Level 1

Semester (1)

Course Title	Course code
Physical & Inorganic Chemistry	PC 101
Pharmaceutical Organic chemistry - I	PC102
Biophysics	MD101
Botany and medicinal plants	PG 101
Cell Biology	MD 102
Mathematics and statistics	MS 101
English language	EN 101

Semester (2)

Course Title	Course code
Pharmaceutical Organic chemistry-I	PC 203
Pharmaceutical Analytical chemistry	PC 205
Pharmacognosy -I	PG 202
Histology	MD 203
Physical pharmacy	PT 201
Human rights and Fighting corruptic	HU 201

First Level | **Physical & Inorganic Chemistry**

University: Mansoura University (MU)

Faculty: Pharmacy

Department: Pharmaceutical Analytical Chemistry

Course title: **Physical & Inorganic Chemistry**

Course code: PC 101

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

1. Basic Information: Course data :

Course title: Pharmaceutical Analytical Chemistry I **Code: PC 101**

Specialization: Pharmaceutical

Prerequisite: Registration

Teaching Hours: Lecture: 2 **Practical: 1**

Number of units: 3

(credit hours)

2. Course Aims:

Demonstrate the basic concepts of physical chemistry regarding some topics such as: the rate of reaction, kinetics of chemical reactions, thermochemistry, and thermodynamics.
Give the basic principle of inorganic chemistry including chemical equilibrium, types of reactions, solubility product constant, conversion factor, electrolytes, acid-base reactions and metathesis reactions.

3. Course k. elements:

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
(1.1.1)	(1.1.1.1)	Recognize in-depth and breadth the principles of basic and pharmaceutical sciences and clarify the theory and principles of acid-base, non-aqueous and precipitation methods of analysis.
(1.1.3)	(1.1.3.1)	Combine the principles of fundamental sciences to quantify 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)	Detect the impurities of pharmaceutical materials and identify them. Select and apply different analytical methods to analyze pharmaceutical materials
(2.2.3)	(2.2.3.1)	Demonstrate the principles of various analytical instruments and apply proper equipment to assess raw materials and pharmaceutical products.
(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. Explain the principles of pharmaceutical calculations and their applications to pharmaceutical analysis
(2.3.1)	(2.3.1.1)	Select and apply proper handling and disposal of chemical compounds and materials used in pharmaceutical analysis.
(2.3.2)	(2.3.2.1)	Choose best practices and adhere to high ethical and safety standards for management of chemical compounds and 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 analyze information to solve problems, and work individually or effectively in a team.
(4.2.2)	(4.2.2.1)	Apply artificial technology whenever possible to present relevant information.

(4.3.1)	**(4.3.1.1)**	Use effective strategies to manage and improve self-practice of pharmacy.
(4.3.2)	**(4.3.2.1)**	Build the ability to learn independently.

4. Course Contents:

	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Photochemistry introduction	2	2	
2.	Thermochemistry	2	2	
3.	Thermodynamics.	2	2	
4.	Chemical Kinetics Introduction	2	2	
5.	Types of reaction orders: Zero and first order	2	2	
6.	Types of reaction orders: Second order	2	2	
7.	Molecularity and order are numerically the same for elementary reaction	2	2	
8.	General inorganic chemistry	2	2	
9.	Equilibrium system	2	2	
10.	Equilibrium Constant.	2	2	
11.	Le Chatiliae principle	2	2	
12.	Mole concept	2	2	
13.	Chemical reactions	2	2	
14.	Revision and quiz	2	2	
15.	**Written and oral exam**			
Practical topics				

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Anions: carbonate group	2		1
2.	Anions: Sulphur group	2		1
3.	Anions: halides	2		1
4.	Anions: cyanogen group	2		1
5.	Anions: phosphorous group	2		1
6.	Cations: Group I	2		1
7.	Cations: Group II	2		1
8	**Periodical exam**	--		--
9.	Cations: Group III	2		1
10.	Cations: Groups IV	2		1
11.	Cations: Group V	2		1
12.	Cations: Group VI	2		1
13.	Analysis of unknown salt “anion and cation”	2		1
14.	**Final Practical Exam**	–		–

5. Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning **1.** Online learning through my mans "Mansoura university "as recorded – video lectures **2.** Inter active discussion through My Mans
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.4	Class Activity: Group discussion offline and online.

