Level 1

Semester (1)

Course code	Course Title
PG 111	Medical Botany
PA 111	Physical Chemistry
PO 111	Pharmaceutical Organic Chemistry (1)
PT 111	Pharmacy orientation
PP 111	Medical Terminology

Semester (2)

Course code	Course Title
PG 122	Pharmacognosy (1)
PT 122	Physical Pharmacy
PA 122	Inorganic Chemistry
PO 122	Pharmaceutical Organic Chemistry (2)
MH 121	Histology & Anatomy

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

المستوى الأول

Medical Botany توصيف مقرر

University: Mansoura University (MU)
Faculty : Pharmacy
Department: Pharmacognosy
Course title: Medical Botany
Course code: **PG 111**

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

1- Basic Information : Course data :

Course title:	Medicinal Botany	**Code:** PG 111	
Specialization:	**pharmaceutical sciences**		
Prerequisite: Registration			
Teaching Hours:	**Lecture: 1**	**Practical: 1**	
Number of units: (credit hours)	**2**		

2- Course Aims:

On completion of the course, the student will learn the basic knowledge in the field of botany, use the microscope, describe the plant cell with its components and tissues, study plant classification (taxonomy) and prepare the students for future study in the field of pharmacognosy.

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	Clarify the principles of plant anatomy, plant primary metabolites, plant secondary metabolites, plant physiology and taxonomy.
1.1.3	1.1.3.1	Outline the principles of fundamental plant botany, and the concepts of pharmacognosy to handle and identify natural drugs in pharmaceuticals.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Utilize the appropriate microscopic and taxonomical features to identify and standardize natural drugs.
2.3.1	2.3.1.1	Handling and identification of natural drugs.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Share decision-making activities with other team members and apply effective time management skills.
4.2.1	4.2.1.1	Communicate effectively in a scientific language by verbal and written means.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills.

4- Contents :-

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

1.	Introduction to anatomy-plant cell	1	1	
2.	Plant tissues	1	1	
3.	meristems	1	1	
4.	dermal tissue	1	1	
5	Ground tissue	1	1	
6	Conducting tissue	1	1	
7	Secretory system	1	1	
8	Anatomy of the root	1	1	
9	Anatomy of the stem	1	1	
10	Anatomy of the leaf	1	1	
11	The secondary plant body	1	1	
12	General Taxonomy	1	1	
13	plant families	1	1	
14	Revision & Quiz	1	1	
15	**Week 15 Final written & oral**			
	Practical topics			
1	Introduction, Plant cell structure	2		1
2	Examination of Onion cell	2		1
3	Ergastic cell content starch, vol.& fixed oils, proteins	2		1
4	Ca ox & Carbonate	2		1
5	Dermal tissue (stomata)	2		1
6	Dermal tissue appendages (Trichomes)	2		1
7	Ground tissue	2		1
8	**Week 8 Mid-term**			
9	Conducting tissue	2		1
10	Anatomy of stem	2		1
11	Anatomy of root	2		1
12	Anatomy of leaf	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
Assessment 3	Oral exam	15thweek
Assessment 4	Written exam	15thweek

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

N0.	Reference	type
1	A Textbook of Plant Anatomy Pratibha Saxena and Susheela M. Das, Wisdom Press, 2012, v, 338	**Book**
2	Anatomy of Flowering Plants An Introduction to Structure and Development 3rd Edition AUTHOR: Paula J. Rudall, Royal Botanic Gardens, KewDATE PUBLISHED: March 2017	**Book**
3	Plant Anatomy by James D. Mauseth (Author) Publisher: The Blackburn Press (June 1, 2018)	**Book**
4	Plant Anatomy, Morphology and Physiology by Clive Koelling (Editor) Publisher: Syrawood Publishing House (May 30, 2016)	**Book**

8- Matrix of knowledge and skills of the course

Course contents	Study Week	Course Key Elements						
		Domain: 1		Domain: 2		Domain: 4		
		1.1.1.1	1.1.3.1	2.2.1.1	2.3.1.1	4.1.1.1	4.2.1.1	4.3.2.1
Introduction to anatomy- plant cell	1.	√	√	√				
Plant tissues	2.	√	√	√				
meristems	3.	√	√	√		√		
dermal tissue	4.	√	√	√	√	√		
Ground tissue	5.	√	√	√	√	√	√	√
Conducting tissue	6.	√	√	√	√			√
Secretory system	7.	√	√	√	√			
Anatomy of the root	8	√	√		√			√
Anatomy of the stem	9	√	√		√		√	
Anatomy of the leaf	10	√	√	√	√		√	

The secondary plant body	11	√	√	√	√	√	√	√
General Taxonomy	12	√	√	√		√	√	√
plant families	13	√	√	√		√	√	√
Revision & Quiz	14	√	√	√		√	√	√

Course Coordinator :	**Prof. Dr. Ahmed Gohar**
Head of Department	**Prof. Mahmoud Fahmi Elsebai**

المستوى الاول

توصيف مقرر Physical Chemistry

University: Mansoura

Faculty : Pharmacy

Department : Pharm. Anal. Chemistry

Course title: Physical Chemistry

Program on which the course is given	B. Pharm
Academic Level	First Level, semester one
Date of course specification approval	10/09/2023

1- Basic Information: Course data :

Course title:	Physical Chemistry	**Code:**	PA111
Specialization:	**pharmaceutical**		
Prerequisite:		Registration	
Teaching Hours:	**Lecture:1**	**Practical:**	0
Number of units: **(credit hours)**	**1**		

2- Course Aims:

Demonstrate the basic concepts of physical chemistry regarding some topics such as: the rate of reaction, kinetics of chemical reactions, thermochemistry, electrochemistry and photochemistry

3. Course k. elements:

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

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Recognize the basic principles of chemical kinetics, photochemistry, chemical equilibrium, and chemical reactions.
1.1.3	1.1.3.1	Combine the principles of fundamental sciences to handle and identify chemical compounds.

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 inorganic salts using specific chemical tests.
2.2.3	2.2.3.1	Handle and dispose hazardous chemical compounds.
2.2.4	2.2.4.1	Implement calculations to assess the chemical kinetics of pharmaceutical compounds and calculate the expiry date of such compounds for assessing their stability.
2.3.1	2.3.1.1	Apply proper handling and disposal of chemical compounds.
2.3.2	2.3.2.1	Choose best practices and adhere to high ethical and safety standards for management of chemical compounds.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Apply suitable 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.

