Linseed, Fenugreek, Black mustard and cardamom) and Flowers (Chamomile)	2		1
3	Identification of powdered Fruits: (Anise, Coriander, <i>Ammi visnaga</i> and Capsicum)	2		1
4	Identification of powdered Galls, Wood: Quassia wood, Barks: Cassia	2		1
5	Identification of powdered Roots and Rhizomes: Liquorice, Ginger and Rhubarb	2		1
6	Identification of Common Adulterants of Crude Drugs	2		1



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7	Identification of unknown medicinal herbal teas	2		1
8	Week 8 Mid-term			
9	Identification of unknown medicinal herbal teas	2		1
10	Identification of unknown medicinal herbal teas	2		1
11	Case studies	2		1
12	Research activity	2		1
13	Revision & Sheet	2		1
14	Week 14 Practical exam			

5- Teaching and learning Methods:

5.1	Computer aided learning: a. On line learning through my mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans
5.2	Practical session using laboratory equipment (microscope and glass wares)
5.3	Research assignments
5.4	Case study
5.5	Discussion session

6- Student Assessment:

a- Assessment methods:

1-Written exam	To assess understanding, intellectual, professional
2-Practical exam	To assess professional and practical skills
3-Oral	To assess Knowledge, understanding, intellectual skills, general skills and confidence
4-Quizzes	To assess Knowledge, understanding and intellectual skills
5-Case study	To assess the skills of problem-solving and date presentation

b- Assessment schedule

Assessment 1	Periodical exam	8thweek
Assessment 2	Practical exam	14thweek



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Assessment 3	Oral exam	15 th week
Assessment 4	Written exam	15 th week

c- Weighting of assessments

1	Mid-term examination	10 %
2	Final-term examination	50 %
3	Oral examination	15 %
4	Practical examination & Semester work	25 %
5	Other types of assessment	0
Total		100%

7 - 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.	Michael Heinrich, Joanne Barnes, Simon Gibbons and Elizabeth M. Williamson;”Fundamentals of pharmacognosy and phytochemistry”2nd edition 2012 Elsevier Ltd.	Book
4.	Kerry Bone and Simon Mills,” Principles and practice of phytotherapy” 2013 Elsevier Ltd.	Book
5.	Phytotherapies: Efficacy, Safety, and Regulation edited by Iqbal Ramzan, 2015	Book
6.	http://www.sciencedirect.com/ / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	websites



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8- Matrix of knowledge and skills of the course

Week No.	Course contents / K. elements	Domain 1					Domain 2		Domain 3		Domain 4		
		1.1.1.1	1.1.1.2	1.1.3.1	1.1.4.1	1.1.5.1	2.2.1.1	2.3.1.1	3.2.3.1	3.2.3.2	4.1.2.1	4.2.1.1	4.3.2.1
1	Introduction: Forms of complementary and alternative medicine which do not use medicinal plants, Traditional Systems of Herbal Medicine, Traditional Chinese Medicine (TCM), Ayurveda. Herbal products regulation	✓	✓										
2	Aromatherapy	✓	✓	✓	✓			✓					



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3	Important natural products used in phytotherapy of the gastrointestinal system			✓	✓	✓	✓		✓	✓			
4-5	Important natural products used in phytotherapy of the cardiovascular system			✓	✓	✓	✓		✓	✓			
6	Important natural products used in phytotherapy of the respiratory system and the endocrine system			✓	✓	✓	✓		✓	✓			
7	Important natural products used in			✓	✓	✓	✓	✓	✓	✓			



بكالوريوس الصيدلة (ساعات معتمدة – Credit Hours)

Course Specification

Academic year: 2023/2024

Course Name: Medicinal Chemistry-1	اسم المقرر : كيمياء دوائية-1
Academic Level: level 4	المستوى الأكاديمي : الرابع
Scientific Department: Medicinal chemistry	القسم العلمي : الكيمياء الدوائية
Head of Department: Prof. Dr. Mohamed Ahmed Moustafa	رئيس القسم : أ.د/ محمد أحمد مصطفى
Course Coordinator: Prof. Dr. Hussein Ibrahim El-Subbagh	منسق المقرر: أ.د/ حسين إبراهيم الصباغ

University	Mansoura
Faculty	Pharmacy
Department offering the course	Medicinal Chemistry
Department supervising the course	Medicinal Chemistry
Program on which the course is given	Bachelor in Pharmacy-Credit Hours
Academic Level	Level 4, First Semester, 2023/2024
Date of course specification approval	6/9/2023

A. Basic Information: Course data:

Course Title	Medicinal Chemistry-1
Course Code	PD411
Prerequisite	Pharmaceutical Organic Chemistry III
Teaching Credit Hours: Lecture	3
: Practical	1
Total Credit Hours	4

B. Professional Information:

1- Course Aims:

This course enables the students to:

- Identify the principles of medicinal chemistry.
- Study physicochemical properties of drugs, drug-receptor interaction, the molecular aspects governing drugs' pharmacokinetics (ADME) and pharmacodynamics.
- Explain the different phases of drug metabolism and the enzymes involved.
- Understand the mode of action and structure activity relationship (SAR) of drugs affecting autonomic nervous system (ANS), cardiovascular drugs and diuretics.
- Know the chemistry and nomenclature of drugs affecting ANS, cardiovascular drugs and diuretics.

2- Course key Elements:

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

Domain 1- Fundamental Knowledge

Program Key Element No.	Course Key Element No.	Course Key Element
1.1.1	1.1.1.1	Recognize in depth and breadth knowledge of pharmaceutical and biomedical sciences related to drug action and <i>in vivo</i> biotransformation of drugs.
1.1.2	1.1.2.1	Apply proper pharmaceutical and medical terminology including abbreviation and symbols used in pharmacy profession.
	1.1.2.2	Recognize international non-proprietary names (generic names) of drugs.
1.1.4	1.1.4.1	Recognize different properties of drugs, including molecular mechanism of action, clinical uses, drug interactions, contra-indications, adverse drug reactions (ADRs) and structure-activity relationship (SAR).
1.1.7	1.1.7.1	Manipulate knowledge gained in medicinal chemistry to provide information about drug production and proper use of drugs.

Domain 2: Professional and Ethical Practice

Program Key Element No.	Course Key Element No.	Course Key Element
2.5.3	2.5.3.1	Adapt concepts of medicinal chemistry used in the systematic approach applied in drug development.

Domain 3: Pharmaceutical Care

Program Key Element No.	Course Key Element No.	Course Key element
3.2.1	3.2.1.1	Adapt principles of medicinal chemistry and pharmacological aspects of drugs, as mode of action, therapeutic uses, proper dosage, unwanted effects and drug interactions.
3.2.5	3.2.5.1	Apply medicinal chemistry aspects of drugs to support the patients, and community in making informed decisions about their care plan including OTC preparations.

Domain 4: Personal Practice:

Program Key Element No.	Course Key Element No.	Course Key Element
4.1.2	4.1.2.1	Appraise information, analyze data, identify problems and present solutions depending on medicinal chemistry aspects.
	4.1.2.2	Participate collaboratively and independently as drug chemistry expert within healthcare team.
4.2.1	4.2.1.1	Communicate effectively in a proper scientific language by verbal and written means in the field of health care related to the studied topics.

4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development and life-long learning.
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3- Course Contents:

Week No.	Topics	Lecture Credit Hours
1	Introduction to medicinal chemistry. Definitions, objectives, classification of drugs and nomenclature of drugs.	3
2	The physicochemical properties and drug action. Drug-Receptor interactions and forces involved.	3
3	Drug metabolism: principles and phase I	3
4	Drug metabolism: phase II and factors affecting drug metabolism	3
5	Adrenergic agonists	3
6	Adrenergic antagonists (Part 1)	3
7	Adrenergic antagonists (Part 2)	3
8	Diuretics	3
9	Antianginal	3
10	antihypertensive drugs	3
11	antihyperlipidemic agents	3
12	Anticoagulants	3
13	Cholinergic drugs (self-learning).	3
14	Revision and quiz	3
15	Final written and oral exam	-
Week No.	Practical topics	Practical credit hours
1.	Acid-base properties of drugs, predicting the degree of ionization of drug molecules.	1
2.	Hydrophilic and lipophilic properties, Hansch constant and LogP problem solving.	1
3.	Types of drug-receptor interactions.	1
4.	Empiric method of Lemke.	1
5.	Case Study.	1
6.	Physico-Chemical Evaluation	1
7.	Introduction to Chem-Bio-Draw program, identifying of different menus and toolbars.	1
8.	Midterm exam	

9.	Drawing of different chemical structures.	1
10	Computer-aided presentation of drug metabolic pathways and chemical synthesis of drugs.	1
11.	Computer-aided presentation of drug metabolic pathways and chemical synthesis of drugs.	1
12.	Prediction of some physicochemical properties of different chemical structures using Chem-Bio-Draw program.	1
13	Prediction of mass and NMR spectra of different chemical structures using Chem-Bio-Draw program.	1
14	Practical Exam (Chemdraw)	-

4- Teaching and learning Methods:

No.	Teaching and learning Methods	Week No.
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 (Microsoft teams) 	1-7 and 9-13
4.2	Self-learning	13
4.3	Tutorial sessions using Data Show, Power Point Presentations and possible applications of OSCE	1-7 and 9-14
4.4	Practical session using computer software (ChemBio-Office) and tutorials	9-14
4.5	Class Activity: Group discussion offline and online	1-7 and 9-14
4.6	Problem – based learning and brainstorming	1-7 and 9-14
4.7	Research assignments	1

5- Student Assessment:

a- Assessment Methods:

Assessment Methods	Key elements to be assessed
1-Written exam	1.1.1.1, 1.1.2.1, 1.1.2.2, 1.1.4.1, 1.1.7.1, 2.5.3.1, 3.2.1.1, 4.1.2.1, 4.3.2.1
2-Practical exam	1.1.1.1, 1.1.2.1, 1.1.2.2, 1.1.4.1, 1.1.7.1, 3.2.1.1, 3.2.5.1, 4.1.2.1, 4.1.2.2
3-Oral	1.1.1.1, 1.1.1.2, 1.1.2.1, 1.1.2.2, 1.1.4.1, 1.1.7.1, 2.5.3.1, 3.2.1.1, 3.2.5.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
4- Periodical exam	1.1.1.1, 1.1.1.2, 1.1.2.1, 1.1.2.2, 4.1.2.1

b. Assessment schedule

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

c. Weighing of assessments

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

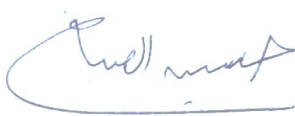

6- Facilities required for teaching and learning

- Class room	Data show- Computers, Internet. (Available)
- Laboratory facilities	Computer software (ChemBio-Office), Data show and white board. (Available)

- | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <ul style="list-style-type: none">• Drawing of different chemical structures.• Computer-aided presentation of drug metabolic pathways and chemical synthesis of drugs.• Prediction of some physicochemical properties of different chemical structures using Chem-Bio-Draw program.• Prediction of mass and NMR spectra of different chemical structures using Chem-Bio-Draw program. | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

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.	"Foye's Principles of Medicinal Chemistry", 8th edition, (David A. Williams, Thomas L. Lemke & William O. Foye, Editors), Lippincott Williams & Wilkins, 2017	Book
4.	"Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry" 12th Edition, (J. H. Block and J. M. Beale Jr, Editors), Lippincott Williams & Wilkins, Philadelphia, PA, 2011	Book
5.	Graham L. Patrick; "An Introduction to Medicinal Chemistry" Oxford University Press, USA; 6th Revised edition, 2017	Book
6.	Thomas, Gareth, "Fundamentals of Medicinal Chemistry" Wiley-Blackwell; Kindle Edition (2013).	Book
7.	http://www.sciencedirect.com/ http://www.google.com/ http://www.pubmed.com https://www.ekb.eg	websites

Course Coordinator	Prof. Dr. Hussein Ibrahim El-Subbagh 
Head of Department	Prof. Dr. Mohamed Ahmed Moustafa 

Date: 6/9/2023



Course specification
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المستوى الرابع

توصيف مقرر Pharmacology-3

University: Mansoura
Faculty: Pharmacy
Department: Pharmacology and Toxicology
Course title: Pharmacology-3
Course Code PH416

Program on which the course is given	B. Pharm (Credit Hour System)
Academic Level	Level Four; First Semester
Date of course specification approval	September 2023

A- Basic Information: Course data :

Course title:	Pharmacology-3	Code:	PH416
Specialization:	Medical		
Prerequisite:	Physiology		
Teaching Hours:	Lecture: 2	Practical:	1
Number of units: (credit hours)	3		

B. Professional Information:

1- Course Aims:

On completion of the course, the student will be able to describe mechanism of action, biological effects, and therapeutic applications of CNS-acting agents, anti-inflammatory agents, immunomodulating 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	Identify drugs' mechanism of action, therapeutic effects and assess their suitability, effectiveness, and safety in individuals and populations, using knowledge from fundamental sciences.
1.1.5	1.1.5.1	Use health informatics to improve the quality of health and nutritional care, manage resources and optimize patient safety and understand metabolic disorders.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Adapt and take proper action when signs, symptoms and risk factors that relate to medical or health problems that fall into the scope of practice of other health professionals are encountered.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Perform principles of pharmacological aspects of drugs, as mode of action, therapeutic uses, proper dosage, unwanted effects and drug interactions.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.2.1.1	Retrieve clear language, pace, tone and non-verbal communication and writing skills when dealing with patients, other health team and communities.
4.3.2	4.3.2.1	Use artificial technology whenever possible to present relevant information.

3- Contents:-

Week No	Topics	No. of hours	Lecture (hr.)	Practical
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1.	Introduction to CNS-acting drugs Introduction to hormonal agents	2	2	
2.	Anxiolytic, Sedative -Hypnotic Drugs Hypothalamic and Pituitary Drugs	2	2	
3.	Anxiolytic, Sedative -Hypnotic Drugs Thyroid Drugs	2	2	
4.	Antipsychotic Drugs Adrenal Steroids and Related Drugs	2	2	
5.	Anti-parkinsonian Drugs Adrenal Steroids and Related Drugs	2	2	
6-7	Drugs for Alzheimer's Disease Drugs for Multiple Sclerosis Drugs affecting fertility and reproduction	4	4	
8-9	Opioid analgesics NSAIDs	4	4	
10-11	Drugs for Diabetes Mellitus	4	4	
12	Antiepileptic drugs Drugs Affecting Calcium and Bone	2	2	
13	Antidepressant drugs; Antimanic drugs Immunosuppressants	2	2	
14	Revision and quiz	2	2	
15	Final written & oral			
	Practical topics			
1	Hypnotics			1
2	Metastatic prostate cancer case study			1
3	Antiparkinsonism drugs			1
4	Cushing disease case study			1
5	Antiepileptic drugs			1
6	Hypothyroidism case study			1
7.	Analgesics			1
8	Mid-Term			-
9-10	Type I diabetes mellitus case study			2
11-12	CNS Stimulants			2
13	Infertility case study			1
14	Practical Exam			1

4- Teaching and learning Methods:

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



3	Formative Assignments
4	Tutorial

5- Student Assessment:

a- Assessment methods:

K elements to be assessed	
1-Mid term exam	1.1.4.1 - 1.1.5.1 - 2.4.3.1 - 3.2.1.1 - 4.2.1.1 - 4.3.2.1
2-Written exam	1.1.4.1 - 1.1.5.1 - 2.4.3.1 - 3.2.1.1 - 4.2.1.1 - 4.3.2.1
3-Practical exam	1.1.4.1 - 1.1.5.1 - 2.4.3.1 - 3.2.1.1 - 4.2.1.1 - 4.3.2.1
4-Oral	1.1.4.1- 1.1.5.1 - 3.2.1.1 - 4.2.1.1 - 4.3.2.1

b- Assessment schedule

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

c- Weighting of assessments

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

6 - List of References

N0.	Reference	type
1	Lippincott's Pharmacology; illustrated review 6th edition	Reference textbook
2	Basic and Clinical Pharmacology; Bertram Katzung, 9th edition	Reference textbook
3	Internet websites	Internet sources
4	Lectures notes prepared by staff members	Course notes
	https://www.ekb.eg	

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

Wee	Course contents /	Domain 1	Domain 2	Domain 3	Domain 4
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k No.	K. elements	1.1.4.1	1.1.5.1	2.4.3.1	3.2.1.1	4.2.1.1	4.3.2.1
1.	Introduction to CNS-acting drugs Introduction to hormonal agents	✓		✓	✓	✓	✓
2.	Anxiolytic, Sedative - Hypnotic Drugs Hypothalamic and Pituitary Drugs	✓	✓	✓	✓	✓	✓
3.	Anxiolytic, Sedative - Hypnotic Drugs Thyroid Drugs	✓	✓	✓	✓	✓	✓
4.	Antipsychotic Drugs Adrenal Steroids and Related Drugs	✓	✓	✓	✓	✓	✓
5.	Anti-parkinsonian Drugs Adrenal Steroids and Related Drugs	✓	✓	✓	✓	✓	✓
6-7	Drugs for Alzheimer's Disease Drugs for Multiple Sclerosis Drugs affecting fertility and reproduction	✓	✓	✓	✓	✓	✓
8-9	Opioid analgesics NSAIDs	✓	✓	✓	✓	✓	✓
10-11	Drugs for Diabetes Mellitus	✓	✓	✓	✓	✓	✓
12	Antiepileptic drugs Drugs Affecting Calcium and Bone	✓	✓	✓	✓	✓	✓
13	Antidepressant drugs; Antimanic drugs Immunosuppressants	✓	✓	✓	✓	✓	✓
14	Revision and quiz	✓	✓	✓	✓	✓	✓

Course Coordinator :	Prof. Dr. Ghada M Suddek
Head of department:	Prof. Dr. Manar A. Nader



Course specification
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المستوى الرابع

توصيف مقرر Biostatistics

University: Mansoura
Faculty : Pharmacy
Department : Pharmacology and Toxicology
Course title: Biostatistics

Program on which the course is given	B. Pharm
Academic Level	Level Four, Semester one
Date of course specification approval	September 2023

A. Basic Information: Course data:

Course title:	Biostatistics	Code:	PH417
Specialization:	Pharmaceutical sciences		
Prerequisite:	Pharmacology 1		
Teaching Hours:	Lecture: 1	Practical:	
Number of units: (credit hours)	0		

B. Professional Information:

1. Course Aims:

On completion of the course, the student will be able to make interpretation of any data using statistical analysis. Also the student can determine different methods of sampling, handle the results of different experimental and research studies using suitable statistical techniques.

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	Recognize the important role of biostatistics in biomedical science.



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1.1.3	1.1.3.1	Determine different methods of sampling.
1.1.4	1.1.4.1	Show ability to organize data for appropriate statistical analysis and calculation.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Differentiate between types of variables.
2.2.3	2.2.3.1	Interpret dispersion of data around the mean.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Have competence in background mathematics.

3- Contents:-

Week No	Topics	No. of hours	Lecture (hr.)	Practical
1	Definition of Biostatistics	1	1	
2-3-4	Descriptive statistics	3	3	
5-6	Inferential statistics	2	2	
7	Null Hypothesis	1	1	
8	Midterm			
9	Normal deviate test (Z)	1	1	
10	Student's t- test	1	1	
11	Chi-Square Test "X²"	1	1	
12	ANOVA—Analysis of Variance	1	1	
13	Confidence interval & limits	1	1	



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14	Revision and quiz	1	1	
15	Final written exam			

4- Teaching and learning Methods:

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
2.	Self-learning
3.	Problem – based learning and brainstorming
4.	<ul style="list-style-type: none"> Formative assignments

5- Student Assessment:

a- Assessment methods:

K elements to be assessed		
1	Written exam	1.1.1.1, 1.1.3.1, 1.1.4.1, 2.2.1.1, 2.2.3.1, 4.1.2.1
2	Mid term/Formative Assignments	1.1.1.1, 1.1.3.1, 1.1.4.1, 2.2.1.1, 2.2.3.1, 4.1.2.1

b- Assessment schedule

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

c- Weighting of assessments

1	Mid-term examination	10 %
3	Final-term examination	90 %
Total		100%

6 - List of References

N0.	Reference	type
1	Medical Statistics at a Glance, 4 th Edition, Aviva Petrie, Caroline Sabin, ISBN: 978-1-119-16783-9, 2019, Wiley-Blackwell	book
2	Lectures notes prepared by staff members	notes
3.	http://www.sciencedirect.com/ / http://www.google scholar.com/ / http://www.pubmed.com https://www.ekb.eg	Websites



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

Week No.	Course contents / K. elements	Domain 1			Domain 2		Domain 4
		1.1.1.1	1.1.3.1	1.1.4.1	2.2.1.1	2.2.3.1	4.1.2.1
1	Definition of Biostatistics	✓					
2-3-4	Descriptive statistics		✓	✓			
5-6	Inferential statistics			✓	✓	✓	
7	Null Hypothesis	✓		✓	✓	✓	
9	Normal deviate test (Z)	✓		✓	✓	✓	✓
10	Student's t- test		✓	✓		✓	✓
11	Chi-Square Test "X2"		✓	✓		✓	✓
12	ANOVA—Analysis of Variance		✓	✓		✓	✓
13	Confidence interval & limits		✓	✓		✓	✓
14	Revision and quiz		✓	✓	✓	✓	✓



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



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Fourth level

course specification: **Medical Microbiology and Immunology**

University: Mansoura University (MU)
Faculty : Pharmacy
Department : Microbiology and Immunology
Course title: Medical Microbiology and Immunology

Program on which the course is given	B. Pharm
Academic Level	Fourth Level, First semester
Date of course specification approval	10/9/2023

1- Basic Information : Course data :

Course title:	Medical Microbiology and Immunology	Code: PM 413	
Specialization:	Medical		
Prerequisite:			
Teaching Hours:	Lecture: 2	Practical:1	
Number of units: (credit hours)	3		



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2- Course Aims:

On completion of the course, the student will be able to understand the principle of immune response, differentiate between innate and adaptive immune response, describe immunological disorders, describe the common microbial pathogens and the mechanisms of pathogenesis, describe the clinical manifestation of disease and diagnose disease based on clinical laboratory data, describe the epidemiology of infectious diseases and control measures and discuss the treatment of disease.