5.5	Problem – based learning and brainstorming
5.6	Research assignments to design Formative Assignments
5.7	Roleplay offline
5.8	Tutorial offline and online

6. Student Assessment:

Assessment methods

Periodical exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1
Practical exam	2.3.1.1, 2.3.2.1, 4.1.2.1, 4.2.2.1, 4.3.1.1
Final Written exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1
Oral exam	4.1.2.1, 1.1.1.1, 1.1.3.1

b. Assessment schedule

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

c. Weighting of assessments

1.	Periodical exam	10 %
2.	Written exam	50 %
3.	Oral exam	15 %
4.	Practical exam	25 %
Total		100

7. Matrix of course content versus course key elements:

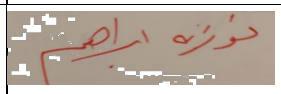
Study Week	Course contents	Domains / Key elements Outcomes												
		Domain 1			Domain 2						Domain 4			
		1.1.1.1	1.1.3.1		2.2.1.1	2.2.3.1	2.2.4.1	2.3.1.1	2.3.2.1		4.1.2.1	4.2.2.1	4.3.1.1	4.3.2.1
	A) Theoretical part													
1	Photochemistry introduction	▯	▯		▯			▯	▯		▯			
2	Thermochemistry		▯				▯				▯	▯		
3	Thermodynamics.		▯				▯					▯	▯	▯
4	Chemical Kinetics Introduction		▯			▯	▯				▯	▯		
5	Types of reaction orders: Zero and first order	▯	▯			▯							▯	▯
6	Types of reaction orders: second order	▯	▯			▯							▯	▯
7	Molecularity and order are numerically the same for elementary reaction		▯					▯				▯		
8	General inorganic chemistry	▯	▯			▯					▯	▯	▯	▯
9	Equilibrium system		▯										▯	
10	Equilibrium Constant.		▯									▯		
11	Le Chatiliae principle		▯								▯		▯	

12	Mole concept		□								□	□	□
13	Chemical reactions	□	□			□		□		□	□		
14	Revision and quiz	□	□		□	□	□			□	□		
	B) Practical part												
1	Anions: carbonate group		□		□	□		□	□	□	□	□	□
2	Anions: Sulphur group		□		□	□		□	□	□	□	□	□
3	Anions: halides		□		□	□		□	□	□	□	□	□
4	Anions: cyanogen group		□		□	□		□	□	□	□	□	□
5	Anions: phosphorous group		□		□	□		□	□	□	□	□	□
6	Cations: Group I		□		□	□	□	□	□	□	□	□	□
7	Cations: Group II		□		□	□		□	□	□	□	□	□
9	Cations: Group III		□		□	□		□	□	□	□	□	□
10	Cations: Groups IV		□		□	□		□	□	□	□	□	□
11	Cations: Group V		□		□	□		□	□	□	□	□	□
12	Cations: Group VI		□		□	□		□	□	□	□	□	□

13	Analysis of unknown salt “anion and cation”												

8. List of References

No	Reference	Type
1.	Lectures notes, prepared by Staff Members of the Department	Course notes
2.	Practical notes, prepared by Staff Members of the Department	Course notes
3.	Raymond Chang, Editor, "Physical Chemistry for the Biosciences" Sausalito, California (2005).	Book
4.	Essentials of Physical Chemistry, Arun Bahl,B.S. Bahl,G.D. Tuli, New Delhi 110055, India (2014)	Book
5.	M.M. Amer, H. Abdine, M. Tawfik" Qualitative Inorganic Analysis", The scientific book center, Cairo, Egypt.	Book
6.	Vogel's Qualitative Inorganic Analysis	Book
7.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	websites