4- Contents :-

Week No	Topics	No. of hours	Lecture	Practical
1	Chemical kinetics: The rate of reaction.	2	2	-
2	Chemical kinetics: order of reaction.	2	2	
3	Chemical kinetics: zero order reactions	2	2	-
4	Chemical kinetics: first order reactions.	2	2	-
5	Chemical kinetics: second order reactions.	2	2	-
6	Chemical kinetics: Effect of temperature on reaction rate.	2	2	
7	Chemical kinetics: molecularity of reaction	2	2	
8	Photochemistry: Photochemical and thermal reactions	2	2	
9	Photochemistry: laws of photochemistry	2	2	
10	Photochemistry: photo physical processes	2	2	
11	Thermochemistry: Specific heat capacity	2	2	
12	Thermochemistry: Enthalpy	2	2	
13	Thermochemistry: Thermodynamics	2	2	
14	Revision and Quiz	2	2	
15	**Week 15 Final written & oral**	-	-	-

5- Teaching and learning Methods :

4.1	Lectures using white board and data show.

6- Student Assessment:

a- Assessment methods:

1-Written exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1
2-Oral	4.1.2.1, 1.1.1.1, 1.1.3.1
3-Periodical	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1

b- Assessment schedule

Assessment 2	Periodical	8thweek
Assessment 3	Oral	15thweek
Assessment 4	Written	15thweek

c- Weighting of assessments

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

7 - List of References

N0.	Reference	type

1	Lectures notes prepared by staff members	Course notes
2	Raymond Chang, Editor, "Physical Chemistry for the Biosciences" Sausalito, California (2005).	Book
3	Essentials of Physical Chemistry, ArunBahl,B.S. Bahl,G.D. Tuli, New Delhi 110055, India (2014)	Book

8- Matrix of knowledge and skills of the course

Course contents	Study Week	Course Key Elements										
		Domain: 1		Domain: 2					Domain: 4			
		1.1.1.1	1.1.3.1	2.2.1.1	2.2.3.1	2.2.4.1	2.3.1.1	2.3.2.1	4.1.2.1	4.2.2.1	4.3.1.1	4.3.2.1
Chemical kinetics: The rate of reaction.	1	√	√	√	√	√	√	√	√	√		
Chemical kinetics: order of reaction.	2	√	√	√	√	√	√	√	√	√		
Chemical kinetics: zero order reactions	3	√	√	√	√	√	√	√	√	√		
Chemical kinetics: first order reactions.	4	√	√	√					√	√	√	√
Chemical kinetics: second order reactions.	5	√	√	√					√	√	√	√
Chemical kinetics: Effect of temperature	6	√	√	√					√	√	√	√

on reaction rate.												
Chemical kinetics: molecularity of reaction	7	√			√				√	√	√	√
Photochemistry: Photochemical and thermal reactions	8	√			√				√	√	√	√
Photochemistry: laws of photochemistry	9	√			√				√	√	√	√
Photochemistry: photo physical processes	10	√			√				√	√	√	√
Thermochemistry: Specific heat capacity	11	√			√				√	√	√	√
Thermochemistry: Enthalpy	12		√		√				√		√	√
Thermochemistry: Thermodynamics	13		√			√	√	√		√	√	√
Revision and Quiz	14											

Course Coordinator:	Prof. Dr. Manal Eid
	M. Eid

Head of department	**Prof. Jenny Jeehan Nasr**
	

First Level

Course Specification
Pharmaceutical Organic Chemistry 1

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutical Organic Chemistry
Course title: Pharmaceutical Organic Chemistry 1
Course code: PO111

Program on which the course is given	Pharmaceutical Science
Academic Level	First Level, First semester,
Date of course specification	20/9/2023

1. Basic Information: Course data:

Course title:	**Pharmaceutical organic Chemistry 1**	**Code: PO111**
Specialization:	**Pharmaceutical organic Chemistry**	
Prerequisite:	---------	
Teaching Hours:	**Lecture: 2**	**Practical: 1**
Number of units: (credit hours)	**3**	

2. Course Aims:

2.1. Gain an understanding of the basic principles of atomic structures.
2.2. Have a good idea the stereochemistry of the chiral organic compounds
2.3. Enable the student to understand the basics of the chemical reactions.
2.4. Recognize the chemical properties of organic compounds.

3- Course k. elements:

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

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Recognize the principles of atoms regarding atomic structures, hybridization, bonding, intermolecular forces and electronic displacements factors.
	1.1.1.2	Demonstrate the chemical properties of some organic compounds including alkanes, alkenes, alkynes and alkyl halides.
1.1.2	1.1.2.1	Adapt the use of appropriate pharmaceutical chemical terminology, abbreviations and symbols related to organic reactions and stereochemistry.
1.1.3	1.1.3.1	Utilize the rules of fundamental organic chemistry to identify the basics of the chemical reactions mechanisms and functional group transformation in order to prepare some organic starting materials and final products.
1.1.7	1.1.7.1	Analyze and interpret the importance of stereochemistry techniques that may be applicable in some pharmaceutical industry.

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 recognize pharmaceutical organic materials of different classes depending on physical characters and general organic reactions.
2.2.3	2.2.3.1	Utilize and handle lab tools and equipment carefully to identify simple organic compounds and perform some general chemical tests.
2.5.3	2.5.3.1	Record data and write different practical chemical reports applying systematic steps of schemes of identifying the tested organic compounds.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Show the ability to operate in team works and conduct time management skills, critical thinking and self-directed learning strategies.

4. Contents:

Week No	Topics	No. of hours	Lecture credit hours
1.	Stereochemistry: Conformational isomers and Configurational isomers.	2	2 hours
2.	Stereochemistry: Chirality in Systems lacking Stereogenic Centers	2	2 hours
3.	Stereochemistry: Stereochemistry of Organic Reactions.	2	2 hours
4.	Organic Reactions: Reactivity of Covalent Bonds and Nucleophilic Substitution at Saturated Carbon.	2	2 hours
5.	Organic Reactions: Elimination reactions	2	2 hours
6.	Organic Reactions: Free Radical Reactions and Addition reactions.	2	2 hours
7.	Atoms and bonding.	2	2 hours
8.	Electronic displacements factors.	2	2 hours
9	Intermolecular forces.	2	2 hours
10	Stability of carbon intermediate	2	2 hours
11	Acidity concepts.	2	2 hours
12	Basicity concepts.	2	2 hours
13	Effect of acidity and basicity concepts on behavior of organic compounds	2	2 hours

14	Revision/Quiz	2	2 hours
15	Final written & oral		
Practical topics			
Week No	**Topics**	**No. of hours**	**Practical credit hours**
1.	Laboratory safety rules and Practices	2	1 hour
2.	Identification of organic compounds	2	1 hour
3.	Physical characters (Solubility)	2	1 hour
4.	Chemical Properties	2	1 hour
5.	Chemical Properties (soda lime)	2	1 hour
6.	Sodium carbonate	2	1 hour
7.	Ferric chloride	2	1 hour
8.	**Periodical Exam**		
9.	Element test (Nitrogen)	2	1 hour
10.	Element test (Halogen and sulpher)	2	1 hour
11.	General scheme Identification (solid sample)	2	1 hour
12.	General scheme Identification (liquid)	2	1 hour
13	Stereochemistry problems	2	1 hour
14.	Practical exam	2	1 hour