2- Course k. elements:

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

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	List the most common bacteria and fungi of medical importance.
1.1.2	1.1.2.1	Define terms related to medical microbiology.
1.1.4	1.1.4.1	Define suitable treatment of infectious diseases.
1.1.5	1.1.5.1	Describe and discuss the common infectious diseases caused by bacteria and fungi as pathogenesis, clinical pictures, complications.
1.1.6	1.1.6.1	Outline methods of control of and prevention of common bacterial and fungal diseases.
1.1.7	1.1.7.1	Recognize the scientific basis of the conventional and up-to-date diagnostic procedures needed to carry out accurate diagnosis of



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		bacterial and fungal and immunological diseases with emphasis on their prioritization in management plans.
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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	Utilize systemic thinking and personal judgment for diagnosis of the hypersensitivity reactions.

Domain 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Outline the characters, laboratory diagnosis and treatment of immunological diseases and disorders.
3.1.2	3.1.2.1	Assign the methods of control and prevention of microbial infection as correlated to microbial transmission.
3.1.3	3.1.3.1	Record the growth on different media and perform laboratory tests for identification of the causative agents of infectious diseases



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3.1.4	3.1.4.1	Record the common diseases caused by bacteria and fungi of medical interest as regards etiology, pathogenesis, clinical features and methods of combat.
3.2.4	3.2.4.1	Provide patient and pharmaceutical education regarding hypersensitivity reaction.
3.2.6	3.2.6.1	Provide information to support community information regarding microbial infection and contamination

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Share decision-making activities with other team members and apply effective time management skills.
4.1.2	4.1.2.1	Demonstrate skills in data collection and analysis.
4.2.1	4.2.1.1	Use clear language and communication when dealing with patients and other health team and communities
4.3.2	4.3.2.1	Commit self-development and self-learning



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3- Contents:-

Week No	Topics	No. of hours	Lecture credit hours	Practical Credit hour
1.	Introduction to Immunology – immune system Innate immunity	2	2	
2.	Adaptive immunity-Immunization	2	2	
3.	Serological tests, deleterious effect of immunity	2	2	
4.	Pathogenesis of bacterial infection and virulence factors	2	2	
5.	Enteric Gram-negative rods	2	2	
6.	Other Gram-negative rods: <i>Helicobacter sp.</i> , <i>Vibrio sp.</i> , <i>Pseudomonas sp.</i> , <i>legionella</i>	2	2	
7.	Aerobic and anaerobic Gram-positive rods,	2	2	
8.	Gram positive cocci	2	2	
9.	Gram-negative cocci, Haemophilus group- Brucella- Bordetella	2	2	
10.	Mycoplasma and Mycobacteria, Spirochetes	2	2	
11.	Rickettsia - Coxiella burnetii – Chlamydia	2	2	
12.-	Fungal diseases	2	2	
13.	viral diseases	2	2	
14.	Revision and quiz	2	2	



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15.	Final written and oral exam			
Practical topics				
1	Introduction to medical microbiology	2		1
2	Serological tests	2		1
3	Gram negative bacteria: Enterobacteriaceae (<i>Escherichia coli</i>)	2		1
4	Gram negative bacteria: Enterobacteriaceae (<i>K. pneumoniae</i> and <i>E. aerogenes</i>)	2		1
5	Gram negative bacteria: Enterobacteriaceae (<i>Proteus</i> species)	2		1
6	Gram negative bacteria: <i>Pseudomonas</i> <i>aeruginosa</i>	2		1
7	Gram positive bacteria: Rods (<i>Bacillus</i> <i>cereus</i>)	2		1
8	Mid-term exam			
9	Gram positive bacteria: Cocci (<i>Staphylococcus species</i>)	2		1
10	Gram positive bacteria: Cocci (<i>Streptococcus species</i>)	2		1
11	Fungi: <i>Candida albicans</i>	2		1
12	Viral infections identification	2		1
13	Revision	2		1
14	Practical exam	-		-



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4- Teaching and learning Methods:

	Teaching and learning Methods:	week
5.1	Lectures using Data show, PowerPoint presentations	1-14
5.2	Distance learning: On line learning through My mans "Mansoura university "	
5.3	Recorded lectures on My mans "Mansoura university "	
5.4	Practical session using chemicals and laboratory equipment and/ or tutorials	1-7,9-13
5.5	Self-learning	11
5.6	Case study	9
5.7	Group Discussion	10

5- Student Assessment:

a- Assessment methods:

1- Periodical (Mid-term exam) / Course work	(1.1.1.1), (1.1.2.1), (1.1.4.1), (1.1.5.1), (1.1.6.1), (1.1.7.1),(3.1.2.1), (3.1.3.1), (3.1.4.1), (3.2.6.1),(4.2.1.1)
2-Practical exam	(1.1.1.1), (1.1.2.1), (1.1.4.1), (1.1.5.1), (1.1.6.1), (1.1.7.1), (3.1.1.1)
3-Written exam	(1.1.1.1), (1.1.2.1), (1.1.4.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.3.1), (3.1.1.1), (3.1.2.1), (3.1.3.1) (3.1.4.1), (3.2.1.1), (3.2.6.1),(4.2.1.1)
4-Oral	(1.1.1.1), (1.1.2.1), (1.1.4.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (3.1.4.1), (3.1.5.1), (4.2.1.1)



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b- Assessment schedule

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

c- Weighting of assessments

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



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6 - List of References

No.	Reference	Type
1	Bacterial Pathogenesis A molecular approach (Wilson , Salyers, whit and winkler 2011)	Book
2	Brooks, G.F.; Carroll, K. C.; Butel, J.S.; Morse, S. A. (2007): Jawetz, Melnick and Adelberg's Medical Microbiology. 24th ed. McGraw-Hill.	Book
3	Sherris & Ryan's (2022): Medical microbiology. Eighteenth edotion, McGraw Hill	emkkkkBook
4	Lippincott's Illustrated Reviews: Microbiology Third Edition (2013)	Book
5	Lectures notes prepared by staff members	Course notes
6	https://iopscience.iop.org/article/10.1088/1742-6596/1823/1/012061 https://08101ynla-1105-y-https-www-sciencedirect-com.mplbci.ekb.eg/science/article/pii/S1876034121002495 http://www.sciencedirect.com/ http://www.pubmed.com https://www.ekb.eg	Website (self-learning)



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8- Matrix of knowledge and skills of the course

Week No.	Course contents / K. elements	Domain : 1					Domain 2	Domain: 3						Domain: 4				
		1.1.1	1.1.2	1.1.3	1.1.4	1.1.5		2.4.3.1	3.1.1	3.1.2	3.1.3	3.1.4	3.2.4.1	3.2.4.2	4.1.1	4.1.2	4.2.1	4.3.2.1
1	Introduction to Immunology – immune system Innate immunity					√	√	√					√		√	√		
2	Adaptive immunity-Immunization					√	√	√					√		√	√		
3	Serological tests, deleterious effect of immunity					√	√	√					√		√	√		



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4	Pathogenesis of bacterial infection and virulence factors	√	√														√	√	√
5	Enteric Gram-negative rods			√	√	√	√			√	√	√		√			√	√	√
6	Other Gram-negative rods: <i>Helicobacter sp.</i> , <i>Vibrio sp.</i> , <i>Pseudomonas sp.</i> , <i>legionella</i>			√	√	√	√			√	√	√		√			√	√	√
7	Aerobic and anaerobic Gram-positive rods,			√	√	√	√			√	√	√		√			√	√	√
8	Gram positive cocci			√	√	√	√			√	√	√		√			√	√	√
9	Gram-negative cocci, Haemophilus group- Brucella- Bordetella			√	√	√	√			√	√	√		√			√	√	√
	Mycoplasma and Mycobacteria, Spirochetes			√	√	√	√			√	√	√		√			√	√	√
	Rickettsia - Coxiella burnetii – Chlamydia			√	√	√	√			√	√	√		√			√	√	√
	Fungal diseases			√	√	√	√			√	√	√		√			√	√	√



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13	viral diseases			√	√	√	√			√	√	√		√	√	√	√	√
14	Revision and quiz	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Practical:																	
1	Introduction to medical microbiology													√	√	√	√	
2	Serological tests													√	√	√	√	
3	Gram negative bacteria: Enterobacteriaceae (<i>Escherichia col</i>)													√	√	√	√	
4	Gram negative bacteria: Enterobacteriaceae (<i>K. pneumoniae</i> and <i>E. aerogenes</i>)													√	√	√	√	
5	Gram negative bacteria: Enterobacteriaceae (<i>Proteus</i> species)													√	√	√	√	
6	Gram negative bacteria: <i>Pseudomonas</i> <i>aeruginosa</i>													√	√	√	√	
7	Gram positive bacteria: Rods (<i>Bacillus</i> <i>cereus</i>)													√	√	√	√	



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9	Gram positive bacteria: Cocci (<i>Staphylococcus species</i>)															√	√	√	√	
10	Gram positive bacteria: Cocci (<i>Streptococcus species</i>)																√	√	√	√
11	Fungi: <i>Candida albicans</i>																√	√	√	√
12	Viral infections identification																√	√	√	√
13	Revision																√	√	√	√



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Course Coordinator :	Prof. Dina Eid
Head of department	Prof. El-Sayed E. Habib

Date:10/9 /2023



Mansoura University
Faculty of Pharmacy
Quality Assurance Unit
Credit Hours Program
Course Specification
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University: Mansoura University (MU)
Faculty: Pharmacy
Department: Clinical pharmacy and Pharmacy practice
Course title: Clinical pharmacy
Course code: PP 416

Program on which the course is given	Bachelor of Pharmacy (Credit Hours)
Academic Level	Fourth Level, First semester, 2023-2024
Date of course specification approval	7 th September 2023

1. Basic Information: Course data:

Course title:	Clinical pharmacy	Code: PP 416
Specialization:	Pharmaceutical	
Prerequisite:	Physiology	
Teaching Hours:	Lecture: 2	Practical: 2
Number of units: (credit hours)	3	



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2. Course Aims:

1. Deliver patient care in hospital and community pharmacies; and promote rational, safe and effective use of medication in pharmacy practice settings. Scoping of clinical pharmacy and its objectives
2. Understanding the concept of clinical pharmacy and the role of clinical pharmacist
3. Providing patient care that optimizes the use of medication and promotes health, wellness, and disease prevention
4. Maximizing the clinical effect of medicines, i.e. using the most effective treatment for each type of patient

2. Course learning outcomes:

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Describe the role of clinical pharmacist.
1.1.4	1.1.4.1	Illustrate the aspects of rational drug use.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Predict possible prescription-related problems that may occur during drug dispensing
	2.4.3.2	Develop model for pharmaceutical care.