Course Coordinator	**Prof. Dr. Fawzia Ibrahim**
	
Head of Department	**Prof. Dr. Jenny Jeehan Mohamed Nasr**

Date: 10/9/2023

First Level

Course Specification Pharmaceutical Organic Chemistry

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutical Organic Chemistry
Course title: Pharmaceutical Organic Chemistry -1
Course code: ……PC102…

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level 1, First semester, 2023-2024
Date of course specification approval	20/09/2023

1. Basic Information: Course data:

Course title:	Pharmaceutical Organic Chemistry -1	**Code:** PC 102
Specialization:	Basic Science	
Prerequisite:	-	
Teaching Hours:	**Lecture: 2**	**Practical: 1**
Number of units: (credit hours)	**3**	

2. Course Aims:

2.1. Enable the student to understand the basic principles of organic chemistry concerning atomic structures, nomenclature, preparation, and chemical properties.
2.2. Enable the student to understand the basics of the chemical reactions and their reactions.
2.3. Teach the students the basics of functional group transformation in different organic compounds
2.4. Enable the student to determine the physical constants and recognize the chemical properties of organic compounds.
2.5. Practice the students to identify unknown 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	Represent and list various structural formulas of different organic compounds and know the effect of the intermolecular forces in the physical and chemical properties of the organic compounds.
1.1.3	1.1.3.1	Understand and identify some of the chemical reaction mechanism.

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 and identify various methods of preparation of some organic molecules belonging to different organic classes.
2.2.3	2.2.3.1	Perform chemical reactions to recognize the presence of some functional groups in the organic compounds.

Domain 4: Personal Practice:

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

4- Course Contents:

Week No	Topics	Lecture credit hours
1-2	Atoms and bonding, Intermolecular forces, and electronic displacements factors	4
3	Stability of carbon intermediate, acidity, and basicity concepts	2
4	Alkanes, Cycloalkanes, Spiroalkanes: nomenclature, preparations, reactions	2
5	Alkenes and cycloalkenes: nomenclature, Elimination, and addition reactions	2
6	Alkynes: nomenclature, preparation, addition	2

	reaction	
7	Alkyl halides: nomenclature, preparation, substitution reactions (SN1 and SN2), elimination reactions	2
8	Alcohols and Ether: nomenclature, preparations, reactions.	2
9	Aldehydes And Ketones: nomenclature, preparations, reactions.	2
10	Carboxylic Acids: nomenclature, preparations, reactions.	2
11	Carboxylic Acids Derivatives: esters, amides,	2
12	Carboxylic Acids Derivatives: nitriles, acyl halides, anhydrides.	2
13	Aromatic Carboxylic Acids	2
14	Revision/Quiz	2
15	Start of Final written & oral exams	-
Week No	**Practical Topics**	**Practical / Tutorial credit hours**
1-2	Physical Characters, solubility	2
3-4	Action of soda lime, action of 30% NaOH	2
5-6	Action of Na_2CO_3	2
7	Action of $FeCl_3$	1
8	**Periodical Exam**	-
9	Element test	1
10-11	General scheme of Identification (Solid sample)	2
12	General scheme of Identification (Liquid sample)	1
13	General scheme of Identification of unknown organic compounds	1
14	Practical exam	1

5. Teaching and learning Methods:

5.1	Computer aided learning: a. On line learning through My mans "Mansoura university "as recorded – video lectures b. Interactive discussion through My Mans c. Class Lectures using Data show, PowerPoint presentations and Stereochemical Chemical models and animations.
5.2	Self-learning
5.3	Formative Assignments
5.4	Tutorial

6. Student Assessment:

- **Assessment methods**

1. Periodical exam	To assess understanding, intellectual and professional skills.
2. Practical exam	To assess professional and practical skills.
3. Oral exam	To assess understanding and intellectual skills and general and transferrable skills.
4. Final Written exam	To assess understanding, intellectual and professional skills.