5. Teaching and learning Methods:

5.1	**Computer aided learning:** **a. On line learning through my mans "Mansoura university "as recorded – video lectures** **b. Inter active discussion through My Mans** **c. power point presentation**
5.2	**Self-learning**
5.3	**Computer aided learning: Group discussion**
5.4	**Problem – based learning and brainstorming**
5.5	**Practical session using laboratory equipment (Microscopes and glass wares), and tutorials**

6. Student Assessment:

a- Assessment methods

1. Written exam	To assess understanding, intellectual and professional skills
2. Practical exam	To assess professional and practical skills
3. Oral	To assess knowledge, understanding, intellectual skills, general skills and confidence
4. Laboratory reports	To assess the skills of problem-solving and date presentation

b- Assessment schedule

Assessment 1	Practical	14th week
Assessment 2	Periodical Exam	8th week
Assessment 3	Oral	Start from 15th week
Assessment 4	Written	Start from 15th week

c- Weighting of assessments

1.	Periodical 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.	Solomons' Organic Chemistry, 12th Edition, Global Edition T. W. Graham Solomons, Craig B. Fryhle, Scott A. Snyder, 2017	Book
2.	Carey, F.A., Giuliano, R.M., Allison, N., Bane, S.. Organic Chemistry. Ed. 11th, New York, NY: McGraw-Hill, 2020.	Book
3.	Notes in organic Chemistry, by Staff members of Pharm. Org. Chem. Dept	Course notes

8. Matrix of knowledge and skills of the course

Course contents	Study Week	Course Key Elements								
		Domain: 1					Domain: 2			Domain: 4
		1.1.1.1	1.1.1.2	1.1.2.1	1.1.3.1	1.1.7.1	2.2.1.1	2.2.3.1	2.5.3.1	4.1.1.1
Stereochemistry: Conformational isomers and Configurational isomers.	1.	√		√	√	√	√			
Stereochemistry: Chirality in Systems lacking Stereogenic Centers	2.	√	√	√	√	√	√			
Stereochemistry: Stereochemistry of Organic Reactions.	3.	√	√	√	√	√	√	√	√	
Organic Reactions: Reactivity of Covalent Bonds and Nucleophilic Substitution at Saturated Carbon.	4.	√		√	√	√		√	√	
Organic Reactions: Elimination reactions	5.	√	√	√	√	√		√	√	
Organic Reactions: Free Radical Reactions and Addition reactions.	6.	√	√					√	√	√
Atoms and bonding.	7.	√	√					√	√	
Electronic displacements factors.	8.	√	√		√	√		√	√	
Intermolecular forces.	9.	√	√		√	√		√	√	√
Stability of carbon intermediate	10		√	√				√	√	

Acidity concepts.	11		√				√	√	√	
Basicity concepts.	12		√		√			√	√	
Effect of acidity and basicity concepts on behavior of organic compounds	`13		√		√			√	√	√
Revision and quizes	14		√		√			√	√	√

Course Coordinator:	**Mohammed Adel Massoud**
Head of Department:	**Shahenda Metwally EL-Messery**

Course Specification: Pharmacy Orientation	First Level

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutics
Course title: **Pharmacy Orientation**
Course code: PT 111

Program on which the course is given	B. Pharm
Academic Level	First Level, First semester, 2023-2024
Date of course specification approval	20th september 2023

1. Basic Information: Course data:

Course title:	**Pharmacy Orientation**	**Code: PT 111**
Specialization:	**Pharmaceutical**	
Prerequisite:	**Registration**	
Teaching Hours:	**Lecture: 1**	**Practical: --**
Number of units: (credit hours)	**1**	

2. Course Aims:

2.1. Orienting the students to the different aspects of pharmacy profession and to the expressions commonly used in pharmacy practice.
2.2. Recognizing different routes of drug administration and medical terminology.
2.3. Be aware of the history of pharmacy and its development.
2.4. Knowing different types of incompatibilities (physical, chemical and therapeutic).

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**	Recollect the different knowledge about the pharmaceutical sciences.

1.1.2	**1.1.2.1**	Interpret the appropriate pharmaceutical abbreviations and symbols used in different prescriptions.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.1	**2.1.1.1**	Assess the legal professional requirements to practice for individuals and healthcare team
	2.1.1.2	Demonstrate the principles of ethics and protect the privacy of the patient.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.1	**3.2.1.1**	Interpret the principles of proper dosage forms and different routes of administration.
3.2.5	**3.2.5.1**	Summarize education to help the patients to use OTC preparations.

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.
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.	Role of the pharmacist in health care team	2	2
2.	Pharmacy organization	2	2
3.	System of Medicine	2	2
4.	Ethics of pharmacy	2	2
5.	Weight and measures: The apothecaries & avoirdupois	2	2

6.	metric system, conversion of one system to the other.	2	2
7.	Incompatibilities: Physical, Chemical and Therapeutic	2	2
8.	Routes of drug administration.	2	2
9.	Prescription: Simple, compound and Narcotic.	2	2
10.	History of pharmacy تاريخ الصيدلة: الصيدلة عند قدماء المصريين - الصيدلة فى الاقطار الشرقية	2	2
11.	اشهر علماء الطب و الصيدلة عند العرب	2	2
12.	تطور التعليم الصيدلى فى مصر	2	2
13.	Different dosage forms. and **Self-learning**	2	2
14	Revision and quiz	2	2
15	Final written exam	-	-

5. Teaching and learning Methods:

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

6. Student Assessment:

a. Assessment methods

1-Midterm exam	**1.1.1.1, 1.1.1.2, 2.2.1.1,2.2.1.2, 3.2.1.1, 3.2.5.1, 4.2.1.1, 4.3.2.1**
2-Written exam	**1.1.1.1, 1.1.1.2, 2.2.1.1, 3.2.1.1, 3.2.5.1**

b. Assessment schedule

Assessment1	Mid-term	8th week

Assessment 2	Written	15th week

c. Weighting of assessments

1.	Mid-term examination	10 %
2.	Final-term examination	90 %
Total		100 %

7. List of References

No	Reference	Type
1.	Theoretical course Notes "Pharmacy Orientation" prepared by staff members	Course notes
2.	"Remington's: The science and practice of pharmacy" 23rd Ed., Gennaro, A. R., ed., Mack publishing C., Lippincott Williams and Wilkins, Philadelphia, (2020).	Book
4.	Medical Terminology: A Short Course by Davi-Ellen Chabner. 8th edition, 2018.	Book
5.	"Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems" 10th Ed., Wolters Kluwer, Lippincott Williams and Wilkins, Philadelphia, (2014).	Book
7.	http://www.sciencedirect.com,	Website
8.	http://www.google.com,	Website
9.	http://www.pubmed.com	Website