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	2.4.3.3	Assess possible drug interactions, adverse drug reactions, and other drug-related problems, as essential issues in implementing pharmaceutical care.
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DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.2	3.2.2.1	Apply the concepts of pharmaceutical care in different pharmacy practice settings.
3.2.5	3.2.5.1	Practice professional patient counseling to optimize outcomes of pharmaceutical care plan.
3.2.6	3.2.6.1	Assess risks concerning drug-drug interaction, adverse reaction and in different pharmaceutical preparations.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Co-operate with other healthcare team in decision making activities and work as integrated part of healthcare team.
4.3.2	4.3.2.1	Practice self-learning on selected topics to improve professional skills

4. Contents:

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
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1.	<p>Introduction to clinical pharmacy</p> <p><i>(Prescription monitoring, prescribing advice to medical and nursing staff, medication errors and adverse drug reaction reporting, medication history-taking and medicines reconciliation, medicines formularies)</i></p>	2	2 hours	
2.	<p>Case history and patient history</p> <p><i>(Presenting complaint, History of presenting complaint</i></p> <p><i>Past medical history, Drug history, Family history, Social and personal history, Systems review)</i></p>	2	2 hours	
3.	<p>Clinical problems solving</p> <p><i>Managing interactions (St John's Wort, hyperkalaemia, ibuprofen, and warfarin), advising how to use lamotrigine, choosing antibiotic therapy, drug-induced hypercalcaemia, clopidogrel for percutaneous coronary intervention, managing therapy by ciprofloxacin)</i></p>	2	2 hours	



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4.	Patient management approach <i>(Patient education and counselling, pharmacokinetics and therapeutic drug level monitoring, personalised medicine)</i>	2	2 hours	
5	Dermatological Disorder <i>Tinea Pedis, Tinea Cruris & Tinea Unguium</i>	2	2 hours	
6	Upper Respiratory Tract Infections <i>Acute Otitis Media (AOM)</i>	2	2 hours	
7	Upper Respiratory Tract Infections <i>Acute Pharyngitis</i>	2	2 hours	
8,9	Urinary Tract Infection <i>Upper UTI (Pyelonephritis), Lower UTI</i>	4	4 hours	
10	Peptic Ulcer Disease part 1 <i>Symptoms, diagnosis, and treatments</i>	2	2 hours	
11	Peptic Ulcer Disease part 2			



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	<i>Symptoms, diagnosis, and treatments.</i>			
12	Asthma <i>Symptoms, diagnosis, and treatments</i>	2	2 hours	
13,14	Thyroid Disorder <i>Symptoms, diagnosis, and treatments</i>	2	2 hours	
15	Theoretical exam			
	Practical topics			
Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Patient Presentation / Adverse Drug Reactions Reporting	2		1 hour
2.	Case study: Dermatological Disorder Tinea Pedis , Tinea Cruris & Tinea Unguim	2		1 hour
3.	Case study: Upper Respiratory Tract Infections Acute Otitis (Media (AOM	2		1 hour
4.	Case study: Upper Respiratory Tract Infections Acute (Pharyngitis)	2		1 hour



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5.	Case study: Urinary Tract (Infection (UTI	2		1 hour
6.	Case study: Peptic Ulcer Disease	2		1 hour
7.	Case study: Asthma	2		1 hour
8.	Mid-term Exam			
9.	Case study: Type-I Diabetes Mellitus	2		1 hour
10.	Case study: Type-II Diabetes Mellitus	2		1 hour
11,12	Case study: Thyroid Disorder (self-learning)	4		2 hours
13.	Case study: Revision	2		1 hour
14	Practical/ tutorial exam			---

5. Teaching and learning Methods:

	Teaching and Learning Methods	Week
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 	1-7, 9-14
2.	Self-learning	12



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3.	Practical session using tutorials	1-7, 9-13
4.	Class Activity: Group discussion offline or online.	12
5.	Problem – based learning and brainstorming	12
6.	Research assignments	12

6. Student Assessment:

a- Assessment methods

1-Written exam	1.1.1.1/ /1.1.4.1/2.4.3.1/2.4.3.2/2.4.3.3
2-Practical exam	3.2.2.1 /3.2.5.1/3.2.6.1/4.1.1.1/ 4.3.2.1
3-Oral	1.1.1.1/1.1.4.1/2.4.3.1/2.4.3.2/2.4.3.3/3.2.2.1/3.2.5.1/3.2.6.1/4.1.1.1/ 4.3.2.1
4-Periodical (Mid-term exam) / Course work	1.1.1.1/1.1.4.1/2.4.3.1/2.4.3.2/2.4.3.3

b- Assessment schedule

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

c- Weighting of assessments



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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.	Practical course notes prepared by the department staff	Course
2.	Clinical Pharmacy and Therapeutics by Roger Walker and Catherine Whittlesea. 6th Edition, 2018.	Book
3.	Stokley's drug interaction, 12th Ed, by Karen Baxter (2010)	Book
4.	Oxford Handbook of Clinical Pharmacy (Oxford Handbook) by Philip Wiffen, Marc Mitchell, Melanie	Book
5.	British National Formulary, 2019	Website
6.	http://www.ekb.eg www.pubmed.com	Website



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No	Topics	Week	Outcomes			
			Domains / Key elements			
			Domain1	Domain 2	Domain 3	Domain 4
1	Introduction of clinical pharmacy	1	1.1.1.1,1.1.4.1	2.4.3.1 2.4.3.3	3.2.2.1	4.1.1.1
2	Case history and patient history	2	1.1.1.1,1.1.4.1	2.4.3.3	3.2.2.1	4.1.1.1
3	Clinical problems solving	3	1.1.1.1,1.1.4.1	2.4.3.3	3.2.6.1	4.1.1.1
4	Patient management approach	4	1.1.1.1,1.1.4.1	2.4.3.2	3.2.2.1	4.1.1.1
5	Dermatological Disorder	5	1.1.1.1,1.1.4.1	2.4.3.2	3.2.2.1	4.1.1.1
6	Upper Respiratory Tract Infections part 1	6				
7	Upper Respiratory Tract Infections part 2	7	1.1.1.1,1.1.4.1	2.4.3.2	3.2.2.1	4.1.1.1
8,9	Urinary Tract Infection	8-9	1.1.1.1,1.1.4.1	2.4.3.2	3.2.2.1	4.1.1.1
10	Peptic Ulcer Disease part 1	10	1.1.1.1,1.1.4.1	2.4.3.2	3.2.2.1	4.1.1.1
11	Peptic Ulcer Disease part 2	11				
12	Asthma	12	1.1.1.1,1.1.4.1	2.4.3.2	3.2.2.1	4.1.1.1
13,14	Thyroid Disorder (self-learning)	13,14	1.1.1.1,1.1.4.1	2.4.3.2	3.2.2.1	4.1.1.1
	Practical topics	1-7,9-13		2.4.3.1 2.4.3.2 2.4.3.3	3.2.2.1 3.2.5.1 3.2.6.1	4.1.1.1 4.3.2.1



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Course Coordinator:	Dr. Moetaza Mahmoud Soliman <i>Moetaza Soliman</i>
Head of Department:	Prof. Dr. Mohamed Elhusseiny Elsebeey Shams <i>Mohamed El Shams</i>

Approved 7th September 2023

Level four

Industrial pharmacy (1

University: Mansoura
Faculty : Pharmacy
Department : Pharmaceutics
Course title: Industrial pharmacy-1

Program on which the course is given	B. Pharm
Academic Level	fourth Level, second semester
Date of course specification approval	20/9/2023

2- Basic Information : Course data :

Course title:	Industrial pharmacy-1	Code:	PT427
Specialization:	Pharmaceutical science		
Prerequisite:			
Teaching Hours:	Lecture: 2	Practical:	1
Number of units: (credit hours)	3		

2- Course Aims:

1. Mastering the principles of pharmaceutical engineering and manufacturing pharmacy.
2. Knowing the different unit operation and unit processes.
3. Be aware of the different important aspects of manufacturing pharmacy.
4. Understanding the different theories and principles of different unit operations.

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
1.1.7	1.1.7.1	List the basic principles of industrial pharmacy including various unit operations.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.2.3	2.2.3.1	Specify basic principles for the use of various equipment and machines for production of different pharmaceutical products, besides their numerous applications.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.2.2	4.2.2.1	Apply the principles of the possibility of artificial technology use whenever possible.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

3- Content:-

Week No	Topics	No.of hours	Lecture	Practical
1	Drying (Principle and theory)	2	1	----
2	Drying (Equipment)	2	1	----
3	Filtration (Introduction and operation)	2	1	----
4	Filtration (pressure driven filters)	2	1	----
5	Filtration (vacuum driven filters)	2	1	----
6	Filtration (gravity and centrifugation driven)	2	1	----
7.	Evaporation (Introduction and general principle)	2	1	----
8.	(Mid-term Exam)	----	-----	
9	Evaporation (Natural convection evaporators)	2	1	----
10	Evaporation (Forced circulation evaporators and film evaporators)	2	1	----
11	Crystallization (Introduction and general principle), self learning	2	1	----
12	Crystallization (Cooling crystallizers)	2	1	----
13	Crystallization (Evaporative crystallizers)	2	1	----
14	Heat transfer	2	1	----

15.	Revision	2	1	----
Practical topics				
1	Introduction	2	----	1
2	Determination of the diameter thickness.	2	----	1
3	Tablet hardness	2	----	1
4	Solving problems	2	----	1
5	Uniformity of weight of tablet	2	----	1
6	Uniformity of weight of capsules	2	----	1
7	Tablet friability	2	----	1
8	Week 8 Mid-term		----	1
9	Disintegration test for tablets	2	----	1
10	Problems	2	----	1
11	Dissolution test for tablet (Equipment)	2	----	1
12	Dissolution test for tablet (Equation and calculations)	2	----	1
13	Problems of dissolution	2	----	1
14	Revision	2	----	1
15	Practical Exam			
16-17	Final written & oral Exam			