- **Assessment schedule**

Assessment 1	**Practical**	14th week
Assessment 2	**Periodical**	8th week
Assessment 3	**Oral**	Start from 15th week
Assessment 4	**Written**	Start from15th week

- **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. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes					
		Domain 1		Domain 2		Domain 3	
		1.1.1.1	1.1.3.1	2.2.1.1	2.2.3.1	4.1.2.1	4.3.2.1
	A) Theoretical part						
1-2	Atoms and bonding, Intermolecular forces, and electronic displacements factors	✓			✓	✓	
3	Stability of carbon intermediate, acidity, and basicity concepts	✓			✓	✓	
4	Alkanes, Cycloalkanes, Spiroalkanes: nomenclature, preparations, reactions	✓	✓	✓	✓	✓	
5	Alkenes and cycloalkenes: nomenclature, Elimination, and addition reactions	✓	✓	✓	✓		✓
6	Alkynes: nomenclature, preparation, addition reaction	✓	✓	✓	✓		✓
7	Alkyl halides: nomenclature, preparation, substitution reactions (SN1 and SN2), elimination reactions	✓	✓	✓	✓		✓
8	Alcohols and Ether: nomenclature, preparations, reactions.	✓	✓	✓	✓		✓
9	Aldehydes And Ketones: nomenclature, preparations, reactions.	✓	✓	✓	✓		✓
10	Carboxylic Acids: nomenclature, preparations, reactions.	✓	✓	✓	✓		✓
11	Carboxylic Acids Derivatives: esters, amides,	✓	✓	✓	✓	✓	
12	Carboxylic Acids Derivatives: nitriles, acyl halides, anhydrides.	✓	✓	✓	✓		✓
13	Aromatic Carboxylic Acids	✓	✓	✓	✓		✓
14	Revision/Quiz	✓	✓	✓	✓		✓
	B) Practical part						
1-2	Physical Characters, solubility	✓		✓	✓	✓	✓
3-4	Action of soda lime, action of 30% NaOH	✓	✓	✓	✓	✓	✓
5-7	Action of Na2CO3, Action of $FeCl_3$	✓	✓	✓	✓	✓	✓
9-10	Element test, general scheme	✓	✓	✓	✓	✓	✓

11	General scheme of Identification (Solid sample)	✓	✓	✓	✓	✓	✓
12	General scheme of Identification (Liquid sample)			✓	✓	✓	✓
13	General scheme of Identification of unknown organic compounds			✓	✓	✓	✓

8. List of References

N0.	Reference	type
1	Theoretical course Notes prepared by staff members	Course notes
2	Organic Chemistry by William H. Brown (Harcourt Brace College Publishers)	Book
3	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.	Book
4	Solomons, G.T., Fryhle, C.B., Snyder, S.A.. *Organic Chemistry*. Ed. 12th, John Wiley & Sons, Global edition, 2017.	Book

Course Coordinator:	Prof. Dr. Fatma El-Nabawya Goda
Head of Department:	Prof. Shahenda Metwally El-Messery

Date: 20/09/2023

First Level | **Biophysics**

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Biochemistry
Course title: **Biophysics**
Course code: MD 101

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

1. Basic Information: Course data :

Course title:	**Biophysics**	**Code: MD 101**
Specialization:	**Pharmaceutical**	
Prerequisite:	**Registration**	
Teaching Hours:	**Lecture: 1**	**Practical: 1**
Number of units: (credit hours)	**2**	

2. Course Aims:

1. Acquire the basic knowledge in biology and physics required to improve pharmaceutical industry such as the interactions between the components of biological systems) & the physical structure of cell membrane, fluid mosaic model, the functions of cell membrane, the functions of lipid content of cell membrane.
2. A acquire knowledge about transport mechanisms of large molecules through cell membrane (exocytosis & endocytosis), heart/blood vessels circuit, blood pressure & blood flow.
3. Acquire basic practical techniques in area of biology

3. Course k. elements:

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program Key elements no.	Course Key elements no.	Course Key elements
(1.1.1)	(1.1.1.1)	Recall in-depth and breadth knowledge of biochemical and clinical sciences.
(1.1.5)	(1.1.5.1)	Identify and apply the principles, practice, and critical understanding of fundamental sciences to solve problems related to human health and health systems.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program Key elements no.	Course Key elements no.	Course Key elements
(2.3.1)	(2.3.1.1)	Select, and apply appropriate methods and procedures and resources for handling and disposal of synthetic/natural materials and biological items used in pharmacy.