8. Matrix of knowledge and skills of the course

Course contents	Study Week	Course Key Elements							
		Domain: 1		Domain: 2		Domain: 3		Domain: 4	
		1.1.1.1	1.1.2.1	2.1.1.1	2.1.1.2	3.2.1.1	3.2.5.1	4.2.1.1	4.3.2.1
Role of the pharmacist in health care team	1.	√	√	√	√	√			
Pharmacy organization	2.	√	√	√	√	√			
System of Medicine	3.	√	√	√	√	√			
Ethics of pharmacy	4.	√	√	√	√	√			
Weight and measures: The apothecaries', avoirdupois	5	√	√				√	√	√
metric system, conversion of one system to the other.	6	√	√				√	√	√

Incompatibilities: Physical, Chemical and Therapeutic	7	√	√				√	√	√
Routes of drug administration.	8.	√	√				√	√	√
Prescription: Simple, compound and Narcotic.	9.	√	√						
History of pharmacy تاريخ الصيدلة: الصيدلة عند قدماء المصريين - الصيدلة فى الاقطار الشرقية	10	√	√						
اشهر علماء الطب و الصيدلة عند العرب	11					√			
تطور التعليم الصيدلى فى مصر	12	√	√	√					
Different dosage forms.	13	√	√	√	√	√	√	√	√

Course Coordinator:	**Prof. Dr. Marwa Salah El-Din Mansour El-Dahhan**
Head of Department:	**Prof. Dr/ Irhan Ibrahim Abu Hashim**

20 / 9/ 2023

المستوى الاول

Medical Terminology

University: Mansoura

Faculty : Pharmacy

Department : Pharmacy Practice

Course title: Medical terminology

Program on which the course is given	B. Pharm (credit hours)
Academic Level	First Level, Semester one
Date of course specification approval	September 2023

1- Basic Information : Course data :

Course title:	Medical terminology		**Code:**	PP111
Specialization:	Pharmaceutical Sciences			
Prerequisite:	Registration			
Teaching Hours:	**Lecture:**	1	**Practical:**	-
Number of units: **(credit hours)**	1			

2- Course Aims:

Provide knowledge and understanding the basic medical terms. Understand the prefix and suffix of different medical terms and introduce concepts of various diseases within the same organ in the body. Provide all common terms of CNS, CVS, GIT, respiratory, blood and urinary systems. Introduce fundemental knowledge of anatomy of organ, signs, symptoms and treatments of various diseases.

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	Interpret key medical words related to physiological and pathological conditions.
1.1.2	1.1.2.1	Recognize the medical terminology, abbreviations and symbols related to pharmacy practice.

Domain 4: Personal Practice

Program K. element no.	Course K. element no.	Course K. element
4.3.2	4.3.2.1	Retrieve the meaning of any medical terms needed for professional practice.

4- Contents :-

Week No	Topics	No.of hours
1.	Cardiovascular system 1	1
2.	Cardiovascular system 2	1
3.	CNS 1	1
4.	CNS 2	1
5.	GIT 1	1
6.	GIT 2	1
7.	Endocrine system	1
8.	Blood and Immunity	1
9.	Respiratory system	1
10.	Renal system	1

11.	Integumentary system	1
12.	Circulatory system 1	1
13.	Circulatory system 2	1
14.	Revision and quiz	1
15.	**Final written exam**	

5- Teaching and learning methods:

	Teaching and learning Methods:
1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning ● On line learning through my mans "Mansoura university "as recorded – video lectures ● Inter active discussion through My Mans
2	Self-learning
3	Class Activity: Group discussion offline and online.
4	Problem – based learning and brainstorming

6- Student Assessment:

a- Assessment methods:

1-Written exam	**1.1.1.1, 1.1.2.1, 4.3.2.1**
2-Periodical exam	**1.1.1.1, 1.1.2.1, 4.3.2.1**

b- Assessment schedule

Assessment 1	**Periodical Exam**	**8th week**

Assessment 2	**Written Exam**	**15th week**

c- Weighting of assessments

1	**Periodical examination**	**10 %**
2	**Final-term examination**	**90 %**
Total		**100%**

7 - List of References

N0.	Reference	type
1	Barbra Janson Medical terminology- an illustrated guide 4th edition	**Book**
2	Cohen BJ and DePetris A. Medical Terminology: An Illustrated Guide, 7th edition. Philadelphia: Lippincott Williams & Wilkins, 2014. Print	**Book**
3	Gylys BA and Masters RM. Medical Terminology Simplified: A Programmed Learning Approach by Body System, 5th edition. Philadelphia: F. A. Davis Company, 2014. Print.	**Book**
4	Lectures notes prepared by staff members	**Course notes**

8- Matrix of knowledge and skills of the course

Course contents	Study Week	Course Key Elements		
		Domain: 1		Domain: 4
		1.1.1.1	**1.1.2.1**	**4.3.2.1**
Cardiovascular system 1	**1.**	√	√	

Cardiovascular system 2	**2.**	√	√	
CNS 1	**3.**	√	√	
CNS 2	**4.**	√	√	
GIT 1	**5.**	√	√	
GIT 2	**6.**	√	√	
Endocrine system	7	√	√	√
Blood and Immunity	8	√	√	√
Respiratory system	9	√	√	√
Renal system	**10**	√	√	√
Integumentary system	**11**	√	√	
Circulatory system 1	**12**	√	√	
Circulatory system 2	**13**	√	√	

Course Coordinator :	**Prof. Dr. Nashwa Abu-Elsaad**
Head of department	**Prof. Dr. Manar A. Nader**

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

المستوى الأول

توصيف مقرر1- Pharmacognosy

University: Mansoura University (MU)
Faculty : Pharmacy
Department: Pharmacognosy
Course title: Pharmacognosy-1
Course code: PG 122

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

1- Basic Information : Course data :

Course title:	Pharmacognosy-1	**Code:** PG 122	
Specialization:	**pharmaceutical sciences**		
Prerequisite: Registration			
Teaching Hours:	**Lecture:** 2	**Practical:** 1	
Number of units: (credit hours)	**3**		

2- Course Aims:

2.1 Upon completion of the course, the student will be able to learn the basic of pharmacognosy, different plant parts leaves, barks and flowers containing active constituents.
2.2 The student will be able to differentiate between different leaves and flowers morphologically and microscopically.
2.3 Medicinal uses of some plants and active constituents.