4- Teaching and learning Methods:

4.1	Computer aided learning: e- On line learning through My Mans “Mansoura University” as recorded – video lectures. f- Inter active discussion through My Mans.	Week number
		1-14
4.2	Self-learning	10
4.3	Practical labs using white board, power point presentation and On line learning through My Mans “Mansoura University” as recorded – video Labs.	1-7&9-13
4.4	Class Activity	3-5

5- Student Assessment:

g- Assessment methods:

1-Written exam	1.1.7.1, 2.2.3.1
2-Practical exam	4.2.2.1, 4.3.2.1
3-Oral	1.1.7.1, 4.2.2.1, 4.3.2.1
4-Mid-Term	1.1.7.1, 4.2.2.1, 4.3.2.1

h- Assessment schedule

Assessment 1	Mid-term	8thweek
Assessment 2	Practical	15thweek
Assessment 3	Written	16th & 17thweek
Assessment 4	Oral	16th & 17thweek

i- Weighting of assessments

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



6 - List of References

N0.	Reference	Type
1	Unit Operations of Chemical Engineering. Warren L. McCabe, Julian C. Smith, Peter Harriott, 7th edition (2005).	Books
2	Chemical Engineering Design, Fourth Edition: Chemical Engineering Volume I (Coulson & Richardson's Chemical Engineering) (2009).	Books
3	Coulson and Richardson's Chemical Engineering, Volume 2, Fourth Edition: Particle Technology and Separation Processes (Chemical Engineering Technical Series)	Books
4	The theory and practice of industrial pharmacy 2nd Ed., Lea & Febiger, Philadelphia, (2002).	Books
5	The Theory and Practice of Industrial Pharmacy, Lachman, L., Indian (2009).	Books
6	Handbook of Pharmaceutical Manufacturing Formulations 2nd Ed., Sarfaraz K. Niazi (2009)	Books
7	Perry's Chemical Engineers' Handbook, Eighth Edition (Chemical Engineers Handbook), (2007)	Books
8	http://www.pharmaceutical technology.com http://www.sciencedirect.com http://www.pubmed.com http://www.google.com	Web sites

7- Matrix of knowledge and skills of the course

Study Week	Course contents	Domains				
		Domain 1	Domain 2		Domain 4	
		1.1.7.1	2.2.3.1		4.1.2.1	4.3.2.1
1	Drying (Principle and theory)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
2	Drying (Equipment)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
3	Filtration (Introduction and operation)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
4	Filtration (pressure driven filters)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
5	Filtration (vacuum driven filters)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
6	Filtration (gravity and centrifugation driven)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
7	Evaporation (Introduction and general principle)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

8	Evaporation (Natural convection evaporators) (Mid-term Exam)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Evaporation (Forced circulation evaporators and film evaporators)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Crystallization (Introduction and general principle)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Crystallization (Cooling crystallizers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Crystallization (Evaporative crystallizers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Heat transfer				
14	Revision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-14	Practical topics		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Course Coordinator	Dr / Elham Abdelmonem Elsaid Mohamed 
Head of department	Prof Dr/ Irhan Ibrahim Abu-Hashim 



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بكالوريوس الصيدلة (ساعات معتمدة – Credit hours)

Course Specification

Academic year: 2023/2024

Course name: Quality Control and pharmaceutical Analysis (PA426)	اسم المقرر : رقابة الجودة و التحليل الصيدلي
Academic Level: Fourth Level	المستوى الأكاديمي : الرابع
Scientific department: Pharmaceutical analytical chemistry	القسم العلمي : الكيمياء التحليلية الصيدلانية
Head of Department: Prof. Dr. Jenny Jehan Nasr	رئيس القسم : أ.د/ جيني جيهان نصر
Course Coordinator: Prof. Dr. Fathalla Fathalla Belal	منسق المقرر : أ.د/ فتح الله فتح الله بلال



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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	Bachelor's in pharmacy- Credit hours system
Academic Level	Level four, second semester
Date of course specification approval	10/09/2023

A. Basic Information: Course data:

Course Title	Quality Control and pharmaceutical Analysis
Course Code	PA 425
Prerequisite	Pharmaceutical Analytical Chemistry II
Teaching credit Hours: Lecture	2
: Practical	1
Total Credit Hours	3

B. Professional Information:

1 .Course Aims:

Give the principle and overall definition of quality control, chemical impurities, types and its control, sampling, documentation, recording procedures. Pharmacopoeias monographs, types of methods of analysis, assay tolerances, stability testing of pharmaceuticals (ICH Guidelines), stability indicating assay methods (SIAM), and validation of stability indicating assay and predicted stability.

2- Course k. 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	Recognize the principles of different analytical techniques for estimation of pharmaceutical compounds
1.1.2	1.1.2.1	List the different analytical techniques for drugs from synthetic and natural origin.
1.1.3	1.1.3.1	Handle and identify good manufacturing practice and assure quality control criteria in pharmaceutical industry
1.1.4	1.1.4.1	Explore therapeutic effectiveness and drugs mode of action
1.1.6	1.1.6.1	Investigate the different analytical methods used for analysis of pharmaceutical compounds using GLP guidelines and validation procedures.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Identify and qualify pharmaceutical materials and standardization principles
2.3.1	2.3.1.1	Handle and dispose hazardous chemicals, biological and pharmaceutical items and recognize the ethical guidelines for handling
2.3.2	2.3.2.1	Analysis and interpret quantitative analytical data according to GMP guidelines related to pharmaceutical industry
2.4.2	2.4.2.1	Implement quality control and quality assurance in addition to pharmaceutical applications
2.5.3	2.5.3.1	Integrate strategy for authorization according to national and international specification

Domain 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Interpret principles of medicinal chemistry and pharmacological aspects of drugs
3.2.6	3.2.6.1	Establish public awareness on safe handling of hazardous products and reduce environmental contamination

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	Share decision-making activities with other pharmacy team members
4.1.2	4.1.2.1	Apply calculations for chemical analysis
4.2.2	4.2.2.1	Use tools to present information clearly
4.3.1	4.3.1.1	Acquire the ability to employ self-evaluation strategies
4.3.2	4.3.2.1	Encourage critical thinking, problem solving and time management to promote the continuous professional development

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Introduction to quality control	2
2	Chemical Purity of drugs, Official Methods to QC	2
3	Sampling and documentation.	2
4	Pharmaceutical application of (Titrimetric and Electrochemical methods).	2
5	Pharmaceutical application of (Spectroscopic and Chromatographic methods)	2
6	Factors affecting drug stability and Stability testing of pharmaceuticals according to ICH conditions.	2
7	Stability indicating assay methods (SIAM)	2
8	Identification and characterization of degradation products of pharmaceutical compounds	2
9	Drug expiration and drug withdrawal.	2
10	Validation of analytical methods according to ICH Guidelines.	2
11	Validation of Analytical procedures -accuracy and precision	2
12	Application of validation parameters.	2
13	Drug -drug interaction	2
14	Drug- excipients interaction + self-learning	2
15	Revision and quiz	2



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16	Written and oral Exam	
Week No.	Practical topics	Practical credit hours
1.	Assay of Glacial Acetic acid	1
2.	Assay of Aspirin in Rivo®Tablets	1
3.	Assay of Zinc content in Octozinc® Capsules	1
4.	Assay of Magnesium content in Spasmag® Capsules	1
5.	Assay of iron in Pediatric Ferrous Oral Solution.	1
6.	Assay of Calcium content in Calcionate® Ampoules	1
7.	Assay of nicotinamide in Supraton H® capsules	1
8.	Periodical exam	-
9.	Assay of Naftazone in Raw Materials	1
10.	Assay of Hydroxocobalamin in Depovit B12® amp	1
11.	Limit test for detection of impurities in drug substances	1
12	Detection of degradation products in drug substances	1
13	Validation of Analytical procedures, problems	1
14	Validation of Analytical procedures, problems -accuracy and precision	1
15	Practical exam	

4- Teaching and learning Methods:

No.	Teaching and learning methods	Week
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none"> • On line learning through my mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans 	1-15
5.2	Self-learning	14
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-7, 9-14
5.4	Class Activity: Group discussion offline and online.	10,11



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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, 1.1.3.1, 1.1.6.1, 2.2.4.1, 4.3.2.1
2-Practical exam	1.1.1.1, 2.2.1.1, 2.2.2.1, 2.2.3.1, 2.2.4.1, 4.1.1.1, 4.1.2.1, 4.2.2.1, 4.3.1.1
3-Oral	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.6.1, 4.2.2.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.6.1, 4.3.2.1

b. Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	8 th week
Assessment 2	Practical examination and tutorial	15 th week
Assessment 3	Written exam	16 th -17 th week
Assessment 4	Oral exam	16 th -17 th week

c. Weighing of assessments

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

7- List of References

No	Reference	Type
1.	Practical course notes prepared by the department staff members	Course notes



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Faculty of Pharmacy
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2.	Theoretical course Notes “Quality Control of Drugs” prepared by staff members	Course notes
3.	Skoog, D. A. Holler, F. J. and Crouch, S.R. "Principles of Instrumental Analysis". 7th ed., Thomson, Belmont, USA (2016)	Book
4.	Christian, G.D. and O'Reilly, J.E., in "Instrumental Analysis" 6th Ed., Prentice Hall, New Jersey.(2013)	Book
5.	Daniel C. Harris. "Quantitative Chemical Analysis". 8th ed., W.H. Freeman and Company, New York, (2010)	Book
6.	Miller JC & Miller JN Statistics and Chemometrics for Analytical Chemistry, 6th edn. Pearson Education Limited: Harlow, England (2010).	Book
7.	Different pharmacopoeias: USP 2016; BP 2016 and EP 2016.	Book
8.	ICH Harmonized Tripartite Guideline, Validation of Analytical Procedures: Text and Methodology, Q2(R1), Current Step 4 Version, Parent Guidelines on Methodology Dated November 6, 1996, Incorporated in November 2005. at: http://www.ich.org/LOB/media/MEDIA417.pdf .	Website
9.	ICH Harmonized Tripartite Guidelines. Stability testing of new drug substances and products, Q1A (R2) (2003). Accessed 25 October 2010 at: http://www.ich.org/LOB/media/MEDIA419.pdf	Website
10	https://WWW.sciencedirect.com https://WWW.google scholar.com https://WWW.ekb.eg https://WWW.pubmed.com	Website