DOMAIN 4: PERSONAL PRACTICE

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

4. Course Contents:

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Measurement units & level of organization	1	1	
2.	Cell membrane physical structure (fluid mosaic model).	1	1	
3.	Functions of cell membrane components	1	1	
4.	Transport of small molecules (Passive and Active Diffusion)	1	1	
5.	Transport of large molecules (Exocytosis & Endocytosis).	1	1	
6.	Membrane potential and Action potential	1	1	
7.	**Mid-term Exam**			
8.	Cardiac action potential and ECG	1	1	
9.	EEG, MRI, MEG	1	1	
10-11.	Hemodynamics and factors affecting blood flow	2	2	
12-13.	Blood flow problems	2	2	
13.	**Practical Exam**			
14.	**Revision/quiz**			
15.	**Starting of Final written & oral**			

Practical topics

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Cell membrane structure	2		1
2.	The Relationship between Absorbance and Concentration	2		1

3.	Determination of the molar absorption coefficient	2	1
4-5.	Factors affecting blood hemolysis	4	2
6-7.	Study of the spectral characteristics of plant pigments	4	2
8	Midterm exam	-	-
9.	Absorption spectrum of hemoglobin	2	1
10-11.	Seminars and discussion	4	-
12.	PH definition , buffers and methods of measurement	2	1
13.	The Effect of Enzyme Concentration on Enzyme Activity	2	1
14	Revision/ quiz – practical exam	2	1

5. Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning **1.** Online learning through my mans "Mansoura university "as recorded – video lectures **2.** Inter active discussion through My Mans
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.4	Class Activity: Group discussion offline and online.
5.5	Problem – based learning and brainstorming
5.6	Research assignments to design Formative Assignments
5.7	Tutorial offline and online

6. Student Assessment:

a- Assessment methods

Mid Term exam	(1.1.1.1) (1.1.5.1) (2.3.1.1)
Practical exam	(1.1.1.1) (1.1.5.1) (2.3.1.1) (4.1.1.1) (4.1.2.1) (4.2.1.1) (4.2.2.1) (4.3.1.1) (4.3.2.1)
Final Written exam	(1.1.1.1) (1.1.5.1) (2.3.1.1)
Oral exam	(1.1.1.1) (1.1.5.1) (2.3.1.1) (4.1.1.1) (4.1.2.1) (4.2.1.1) (4.2.2.1)

	(4.3.1.1) (4.3.2.1)

b. Assessment schedule

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

c. Weighting of assessments

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

7. Matrix of course content versus course key elements:

Course contents	Domains / Key elements Outcomes									
	Domain 1			Domain 2		Domain 4				
	1.1.1.1	1.1.5.1		2.3.1.1		4.1.1.1	4.1.2.1	4.2.1.1	4.2.2.1	4.3.1.1	4.3.2.1
A) Theoretical part											
Measurement units & level of organization		✓		✓			✓		✓		
Cell membrane physical structure (fluid mosaic model).	✓	✓					✓		✓		
Functions of cell membrane components	✓	✓					✓		✓		
Transport of small molecules (Passive and Active Diffusion)	✓	✓					✓		✓		
Transport of large molecules (Exocytosis & Endocytosis).	✓	✓					✓		✓		
Membrane potential and Action potential	✓	✓					✓		✓		
Cardiac action potential and ECG	✓	✓					✓		✓		
EEG, MRI, MEG		✓		✓			✓		✓		
Hemodynamics and factors affecting blood flow		✓		✓			✓		✓		
Blood flow problems	✓	✓					✓		✓		