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. elements
1.1.1	1.1.1.1	Outline the basic knowledge of macroscopical and microscopical characters of some medicinal leaves, flowers, barks and seeds.
1.1.2	1.1.2.1	List the appropriate geographical and botanical origin of the studied medicinal plants
1.1.3	1.1.3.1	Identify the principles of physical, chemical and microscopical characters in preparation of medicines and herbal mixtures from different plant organs as leaves, flowers, barks and seeds.
1.1.4	1.1.4.1	Illustrate main active constituents of the studied medicinal plants as well as their therapeutic effects and safety

Domain 2: Professional and Ethical Practice

Program K. element no	Course K. element no	Course K. elements
2.2.1	2.2.1.1	Analyze and evaluate the natural pharmaceutical materials from different origins as leaves, flowers, barks and seeds.
2.2.2	2.2.2.1	Conduct principles of quality control guidelines related to pharmaceutical industry of the herbal products from different sources in addition to possible interactions with some synthetic prescribed medications.
2.3.1	2.3.1.1	Utilize the appropriate methods to identify the active constituents of the target plants, their purity in pharmaceutical preparations as well as their handling and disposal.

Domain 4: Personal Practice:

Program K. element no	Course K. element no	Course K. elements
(4.1.1)	(4.1.1.1)	Work effectively in a team and demonstrate time management ability
(4.2.1)	(4.2.1.1)	Communicate effectively in a scientific language by verbal and written means regarding in the field of health care and medicinal plants regarding the studied topics.

4- Contents :-

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Introduction to pharmacognosy	2	2	
2.	Leaves of Senna, Digitalis	2	2	
3.	Leaves of Guajava and Eucalyptus	2	2	
4.	Leaves of Hyoscyamus , Datura , Belladona	2	2	
5	Leaves of Henna , Vinca and laurel	2	2	
6	Leaves of Sage and Marjoram	2	2	
7	Leaves of Rosemary	2	2	
8	Flowers of Chamomile , Santonica and Hibiscus	2	2	
9	Flowers of Calendula , Clove	2	2	
10	Flowers of Pyrethrum and sunflower	2	2	
11	Barks of Cinnamon, Cassia	2	2	
12	Barks of Cinchona and Cascara	2	2	
13	Wood	2	2	
14	galls	2	2	

16	**Week 16 Final written & oral**			
	Practical topics			
1	Senna, Guajava and Digitalis	2		1
2	Solanaceous leaves (Datura, Belladona, Hyoscyamus)	2		1
3	Mentha, Thymus, Rosemary	2		1
4	Marjoram, Sage	2		1
5	Vinca	2		1
6	Clove, hibiscus	2		1
7	Calendula, Santonica	2		1
8	**Week 8 Mid-term**			
9	Chamomile	2		1
10	Pyrethrum	2		1
11	Cinchona	2		1
12	Cassia Cinammon	2		1
13	Quassia	2		1
14	Gall	2		1
15	**Week 15 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	8th week
Assessment 2	Practical exam	15th week
Assessment 3	Oral exam	16th week
Assessment 4	Written exam	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 %
5	Other types of assessment	0
Total		100%

7 - List of References

N0.	Reference	type
1	Amer, M.M., Maatooq, G.T., Marzouk, A.M., Baraka, H.N., Illustrated Botany, Amer printiing press (2019)	Book
2	Berg, L., Introductory Botany, Plants, People and the Environment, Thomson Higher Education, USA (2018)	Book
3	Kar k.R., Misra M.N. and Kabi T., Text Book on Fundamentals of Botany. New Delhi 2015.	Book
4	T.E. "Text Book of Pharmacognosy" 17th edition, CBS Publisher and Distributors, India, 2014.	Book

8- Matrix of knowledge and skills of the course

Course contents	Study Week	Course Key Elements								
		Domain: 1				Domain: 2			Domain: 4	
		1.1.1.1	1.1.2.1	1.1.3.1	1.1.4.1	2.2.1.1	2.2.2.1	2.3.1.1	4.1.1.1	4.2.1.1
Introduction to pharmacognosy	1.	√	√	√	√					√
Leaves of Senna, Digitalis	2.	√	√	√	√					√
Leaves of Guajava and Eucalyptus	3.	√	√	√	√		√			√
Leaves of Hyoscyamus , Datura , Belladona	4.	√	√	√	√	√	√			√
Leaves of Henna , Vinca and laurel	5.	√	√	√	√	√	√	√	√	√
Leaves of Sage and Marjoram	6.	√	√	√	√	√			√	√
Leaves of Rosemary	7	√	√	√		√			√	√
Flowers of Chamomile , Santonica and Hibiscus	8.	√	√	√		√		√		√

Flowers of Calendula , Clove	9.	√	√	√	√	√		√		√
Flowers of Pyrethrum and sunflower	10		√	√	√	√	√	√	√	√
Barks of Cinnamon , Cassia	11		√	√	√		√	√	√	√
Barks of Cinchona and Cascara	12		√	√	√		√	√	√	√
Wood and galls	13		√	√	√		√	√	√	√
Revision & Quiz	14		√	√	√		√	√	√	√

Course Coordinator :	**Prof. Dr. Saleh Hassan Elsharkawy**
Head of Department	**Prof. Mahmoud Fahmi Elsebai**

المستوى الأول

توصيف مقرر Inorganic Chemistry

University : Mansoura University

Faculty : Faculty of Pharmacy

Department: Pharmaceutical Analytical Chemistry

1- Course data :-

Code:	PA122	Course name:	Inorganic Chemistry	Level:	One
Specialization:	• Pharmaceutical Sciences				
Teaching Hours:					
	Lecture:	1	Tutorial:	Practical:	1
Number of units:	2				

2- Course aims :-

1. Give the basic principle of qualitative inorganic reactions and the qualitative analysis of anions and cations and their mixtures.

3. Course k. elements:

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

Domain 1- Fundamental Knowledge

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

1.1.1	1.1.1.1	Recognize the basic principles of chemical kinetics, photochemistry, chemical equilibrium, and chemical reactions.
1.1.3	1.1.3.1	Combine the principles of fundamental sciences to handle and identify chemical compounds.

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 inorganic salts using specific chemical tests.
2.2.3	2.2.3.1	Handle and dispose hazardous chemical compounds.
2.2.4	2.2.4.1	Implement calculations to assess the chemical kinetics of pharmaceutical compounds and calculate the expiry date of such compounds for assessing their stability.
2.3.1	2.3.1.1	Apply proper handling and disposal of chemical compounds.
2.3.2	2.3.2.1	Choose best practices and adhere to high ethical and safety standards for management of chemical compounds.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Apply suitable 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.