**Course Specification
2023- 2024
Credit hours Program
Faculty of Pharmacy
Mansoura University**

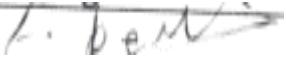



8	Identification and characterization of degradation products of pharmaceutical compounds			✓		✓								✓				✓	✓
9	Drug expiration and drug withdrawal.			✓		✓				✓			✓	✓			✓	✓	✓
10	Validation of analytical methods according to ICH Guidelines.	✓	✓		✓					✓				✓			✓		✓
11	Validation of Analytical procedures -accuracy and precision	✓	✓		✓					✓				✓			✓		✓
12	Application of validation parameters.	✓	✓		✓					✓				✓			✓		✓
13	Drug -drug interaction	✓	✓		✓					✓				✓			✓		✓
14	Drug- excipients interaction + self-learning	✓	✓		✓					✓				✓			✓		✓
15	Revision and quiz	✓	✓		✓					✓				✓			✓		✓



**Course Specification
2023- 2024
Credit hours Program
Faculty of Pharmacy
Mansoura University**



Course Coordinator	Prof. Dr. Fathalla Fathalla Belal
	
Head of Department	Prof. Dr. Jenny Jeehan Nasr
	

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Clinical pharmacy and pharmacy practice
Course title: Pharmacy Practice
Course code: PP427

Program on which the course is given	B. Pharm
Academic Level	Fourth Level, second semester, 2023-2024
Date of course specification approval	7 September, 2023

1. Basic Information: Course data:

Course title:	Pharmacy Practice	Code: PP427
Specialization:	Pharmaceutical sciences	
Prerequisite:		
Teaching Hours:	Lecture: 2	Practical: 2
Number of units: (credit hours)	3	

2. Course Aims:

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

2. Course learning outcomes:

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

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Differentiate between simple ailments and major diseases.

1.1.4	1.1.4.1	Outline the different pharmacological and non-pharmacological response options for minor ailment in the community pharmacy.
1.1.5	1.1.5.1	Design an individualized optimum therapeutic plan for management of minor illness using over the counter drugs.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.3	2.1.3.1	Identify patient cases that requires referral without dispensing OTC medicines.

DOMAIN 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.2.5	3.2.5.1	Practice professional patient counseling to optimize outcomes of pharmaceutical care plan
3.2.6	3.2.6.1	Promote public understanding of important vaccinations and self-monitoring of chronic diseases.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Share in decision making activities within the settings of community pharmacy
4.2.1	4.2.1.1	Practice clear communication with patients and health care team
4.3.2	4.3.2.1	Apply self-learning to improve professional skills

4- Course Contents

Week No.	Topics	Hours
1-2	Women's Health Cystitis, Premenstrual syndrome, Dysmenorrhoea, Menorrhagia <i>Etiology, Specific questions to ask the patient, Conditions to eliminate, trigger points indicative of referral, Evidence base for over-the-counter medications, Practical</i>	4

	<i>prescribing: Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding, practical points, and patient counselling tips.</i>	
3	Childhood Conditions Chickenpox, Infantile colic, napkin dermatitis, Head lice, Threadworm <i>Etiology, Specific questions to ask the patient, Conditions to eliminate, trigger points indicative of referral, Evidence base for over-the-counter medications, Practical prescribing: Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding, practical points, and patient counselling tips.</i>	2
4	Skin Conditions part 1 Acne, Psoriasis, Scabies <i>Etiology, Specific questions to ask the patient, Conditions to eliminate, trigger points indicative of referral, Evidence base for over-the-counter medications, Practical prescribing: Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding, practical points, and patient counselling tips.</i>	2
5	Skin Conditions part 2 Dandruff, Athlete's foot <i>Etiology, Specific questions to ask the patient, Conditions to eliminate, trigger points indicative of referral, Evidence base for over-the-counter medications, Practical prescribing: Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding, practical points, and patient counselling tips.</i>	2
6	OTC medications for respiratory diseases <ul style="list-style-type: none"> ● Common Cold & Flu, Sore Throats and Cough <i>Etiology, Specific questions to ask the patient, Conditions to eliminate, trigger points indicative of referral, Evidence base for over-the-counter medications, Practical prescribing: Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding, practical points, and patient counselling tips.</i>	2
7	Specific product recommendation Obesity Management <i>Practical prescribing and product selection, practical points, and patient counselling tips, Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding).</i>	2

8	<p>Specific product recommendation Smoking cessation- Motion sickness <i>Practical prescribing and product selection, practical points, and patient counselling tips, Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding).</i></p>	2
9-10	<p>OTC medications for gastrointestinal diseases Mouth ulcers, Heartburn, Indigestion Diarrhea, and constipation <i>Etiology, Specific questions to ask the patient, Conditions to eliminate, trigger points indicative of referral, Evidence base for over-the-counter medications, Practical prescribing: Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding, practical points, and patient counselling tips.</i></p>	4
11-12	<p>OTC medications for painful conditions Headache, Musculoskeletal problems <i>Etiology, Specific questions to ask the patient, Conditions to eliminate, trigger points indicative of referral, Evidence base for over-the-counter medications, Practical prescribing: Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding, practical points, and patient counselling tips</i></p>	4
13	<p>Eye and Ear Problems (self-learning) <i>Etiology, Specific questions to ask the patient, Conditions to eliminate, trigger points indicative of referral, Evidence base for over-the-counter medications, Practical prescribing: Summary of medicines (Use in children, very common side effects, Drug interactions of note, Patients in whom care is exercised, use in Pregnancy & breastfeeding, practical points, and patient counselling tips</i></p>	2
14	Revision	2
15	Final written and oral exam
Week No.	Practical topics	Hours
1-2	Case study: Women's Health	2
3	Case study: Childhood Conditions	1
4	Case study: Skin Conditions	1
5	<p>Case presentation:</p> <ul style="list-style-type: none"> ● Common cold & Flu ● Cough 	1
6	<p>Specific product recommendation</p> <ul style="list-style-type: none"> ● Obesity management 	1
7	Specific product recommendation	1

	<ul style="list-style-type: none"> ● Smoking cessation 	
8	Periodical (Mid-term exam)	
9-10	Case Presentation: <ul style="list-style-type: none"> ● GERD ● Indigestion ● Mouth Ulcers 	1
	Case Presentation: <ul style="list-style-type: none"> ● Constipation ● Diarrhea 	1
11	<ul style="list-style-type: none"> ● Hands on use of mobile applications for community pharmacist ● Guidance on monitoring of chronic diseases in the community pharmacy 	1
12	<ul style="list-style-type: none"> ● Pharmaceutical calculation for community pharmacist 	1
13	Group project presentation (selected topics)	1
14	Practical/tutorial exam

5- Teaching and Learning Methods:

	Teaching and Learning Methods	week
5.1	Computer aided learning: <ol style="list-style-type: none"> Lectures using Data show, power Point presentations 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 	1-14
5.2	Self-learning	13
5.3	Practical sessions using tutorials	1-7,9-13
5.4	Class Activity: Group discussion offline or online	12

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.1.1, 1.1.4.1, 1.1.5.1, 2.1.4.1, 3.2.5.1, 3.2.6.1
2-Practical exam	1.1.1.1, 1.1.4.1, 1.1.5.1, 2.1.4.1, 3.2.5.1, 3.2.6.1, 4.1.1.1, 4.2.1.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.4.1, 1.1.5.1, 2.1.4.1, 3.2.5.1, 3.2.6.1, 4.1.1.1, 4.2.1.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.4.1, 1.1.5.1, 2.1.4.1, 3.2.5.1

b- Assessment schedule

Assessment 1	Mid-term exam	8th week
Assessment 2	Practical examination and tutorial	14th week
Assessment 3	Written exam	From 15th week
Assessment 4	Oral exam	From 15th week

c- Weighing of assessments

1	Mid-term exam	10%
2	Practical examination and 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

	<ul style="list-style-type: none">●Hands on use of mobile applications for community pharmacist●Guidance on monitoring of chronic diseases in the community pharmacy●Pharmaceutical calculation for community pharmacist Group project presentation (selected topics) 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.	Symptoms in the pharmacy; a Guide to the Management of Common Illness edited by Alison Blenkinsopp, Paul Paxton, and John Blenkinsopp, 8 th edition, 2018	Essential Book
4.	<ul style="list-style-type: none"> • https://www.ekb.eg/. • https://go.wolterskluwer.com/lexicomp-drug-references-int-b.html?utm_source=google&utm_medium=cpc&utm_campaign=ALL_L_exicomp_INT_Brand&utm_content=001-ETA-Brand_Exact&utm_term=lexicomp&gclid=CjwKCAjwhuCKBhADEiwA1HegOa3V40mINyAwkxXqqD-MhuJqRWNSUDoi7AIREiUFqTghXadDjRSaGBoC2GcQAvD_BwE • https://accesspharmacy.mhmedical.com/ 	Websites

Course Coordinator	Dr. Moetaza Mahmoud Hassab
	<i>Moetaza Soliman</i>
Head of Department	Prof. Dr. Mohamed E. Shams
	<i>Mohamed Shams</i>

Date: 7 /9/2023



بكالوريوس الصيدلة (ساعات معتمدة – Credit hours)

Course Specification

Academic year: 2023/2024

Course Name: Medicinal Chemistry-2	اسم المقرر : كيمياء دوائية-2
Academic Level: level 4	الرابع المستوى الأكاديمي :
Scientific Department: Medicinal Chemistry	القسم العلمي : الكيمياء الدوائية
Head of Department: Prof. Dr. Mohamed Ahmed Moustafa	رئيس القسم : أ.د/ محمد أحمد مصطفى
Course Coordinator: Prof. Ali A. El-Emam	منسق المقرر : علي عبد الرحمن الامام أ.د.

University	Mansoura
Faculty	Pharmacy
Department offering the course	Medicinal Chemistry
Department supervising the course	Medicinal Chemistry
Program on which the course is given	Bachelor in Pharmacy- Credit hours
Academic Level	Level 4, Second Semester, 2023/2024
Date of course specification approval	6/9/2023

A. Basic Information: Course data:

Course Title	Medicinal Chemistry-2
Course Code	PD 422
Prerequisite	Pharmaceutical Organic Chemistry III
Teaching Credit Hours: Lecture	3
: Practical	1
Total Credit Hours	4

B. Professional Information:

1. Course Aims:

This course enables the students to:

- Review the action of drug members on the central nervous system, hormones and related drugs, prostaglandins, analgesics, antihistaminics, and gastrointestinal drugs.
- Comprehend the relationship between the chemical structure of these drugs and their physicochemical properties, pharmacokinetics, biological activity, together with their mode of action.