4- Course contents :-

No	Topics
1	Basic Principles of Inorganic Chemistry
2	The Mole Concept (Stoichiometry & Conversion factors & Problems on mole concept).
3	General Concepts of Chemical Equilibrium.
4	Reactions between Ions (Neutralization, Precipitation).
5	Reactions between Ions (Complexation and Redox Reactions).
6	Anions: Introduction and Classification of Anions.
7	Anions: Carbonate and Sulphur Groups.
8	Anions: Halide, Cyanogen and Nitrogen Groups.
9	Cations: General Introduction and Classification of Cations.
10	Cations: Analysis of Group I and II Cations.
11	Cations: Analysis of Group II and III Cations.
12	Cations: Analysis of Group IV and V Cations.
13	Cations: Analysis of Group V Cations.
14	Cations: Analysis of Group VI Cations.
15	Revision and Quiz
16	**Start of Final written and oral exams**
	Practical
1	**Handling rules and lab safety**
2	Anions: carbonate group

3	Anions: Sulphur group
4	Anions: halides
5	Anions: cyanogen group
6	Anions: phosphorous group
7	Cations: Group I
8	**Periodical exam**
9	Cations: Group II
10	Cations: Group III
11	Cations: Group IV
12	Cations: Groups V
13	Cations: Groups VI
14	Analysis of unknown salt “anion and cation”
15	**Practical exam**

5. Teaching and learning Methods:

5.1	**Lectures using Data show, PowerPoint presentations**
5.2	**Laboratory equipment such as HPLC, TLC plates, potentiometer, spectrophotometer, colorimeter and glassware.**
5.3	**Online learning through mymans (Mansoura University) as recorded video lectures**
5.4	**Interactive discussion through My Mans.**
5.5	**Self-learning**
5.6	**Tutorial**

6- Student assessment :-

a- Student assessment methods

No	Method	
	Periodical exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1
1	Practical exam	2.2.1.1, 2.2.3.1, 2.2.4.1, 2.3.1.1, 2.3.2.1
2	Written exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1
3	Oral	4.1.2.1, 1.1.1.1, 1.1.3.1

b- Assessment schedule

No	Method	Week
1	Periodical exam	8
2	Practical exam	15
3	Written exam	16
4	Oral exam	16

c- Weighting of assessments

No	Method	Weight
1	Periodical examination	15
2	Final examination	50
3	Oral examination	15
4	Practical examination	20
Total		100%

9- List of references

S	Item	Type
1	Fundamentals of Analytical Chemistry, Douglas A. Skoog; Donald M. West; F J. Holler; Stanley R. Crouch, 9th Edition, 2014, Belmont, CA : Brooks/Cole, Cengage Learning.	Books
2	Chemical Principles in the Laboratory, Emil J. Slowinski; Wayne C. Wolsey, 9th Edition, 2009, Belmont, CA : Brooks/Cole, Cengage Learning.	Books
3	Analytical Chemistry, Gary D. Christian; Purnendu K Dasgupta; Kevin A Schug, 7th Edition, 2014, Hoboken : J. Wiley & Sons.	Books

10- Matrix of knowledge and skills of the course

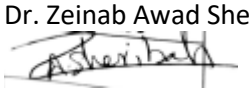
Course contents	Study Week	Course Key Elements										
		Domain: 1		Domain: 2					Domain: 4			
		1.1.1.1	1.1.3.1	2.2.1.1	2.2.3.1	2.2.4.1	2.3.1.1	2.3.2.1	4.1.2.1	4.2.2.1	4.3.1.1	4.3.2.1
Basic Principles of Inorganic Chemistry	1	√	√	√	√	√	√	√	√	√		
The Mole Concept (Stoichiometry & Conversion factors & Problems on mole concept).	2		√		√				√		√	√
General Concepts of	3		√			√	√	√		√	√	√

Chemical Equilibrium.												
Reactions between Ions (Neutralization, Precipitation).	4	√	√	√					√	√	√	√
Reactions between Ions (Complexation and Redox Reactions).	5	√	√									
Anions: Introduction and Classification of Anions.	6	√	√							√	√	√
Anions: Carbonate and Sulphur Groups.	7	√	√	√	√	√	√	√	√	√	√	√
Anions: Halide, Cyanogen and Nitrogen Groups.	8	√	√	√	√	√	√	√	√	√	√	√
Cations: General Introduction and Classification of Cations.	9	√	√	√	√	√	√	√	√	√	√	√
Cations: Analysis of Group I and II Cations.	10	√	√							√	√	√
Cations: Analysis of Group II and III Cations.	11	√	√							√	√	√
Cations: Analysis of Group IV and V Cations.	12	√	√							√	√	√
Cations: Analysis of Group V Cations.	13	√	√							√	√	√
Cations: Analysis of Group VI Cations.	14	√	√							√	√	√

Revision and Quiz	15	√	√					√	√	√	√	√

Course Coordinator(s): -

Dr. Zeinab Awad Sheribah



Head of department: -

Prof. Dr. Jenny Jehan Nasr

First Level

Course Specification
Pharmaceutical Organic Chemistry (2)

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutical Organic Chemistry
Course title: **Pharmaceutical Organic Chemistry (2)**
Course code: PO 122

Program on which the course is given	B. Pharm
Academic Level	First Level, Second semester
Date of course specification approval	20/09/2023

1. Basic Information: Course data:

Course title:	**Spectroscopic Identification**	**Code: PO 122**
Specialization:	**Basic Sciences**	
Prerequisite:	**Registration**	
Teaching Hours:	**Lecture:2**	**Practical:1**
Number of units: (credit hours)	**3**	

2. Course Aims:

2.1. Gain an understanding of the basic principles of the chemistry of organic compounds.
2.2. Have a good idea about the chemical synthesis of compounds.
2.3. Enable the student to understand the basics of the chemical reactions of different classes.
2.4. Recognize the chemical properties of organic compounds and their functional groups.
2.5. Recognize the main concept, the basics and the reactions of aromatic compounds.
2.6. Know the basics of the chemistry of biologically active molecules e.g. alcohols and amines.

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	Outline the basic principles of pharmaceutical organic chemistry including nomenclature, physical and chemical properties, synthesis, and reactions of different classes of organic compounds.
1.1.3	1.1.3.1	Utilize the basics of organic chemistry to handle, identify, design, and prepare synthetic pharmaceutical intermediates and final products.
	1.1.3.2	Relate specific structural features of organic functional groups to possible synthesis, identification, and physicochemical properties

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 different functional groups of organic compounds by performing suitable physicochemical identification tests.
2.2.3	2.2.3.1	Handle effectively and safely chemicals and equipment used for identification, synthesis, disposal of organic compounds.
2.5.3	2.5.3.1	Record data and write different practical and scientific chemical reports.

DOMAIN 4: PERSONAL PRACTICE

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

4.1.1	4.1.1.1	Work effectively independently and/or in a team.