2- Course Key Elements:

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

Domain 1- Fundamental Knowledge

Program K. Element No.	Course K. Element No.	Course K. Element
1.1.1	1.1.1.1	Understand in-depth and breadth knowledge of medicinal chemistry course as one of the applied pharmaceutical sciences of the program.
1.1.2	1.1.2.1	Apply proper pharmaceutical and medical terminology including abbreviation and symbols used in pharmacy profession.
	1.1.2.2	Identify international non-proprietary names (generic names) of drugs.
1.1.4	1.1.4.1	Articulate different properties of drugs, including molecular mechanism of action, clinical uses, drug interactions, contra-indications, adverse drug reactions (ADRs) and structure-activity relationship (SAR).
1.1.7	1.1.7.1	Manipulate knowledge gained in medicinal chemistry to provide information about drug production and proper use of drugs.

Domain 2: Professional and Ethical Practice

Program K. Element No.	Course K. Element No.	Course K. Element
2.5.3	2.5.3.1	Adapt concepts of medicinal chemistry used in the systematic approach applied in drug development.

Domain 3: Pharmaceutical Care

Program K. Element No.	Course K. Element No.	Course K. Element
3.2.1	3.2.1.1	Adapt principles of medicinal chemistry and pharmacological aspects of drugs, as mode of action, therapeutic uses, proper dosage, unwanted effects and drug interactions.
3.2.5	3.2.5.1	Apply medicinal chemistry aspects of drugs to support the patients, and community in making informed decisions about their care plan including OTC preparations.

Domain 4: Personal Practice:

Program K. Element No.	Course K. Element No.	Course K. Element
4.1.2	4.1.2.1	Appraise information, analyze data, identify problems and present solutions depending on medicinal chemistry aspects.
	4.1.2.2	Participate collaboratively and independently as drug chemistry expert within healthcare team.
4.2.1	4.2.1.1	Communicate effectively in a proper scientific language by verbal and written means in the field of health care regarding the studied topics.
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development and life-long learning.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Oral Hypoglycemics + Antithyroids	3
2	Introduction to steroidal hormones + Male Sex Hormones	3
3	Adrenocorticosteroids	3
4	Female Sex Hormones	3
5	Anti-Histaminics (H ₁ & H ₂) and Proton Pump Inhibitors	3
6	Narcotic analgesics	3
7	Narcotic analgesics (Part 2)	3
8	Non-Steroidal Anti-Inflammatory Drugs	3
9	CNS depressants: Sedative	3
10	CNS depressants: Hypnotics	3
11	Antipsychotics and anxiolytics	3
12	Treatments for Alzheimer and Parkinson's Diseases	3
13	Prostaglandins	3
14	Disease modifying drugs (Self-learning).	3
16	Final Written and Oral Exam	-
Week No.	Practical topics	Practical credit hours

1.	Chem 3D: (Introduction).	1
2.	Chem 3D: (Display mode- Measurements- Overlay).	1
3.	Chem 3D: (Energy minimization- Color by charge- Invert stereochemistry).	1
4.	Chem 3D: (Dihedral chart- Deviation from the plane).	1
5.	Chem 3D Application	1
6.	Chem-draw Evaluation	1
7.	Case Study (CNS)	1
8.	Mid-term exam	-
9.	Case Study (Analgesics)	1
10.	Case Study (Analgesics), part 2	1
11	Case Study (Oral Hypoglycemics)	1
12	Case Study (Oral Hypoglycemics), part 2	1
13	Case Study (Male and Female Sex Hormones)	1
14	Case Study (Male and Female Sex Hormones), part 2	1
15	Practical exam	-

4- Teaching and learning Methods:

No.	Teaching and learning Methods	Week No.
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 	1-7 and 9-14
4.2	Self-learning	14
4.3	Practical session using computer software (Chem 3D) and tutorials	1-7
4.4	Class Activity: Group discussion offline and online.	1-7 and 9-14
4.5	Problem – based learning and brainstorming	1-7 and 9-14
4.6	Research assignments	14

5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.2.1, 1.1.2.2, 1.1.4.1, 1.1.7.1, 2.5.3.1, 3.2.1.1, 4.1.2.1, 4.3.2.1
2-Practical exam	1.1.1.1, 1.1.2.1, 1.1.2.2, 1.1.4.1, 1.1.7.1, 2.5.3.1, 3.2.1.1, 3.2.5.1, 4.1.2.1, 4.1.2.2
3-Oral	1.1.1.1, 1.1.1.2, 1.1.2.1, 1.1.2.2, 1.1.4.1, 2.5.3.1, 3.2.1.1, 3.2.5.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
4- Periodical exam	1.1.1.1, 1.1.1.2, 1.1.2.1, 1.1.2.2, 4.1.2.1

b. Assessment schedule

Assessment 1	Periodical exam	8 th week
Assessment 2	Practical examination and tutorial	15 th week
Assessment 3	Written exam	16 th week
Assessment 4	Oral exam	16 th -week

c. Weighing of assessments

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

6-

Facilities required for teaching and learning

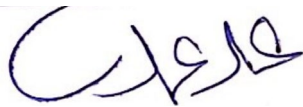

-Class room	Data show- Computers, Internet. (Available)
- Laboratory facilities	Computer software (Chem 3D) and white board. (Available)

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

Week No.	Course contents / K. elements	Domain 1					Domain 2	Domain 3		Domain 4			
		1.1.1.1	1.1.2.1	1.1.2.2	1.1.4.1	1.1.7.1	2.5.3.1	3.2.1.1	3.2.5.1	4.1.2.1	4.1.2.2	4.2.1.1	4.3.2.1
1	Oral Hypoglycemics + Antithyroids	✓	✓	✓	✓		✓	✓	✓	✓		✓	
2,3,4	Introduction to steroidal hormones + Male Sex Hormones + Adrenocorticoids + Female Sex Hormones.	✓	✓	✓	✓			✓		✓		✓	
5,6,7,8	Anti-Histaminics (H ₁ & H ₂) and Proton Pump Inhibitors + Narcotic analgesics + Non-Steroidal Anti-Inflammatory Drugs		✓	✓	✓	✓	✓	✓	✓	✓		✓	
9, 10	CNS depressants: Sedative and Hypnotics	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
11	Antipsychotics and anxiolytics	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
12	Treatments for Alzheimer and Parkinson's Diseases.	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
13, 14	Prostaglandins, Disease modifying drugs (Self-learning).				✓	✓	✓	✓	✓	✓		✓	✓

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.	"Foye's Principles of Medicinal Chemistry", 8th edition, (David A. Williams, Thomas L. Lemke & William O. Foye, Editors), Lippincott Williams & Wilkins, 2017	Book
4.	"Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry" 12th Edition, (J. H. Block and J. M. Beale Jr, Editors), Lippincott Williams & Wilkins, Philadelphia, PA, 2011	Book
5.	Graham L. Patrick; "An Introduction to Medicinal Chemistry" Oxford University Press, USA; 6th Revised edition, 2017	Book
6.	Thomas, Gareth, "Fundamentals of Medicinal Chemistry" Wiley-Blackwell; Kindle Edition (2013).	Book
7.	http://www.sciencedirect.com/ http://www.google.com/ http://www.pubmed.com	websites

Course Coordinator	Prof. Ali A. El-Emam
	
Head of Department	Prof. Dr. Mohamed Ahmed Moustafa
	

Date: 6/9/2023



Mansoura University
Faculty of Pharmacy
Quality Assurance Unit
Course Specification
Credit Hours Program
2023- 2024



بكالوريوس الصيدلة

Course Specification

Academic year: 2023/2024

Course name: Nutrition	اسم المقرر : علم التغذية
Academic Level: 4	المستوى الأكاديمي :الرابع
Scientific department: Biochemistry	القسم العلمي : الكيمياء الحيوية
Head of Department: Dr. Noha M.H. Abdel- Rahman	رئيس القسم : د/ نهى منصور حسن عبدالرحمن
Course Coordinator: Prof. Dr. Amal Elgayar	منسق المقرر : أ.د/ امال الجيار



Mansoura University
Faculty of Pharmacy
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Course Specification
Credit Hours Program
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University	Mansoura
Faculty	Pharmacy
Department offering the course	Biochemistry
Department supervising the course	Biochemistry
Program on which the course is given	Bachelor in Pharmacy
Academic Level	fourth level, Second semester, 2023-2024
Date of course specification approval	16/9/2023

A. Basic Information: Course data:

Course Title	Clinical nutrition
Course Code	PB-423
Prerequisite	Registration
Teaching credit Hours: Lecture	1
: Practical	-
Total Credit Hours	1(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.
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



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devices.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Gather information and analyze data, point out problems and present solutions, participate independently and collaboratively with other team members in the healthcare system.
4.2.1	4.2.1.1	Make use of clear language, pace, tone and non-verbal communication and writing skills when dealing with patients, other health team and communities.
4.2.2	4.2.2.1	Employ advanced technologies and channels whenever possible to present relevant information.
4.3.1	4.3.1.1	Conduct self-evaluation strategies to manage and improve professional of pharmacy.
4.3.2	4.3.2.1	Encourage continuous professional development by practicing self and independent learning.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Food, nutrition and health.	1
2	Classes of nutrients: carbohydrates, lipids and protein.	1
3	Vitamins and water, food energy and energy balance.	1
4	Main nutritional disorders.	1
5	Food allergy.	1
6	Measurements of energy requirements and RDA.	1
7	Drug-food interactions.	1
8	Nutrients requirements for adults.	1
9,10	Nutrients requirements for infancy and childhood.	2
11	Nutrients requirements for pregnancy.	1
12	Nutrients requirements for obesity.	1
13	Nutrients requirements for diabetes.	1



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14	Nutrients requirements for underweight.	1
15	Revision /quiz	1
16	Final written and oral exam	-

4- Teaching and learning Methods:

No	Teaching and learning Methods	Week
4.1	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 	1-15
4.2	Self-learning	13
4.3	Class Activity: Group discussion offline and online.	8
4.4	Problem – based learning and brainstorming	8
4.5	Research assignments	12

5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 1.1.6.1, 2.1.2.1, 2.4.3.1, 2.5.2.1
2-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
3- Periodical (Mid-term exam)	1.1.1.1, 1.1.6.1, 2.5.2.1, 4.1.1.1, 4.3.2.1

b. Assessment schedule

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

c. Weighing of assessments

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



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Total

100%

6- Facilities required for teaching and learning

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



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

Week No.	Course contents / K. elements	Domain1					Domain2			Domain3		Domain4				
		1.1. 1.1	1.1. 2.1	1.1. 4.1	1.1. 5.1	1.1. 6.1	2.1. 2.1	2.4. 3.1	2.5. 2.1	3.1. 1.1	3.2. 2.1	4.1. 2.1	4.2. 1.1	4.2. 2.1	4.3. 1.1	4.3. 2.1
1	Food, nutrition and health.	√						√		√						
2	Classes of nutrients: carbohydrates, lipids and protein.	√		√		√	√		√	√	√					
3,4,5	Vitamins and water, food energy and energy balance. Main nutritional disorders. Food allergy.	√	√		√	√				√		√	√	√		
6	Measurements of energy requirements and RDA.	√			√	√				√		√		√		
7	Drug-food interactions.	√	√		√	√	√	√	√	√	√	√	√	√		
8	Nutrients requirements for adults.	√	√	√	√				√	√			√	√		
9,10	Nutrients requirements for infancy and childhood.	√	√		√	√	√						√	√		
11	Nutrients requirements for pregnancy.	√	√			√						√	√		√	√



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12,13	Nutrients requirements for obesity. and diabetes		√		√	√		√	√		√	√		√	√	√	√
14	Nutrients requirements for underweight.		√		√			√		√	√		√				√

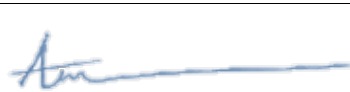



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8- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by staff members	Videos on platform
3.	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. Amal Elgayar
	
Head of Department	Dr. Noha M.H. Abdel- Rahman
	

Date: 16 /9/2023

University: Mansoura
Faculty : Pharmacy
Department : Pharmacology and Toxicology
Course title: Therapeutics

Program on which the course is given	B. Pharm
Academic Level	Level Four
Date of course specification approval	September 2023

A. Basic Information: Course data:

Course title:	Therapeutics	Code:	PH429
Specialization:	Medical		
Prerequisite:	Pharmacology 1		
Teaching Hours:	Lecture: 2	Practical:	1
Number of units: (credit hours)	3		

B. Professional Information:

1. Course Aims:

On completion of the course, the student will be able to describe treatment approach to various diseases, describe possible non-pharmacologic treatment, describe pharmacologic treatment options according to recent guidelines, select proper management for special population and describe appropriate monitoring for effectiveness and managing drug side effects

2- Course k. elements:

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

Domain 1- Fundamental Knowledge

(1.1.5)	1.1.5.1	Identify information from fundamental sciences to solve therapeutic problems.
	1.1.5.2	Retrieve health informatics to improve the quality of health and nutritional care, manage resources and optimize patient safety and understand metabolic disorders.
(1.1.7)	1.1.7.1	Use and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.

Domain 2: Professional and Ethical Practice

(2.4.3)	2.4.3.1	Recognize and solve any identified medicine-related and pharmaceutical care problems.
	2.4.3.2	Take appropriate action when signs, symptoms and risk factors that relate to medical or health problems that fall into the scope of practice of other health professionals are encountered.

Domain 3: Pharmaceutical Care

(3.2.1)	3.2.1.1	Apply the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contraindications, adverse drug reactions and drug interactions.
(3.2.2)	3.2.2.1	Utilize the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices
(3.2.5)	3.2.5.1	Manipulate 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:

(4.3.1)	4.3.1.1	Develop actual plans to manage and improve self-practice of pharmacy.
(4.3.2)	4.3.2.1	Adopt ethics of continuing professional development including assessing own learning needs and developing a plan to meet these needs.

3- Contents:-

Week No	Topics	No. of hours	Lecture (hr.)	Practical
1	Pharmacotherapy of cardiovascular system; Hypertension & Hypotension	2	2	
2	Pharmacotherapy of cardiovascular system; heart failure	2	2	
3	Pharmacotherapy of renal disorder	2	2	
4	Pharmacotherapy of renal disorder	2	2	
5	Pharmacotherapy of renal disorder	2	2	
6	Pharmacotherapy of renal disorder	2	2	
7-8	Pharmacotherapy of Central nervous system; Multiple sclerosis & MDD	4	4	
9-10	Pharmacotherapy of Central nervous system; sleep disorder	4	4	
11	Pharmacotherapy of Woman health; PCOS, menopause Contraception, Contraception & Pregnancy complications	2	2	

12	Pharmacotherapy of cardiovascular system; heart failure	2	2	
13-14	Pharmacotherapy of blood disorder; anemia	4	4	
15	Revision and quiz	2	2	
16	Final written & oral	-	-	-
Practical topics				
1-2	Hypertension case study	4		2
3-4	Stroke case study	4		2
5	HTN crisis case study	2		1
6	Hepatology case study	2		1
7	Renal disorder case study	2		1
8	Mid Term exam			
9	PCOS case study	2		1
10	Renal disorder case study	2		1
11	MDD case study	2		1
12-13	Menopause & Contraception case study	4		2
14	Pain management case study	2		1
15	Practical exam			

4- 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"> • On line learning through my mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans
4.2	Self-learning
4.3	Practical session using chemicals and laboratory equipment and/ or tutorials
4.4	Class Activity: Group discussion offline and online.
4.5	Tutorial / Interactive Sessions
4.6	Class Activity Discussion / Brain storming
4.7	Case study

5- Student Assessment:

a- Assessment methods:

1	Written exam	1.1.5.1, 1.1.5.2, 1.1.7.1, 2.4.3.1, 2.4.3.2
2	Practical exam	1.1.5.1, 1.1.5.2, 1.1.7.1, 2.4.3.1, 2.4.3.2, 3.2.1.1, 3.2.2.1, 3.2.5.1,
3	Oral	1.1.5.1, 1.1.5.2, 1.1.7.1, 2.4.3.1, 2.4.3.2, 4.3.1.1, 4.3.2.1
4	Practical quiz Case studies	3.2.1.1, 3.2.2.1, 3.2.5.1, 4.3.1.1, 4.3.2.1

	failure											
3	Pharmacotherapy of renal disorder	√	√	√		√	√	√	√		√	√
4	Pharmacotherapy of renal disorder	√	√	√		√	√	√	√		√	√
5	Pharmacotherapy of renal disorder	√	√	√		√	√	√	√		√	√
6	Pharmacotherapy of renal disorder	√	√	√		√	√	√	√		√	√
7-8	Pharmacotherapy of Central nervous system; Multiple sclerosis & MDD	√	√	√		√	√	√	√		√	√
9-10	Pharmacotherapy of Central nervous system; sleep disorder	√	√	√		√	√	√	√		√	√
11	Pharmacotherapy of Woman health; PCOS, menopause Contraception, Contraception & Pregnancy complications	√	√	√		√	√	√	√		√	√
12	Pharmacotherapy of cardiovascular system; heart failure	√	√	√		√	√	√	√		√	√
13-14	Pharmacotherapy of blood disorder; anemia	√	√	√		√	√	√	√		√	√
15	Revision and quiz	√	√	√		√	√	√	√		√	√

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

Approval September 2023



Fourth Level

Course Specification Cosmetic Preparations

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutics
Course title: **Cosmetic Preparations**
Course code: PT E02

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

1. Basic Information: Course data:

Course title:	Cosmetic Preparations	Code: PT E02
Specialization:	Pharmaceutical Sciences	
Prerequisite:		
Teaching Hours:	Lecture: 2	Practical: --
Number of units: (credit hours)	2	

2. 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 cosmetic preparations.

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 using different bases.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.2.2	2.2.2.1	Organize the basic concepts involved in the formulation and manufacture of cosmetic products.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.2.1.1	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. Contents:

Week No	Topics	No. of hours	Lecture credit hours
1.	Definition of cosmetics, types of cosmetics. Skin care products.	2	1
2.	Dentifrices.	2	1
3.	Shampoos.	2	1
4.	Anti-dandruff preparations and Cleansers	2	1
5.	Hair dyes	2	1
6.	Sunscreen preparations	2	1
7.	Tanning	2	1
8.	(Mid-term Exam)	2	1
9.	Lip sticks	2	1
10.	Nail lacquers	2	1
11	Antiperspirant and deodorant.	2	1
12.	Eye make-up, (Self learning).	2	1
13.	Fragrance preparations, (Self learning).	2	1
14.	Moisturizers.	2	1
15.	Revision	2	1
16-17	Written & Oral Exam		

5. Teaching and learning Methods:

5.1	Computer aided learning: c- On line learning through My Mans “Mansoura University” as recorded – video lectures. d- Inter active discussion through My Mans.	Week number
		1-15
5.2	Self-learning	11-12
5.3	Class Activity	3-5

6. Student Assessment:

d- Assessment methods

1-Written exam	1.1.1.1/2.2.2.1
3-Oral	1.1.1.1/2.2.2.1/4.2.1.1/4.3.2.1
4-Mid-Term	1.1.1.1/2.2.2.1/4.2.1.1/4.3.2.1

e- Assessment schedule

Assessment 1	Mid-term	8th week
Assessment 2	Oral	16th-17th week
Assessment 3	Written	16th-17th week

f- Weighting of assessments

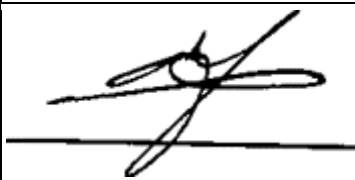
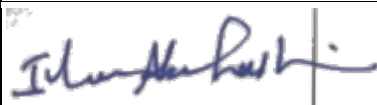
1.	Mid-term examination	10 %
2.	Final-term examination	75 %
3.	Oral examination	15 %
Total		100 %

7. List of References

N0.	Reference	type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by staff members	Videos on platform
3.	Handbook of cosmetic science and technology, the theory and practice of cosmeceuticals by Patel Hardik k. Suthar Rajnikant M. Patel Meghana H, Paperback, 2015.	Book
4.	Handbook of cosmetic science and technology, the theory and practice of cosmeceuticals by patel Hardik k.Suthar Rajnikant M . Patel Meghana H , Paperback ,2015.	Book
5.	Cosmetic Formulation: Principles and Practice- 1 st edition by Healther A.E. Benson, Michael Roberts, CRC Press, June 2021.	Book
6.	http://www.sciencedirect.com http://www.google.com http://www.pubmed.com https://www.ekb.eg/web/guest/home www.pharmacy.wsu.edu/courses/ http://www.fda.gov/downloads/RegulatoryInformation/Guidances/ucm128204	Websites

8. Matrix of knowledge and skills of the course

Study Week	Course contents						
		1.1.1.1		2.2.2.1		4.2.1.1	4.3.2.1
1	Definition of cosmetics, types of cosmetics. Skin care products.	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
2	Dentifrices.	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
3	Shampoos.	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
4	Anti-dandruff preparations and Cleansers	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
5	Hair dyes	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
6	Sunscreen preparations	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
7	Tanning	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
8	Lip sticks	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
9	Nail lacquers	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
10	Antiperspirant and deodorant.	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
11	Eye make-up (Self learning)	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
12	Fragrance preparations, (Self learning)	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
13	Moisturizers.	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
14	Revision	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

Course Coordinator:	Prof .Dr. Yosry Elsaïd Ebrahim
	
Head of Department:	Prof. Dr. Irhan Ibrahim Abu Hashim
	

Date: 20/ 9/ 2023