4. Contents:

Week No	Topics	No.of hours	Lecture credit hours
Theoretical Topics			
1-2	Alkenes (Synthesis and reactions)	4	4 hours
3.	Alkynes	2	2 hours
4.	polyunsaturated hydrocarbons	2	2 hours
5.	Aromaticity and its concepts	2	2 hours
6.	Electrophilic aromatic substitution	2	2 hours
7.	Electrophilic aromatic substitution examples	2	2 hours
8.-9	Arenes and polynuclear aromatic hydrocarbons	2	2 hours
10-11	Alcohols and Phenols	4	4 hours
12-14	Thiols, Ethers and epoxides	6	6 hours
15	Revision/Quiz	2	2 hours
16	**Final Exam**		
Practical topics			
Week No	**Topics**	**No.of hours**	**Practical credit hours**
1.	Alcohols	2	1 hour
2-3.	Phenols	4	2 hour
4.	Aromatic Hydrocarbons	2	1 hour
5-6	Aliphatic Carboxylic Acids	4	2 hour
7.	Aliphatic Carboxylic acids	2	1 hour
8.	**Periodical Exam**		
9-11.	Aromatic Carboxylic Acids	6	3 hour
12.	Scheme of Identification of solid sample	2	1 hour
13.	Scheme of Identification of liquid sample	2	1 hour

14.	Scheme of Identification of unkown organic sample	2	1 hour
15.	Practical Exam	2	1 hour

5. Teaching and learning Methods:

5.1	**Computer aided learning:** **a. On line learning through my mans "Mansoura university "as recorded – video lectures** **b. Inter active discussion through My Mans** **c. power point presentation**
5.2	**Self-learning**
5.3	**Computer aided learning: Group discussion**
5.4	**Problem – based learning and brainstorming**
5.5	**Practical session using laboratory equipment (Microscopes and glass wares), and tutorials**

6. Student Assessment:

a- Assessment methods

1. Written exam	**To assess understanding, intellectual and professionalskills**
2. Practical exam	**To assess professional and practical skills**
3. Oral exam	**To assess knowledge, understanding, intellectual skills, general skills and confidence**

b- Assessment schedule

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

c- Weighting of assessments

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

7. List of References

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

2.	McMurry, J.E. *Organic chemistry*. Ed. 9th, Australia: Cengage Learning, 2019.	**Book**
3.	Introduction to Organic chemistry, 5th Edition, Donald L. Pavia, 2015.	**Book**
4.	J. E. McMurry, R. C. Fay in Chemistry, 5th Ed., Pearson Education Inc., 2008.	**Book**
5.	Engel, R. G., Pavia, D. L., Lampman, G. M., Kriz, G. S. *A microscale approach to organic laboratory techniques*. Ed. 6th, Boston, MA: Cengage Learning, 2018.	**Website**

8. Matrix of knowledge and skills of the course

Course contents	Study Week	Course Key elements						
		Domain: 1			Domain: 2			Domain: 4
		1.1.1.1	1.1.3.1	1.1.3.2	2.2.1.1	2.2.3.1	2.5.3.1	4.1.1.1
Alkenes (Synthesis and reactions)	1-2	√	√	√				
Alkynes	3	√	√	√				
polyunsaturated hydrocarbons	4	√	√	√	√	√	√	
Aromaticity and its concepts	5	√	√	√	√	√	√	
Electrophilic aromatic substitution	6	√	√	√	√	√	√	√
Electrophilic aromatic substitution examples	7	√	√	√	√	√	√	√
Arenes and polynuclear aromatic hydrocarbons	8-9	√	√	√	√	√	√	√

Alcohols and Phenols	10-11	√	√	√	√	√	√	√
Thiols, Ethers and epoxides	12-14	√	√	√	√	√	√	√
Revision/Quiz	15	√	√	√	√	√	√	√

Course Coordinator:	**أ.د/ محمد عادل مسعود**
Head of Department:	**أ.د/ شاهندة متولي المسيري**

Course Specification Physical Pharmacy	First Level

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutics
Course title: Physical Pharmacy
Course code: PT 122

Program on which the course is given	B. Pharm
Academic Level	First Level, second semester, 2023-2024
Date of course specification approval	20th september 2023

1. Basic Information: Course data:

Course title:	**Physical Pharmacy**	**Code: PT 122**
Specialization:	**Pharmaceutical**	
Prerequisite:	**Registration**	
Teaching Hours:	**Lecture: 2**	**Practical: 1**
Number of units: (credit hours)	**3**	

2. Course Aims:

2.1. Providing students with knowledge of the basic principles of physicochemical properties essential for the design and formulation of pharmaceutical products.

2.2 Studying the fundamental concepts of orders of reaction kinetics

2.3 Knowing the main principles of solubility, dissolution, partition coefficient.

2.4. Recognizing surface and interfacial phenomena, surface-active agents, adsorption and its application in pharmacy and rheological behavior of dosage forms.

3- Course Learning Outcomes

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

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	Recognize the physical properties of various substances used in pharmaceutical and administrative sciences such as interfaces in pharmacy, solubility and the colligative properties of solutions,
	1.1.1.2	Describe different type of flow of liquids and the methods applied for viscosity determination.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.2.1	**2.2.1.1**	Design, identify and analyze physically the different pharmaceutical materials.

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 (hr.)	Practical
1.	Newtonian systems -Solution types	2	2	
2.	Non-Newtonian systems -Solution types	2	2	
3.	Rheology of liquids Fundamental of rheology and thixotropy -Solution types	2	2	
4.	Measurement of viscosity -Colligative properties	2	2	
5.	Fundamentals of surface phenomena and interfacial tension.	2	2	

	-Solubility of gases in liquids			
6	Solubility of liquids in liquids,	2	2	
7	Hydrophilic lipophilic balance (HLB) of surface-active agents	2	2	
8	Micelle phenomena	2	2	
9	Solubility of solid in liquids	2	2	
10	Adsorption and its applications in pharmacy and medicine	2	2	
11	Distribution phenomena and partition coefficient and its applications.	2	2	
12	Diffusion and dissolution	2	2	
13	stability and reaction kinetics	2	2	
14	Isotonicity and self learning	2	2	
15	reaction kinetics	2	2	
16	**Week of Final written & oral**			
	Practical topics			
1	Determination of relative viscosity by Oswald viscometer	2		1
2	The relation between the concentration of polymer and viscosity.	2		1
3	Determination of an average molecular weight of gelatin by viscosity method.	2		1
4	Determination of oxalic acid by titration method.	2		1
5	Adsorption of oxalic acid by activated charcoal.	2		1
6	Determination of relative surface tension of surfactant by stalagmometer.	2		1
7	problems on surface tension	2		1
8	midterm exam	-		-
9	Determination of Critical Micelle Concentration (CMC)	2		1
10	Micellar Solubilization	2		1
11	Adsorption of oxalic acid by talc powder.	2		1
12	problems on adsorption	2		1

13	Revision (Determination of relative viscosity by Oswald viscometer)	2		1
14	Revision (Adsorption of oxalic acid by talc powder)	2		1
15	Week of 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 c. Power point (PPT) presentations
5.2	Practical sessions using laboratory equipment
5.3	Self-learning
5.4	Formative Assignments
5.5	Class Activity Discussion / Brainstorming / problem solving

6. Student Assessment:

a.Assessment methods:

1-Written exam	1.1.1.1, 1.1.1.2, 2.2.1.1
2-Practical exam	4.1.2.1, 4.3.2.1, 2.2.1.1
3-Oral	1.1.1.1, 1.1.1.2, 2.2.1.1

b.Assessment schedule

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

c.Weighting of assessments

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

7. List of References

No.	Reference	type
1	Martin's: Physical pharmacy and pharmaceutical sciences" 5th Ed., Wolters Kluwer, Lippincott Williams and Wilkins, New delhi, Philadelphia, (2006).	book
2	"Remington's: The science and practice of pharmacy" 23st rd Ed., Gennaro, A. R., ed., Mack publishing C., Lippincott Williams and Wilkins, Philadelphia, (2020).	book
3	Lectures notes prepared by staff members	Course notes

8. Matrix of knowledge and skills of the course

Course contents	Study Week	Course Key Elements				
		Domain: 1		Domain: 2	Domain: 4	
		1.1.1.1	1.1.1.2	2.2.1.1	4.1.2.1	4.3.2.1
Newtonian systems -Solution types	1.	√	√	√		
Non-Newtonian systems -Solution types	2.	√	√	√		
Rheology of liquids Fundamental of rheology and thixotropy -Solution types	3.	√	√		√	
Measurement of viscosity -Colligative properties	4.	√	√		√	
Fundamentals of surface phenomena and interfacial tension. -Solubility of gases in liquids	5.	√	√		√	
Hydrophilic lipophilic balance (HLB) of surface-active agents -Solubility of liquids in liquids,	6.	√	√			
Micelle phenomena	7	√	√			
- Solubility of solid in liquids	8	√	√			
midterm exam	9	√	√			
Adsorption and its applications in pharmacy and medicine	10	√	√			
Distribution phenomena and partition coefficient and its applications.	11	√	√		√	

Diffusion and dissolution	12	√	√	√	√	√
stability and reaction kinetics	13	√	√	√	√	√
Isotonicity	14	√	√	√	√	√

Course Coordinator :	**Prof. Dr/ Thanaa Mohamed ELsaid Borg** 
Head of department	**Prof. Dr/ Irhan Ibrahim Abu Hashim** 

20/9/2023

المستوى الأول

Histology and Anatomy توصيف مقرر

Faculty : Faculty of Pharmacy

Department : Pharmacology&Toxicology

1- Course data :-

Code:	MH121|MH121	Course name:	Histology and Anatomy	Level :	One
Specialization:	• pharmaceutical sciences				
Teaching Hours:					
	Lecture:	2	Tutorial:	Practical:	2
Number of units:	13				

2- Course aims :-

1. Give student basic information about special structure of all system in the body
2. learn student basic tissue description

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**	Realize knowledge of pharmaceutical, biomedical, administrative and clinical sciences
1.1.2	**1.1.2.1**	Utilize the proper pharmaceutical and medical terminology in pharmacy practice and recall names of drug.
1.1.4	**1.1.4.1**	List the mode of the action of drugs and their therapeutic effects as well as evaluate their suitability, efficacy and

		safety in individuals and populations.
1.1.5	**1.1.5.1**	List the principles and critical understanding of fundamental sciences to solve problems related to human health and health systems

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.3.1	**2.3.1.1**	Use suitable methods for disposal of natural or synthetic materials, biological and biotechnology-based items used in pharmacy
2.5.3	**2.5.3.1**	Use scientific principles of research and utilize systematic studies in the research

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	**3.1.1.1**	Apply a dosage regimen for a patient on the basis of physiological and immunological changes made by disease.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.3.2	**4.3.2.1**	Practice independent learning needed for continuous professional development.

4- Course contents :-

Theoretical topics	Week
Introduction to Anatomy	1
Integumentary system	2
Skeleton	3
Digestive system	4
Respiratory system	5

Reproductive system	6
Cardiovascular system 1	7
Cardiovascular system 2	8
Introduction to histology	9
Epithelial tissue	10
Connective tissue	11
Nervous tissue	12
Muscular tissue 1	13
Muscular tissue 2	14
Revision and quiz	15
Final written exam	16

Practical topics	**Week**
Introduction to Anatomy	1
Integumentary system	2
Skeleton	3
Digestive system	4
Respiratory system	5
Reproductive system	6
Cardiovascular system 1	7
Periodical exam	8
Cardiovascular system 2	9
Introduction to histology	10
Epithelial tissue	11
Connective tissue	12
Nervous tissue	13
Muscular tissue 1	14
Practical exam	15

5- Teaching and learning methods :-

	Teaching and learning Methods
1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning ● On line learning through my mans "Mansoura university "as recorded – video lectures ● Inter active discussion through My Mans
2	Self-learning
3	Practical session using data show and power point presentations

4	Class Activity: Group discussion offline and online.
5	Problem – based learning and brainstorming
6	Research assignments

8- Student assessment :-

a- Student 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, 2.3.1.1,2.5.3.1, 3.1.1.1.4.3.2.1**
2-Practical exam applying OSPE	**1.1.1.1, 1.1.2.1, , 1.1.5.1, 2.3.1.1,2.5.3.1, .4.3.2.1**
4- Periodical exam	**1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 2.3.1.1,2.5.3.1, 3.1.1.1.4.3.2.1**

b- Assessment schedule

No	Method	Week
1	Mid term examination	8
2	practical examination	15
3	written examination	16

c- Weighting of assessments

No	Method	Weight
1	Mid_term examination	10
2	Final_term examination	65
3	Oral examination	zero
4	Practical examination	25
5	Semester work	0
6	Other types of asessment	0
Total		100%

9- List of references

S	Item	Type
1	Ross and wilson	Books

10- Matrix of knowledge and skills of the course

Course contents	Study Week	Course Key Elements							
		Domain: 1				Domain: 2		Domain: 3	Domain: 4
		1.1.1.1	1.1.2.1	1.1.4.1	1.1.5.1	2.3.1.1	2.5.3.1	3.1.1.1	4.3.2.1
Introduction to Anatomy	1.	√				√	√		
Integumentary system	2.	√				√	√		
Skeleton	3.	√				√	√		
Digestive system	4.	√				√	√		
Respiratory system	5.	√						√	
Reproductive system	6.	√					√		
Cardiovascular system 1	7.	√		√	√				
Cardiovascular system 2	8.	√	√						
Introduction to histology	9	√	√	√	√	√	√	√	√
Epithelial tissue	10	√	√	√	√	√	√	√	√
Connective tissue	11	√	√	√	√	√	√	√	√
Nervous tissue	12	√	√	√	√	√	√	√	√
Muscular tissue 1	13	√	√	√	√	√	√	√	√
Muscular tissue 2	14	√	√	√	√	√	√	√	√

course Coordinator(s): -

1. Awni Hassan Ibrahim Hassan
2. **Prof. Dr. Manar A. Nader**

Head of department: -

Prof. Dr. Manar A. Nader