B) Practical part										
Cell membrane structure	✓			✓	✓	✓	✓	✓	✓	
The Relationship between Absorbance and Concentration	✓			✓	✓	✓	✓	✓	✓	
Determination of the molar absorption coefficient	✓			✓	✓	✓	✓	✓	✓	
Factors affecting blood hemolysis	✓			✓	✓	✓	✓	✓	✓	
Study of the spectral characteristics of plant pigments			✓	✓	✓	✓	✓	✓	✓	
Absorption spectrum of hemoglobin	✓			✓	✓	✓	✓	✓	✓	
Seminars and discussion	✓	✓	✓	✓	✓	✓	✓	✓	✓	
PH definition , buffers and methods of measurement	✓			✓	✓	✓	✓	✓	✓	
The Effect of Enzyme Concentration on Enzyme Activity		✓		✓	✓	✓	✓	✓	✓	
Revision	✓	✓	✓	✓	✓	✓	✓	✓	✓	

8. List of References

No	Reference	Type
1.	Fundamental concepts in biophysics Volume one, Jue, Thomas, 2009.	Course notes
2.	Pubmed, Highwire, Biomednet	Websites

Course Coordinator	**Asst. Prof. Dr. Mohamed Elsayed Ahmed Mohamed Elmesiry**
Head of Department	**Dr. Noha Mansour Hassan**

Date: 9/2023

Level-1
Clinical Pharmacy Students
(Credit Hour System)

Course Specification: Botany and Medicinal Plants

University: **Mansoura**

Faculty: **Pharmacy**

Department: **Pharmacognosy**

Course title: **Botany and Medicinal Plants**

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level **1**, First semester, 2023-2024
Date of course specification approval	6/9/2024

1- Basic Information : Course data :

Course title:	**Botany and Medicinal Plants**	**Code: PG 101**
Specialization:	**Basic science**	
Prerequisite:	**Registration**	
Teaching credit Hours:	**Lecture: 2**	**Practical: 1**
Total Number of units: (credit hours)	**3 hours**	

2- Course Aims:

1. Provide the student with basic idea about cell structure, cell contents, plant tissues and cell physiology

2. Highlight concept of Pharmacognosy
3. To give the student awareness with classification of plants

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.
	1.1.3.2	Combine the principles of fundamental sciences to handle, identify, extract, design, prepare, analyze, and assure quality of synthetic/natural pharmaceutical raw materials.
1.1.5	1.1.5.1	Articulate knowledge about adulteration of different medicinal leaves

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
2.2.2	2.2.2.1	Employ basic requirements for quality management in developing, manufacturing, and storing natural pharmaceuticals.
2.3.1	2.3.1.1	Apply appropriate methods and procedures for handling 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- Course Contents:

Week No.	Topics	Lecture credit Hours
1	**Plant cell structure and function**	2
2	**Plant tissues** (Meristematic, dermal, ground)	2
3	**Dusting powders** (Keiselguhr, talc, chalk, kaolin, precipitated sulfur, lycopodium spores, kamala)	2
4	**Introduction to Pharmacognosy** - Definitions (Crude drug, pharmacopeia, …. etc.), History of Pharmacognosy and Production of crude drugs	2
5	**Taxonomy: Introduction** Basis of classification of plant kingdom.	2
6	**Kingdom Plantae** Some important plant families (from medicinal point of view).	2
7	**Plant physiology** (Minerals and Enzymes)	2
8	**Plant physiology** ○ **Photosynthesis** Light-dependent reactions, Light-independent reactions	2
9	**Plant tissues:** **Supporting, vascular and secretory tissues.**	2
10	**Anatomical features of some plant organs:** (leaf, stem and root)	2
11	**Introduction to Pharmacognosy (continued)** - Storage of drugs (deterioration, factors, …. etc.) - Adulteration (types, ….) - Evaluation of crude drugs (organoleptic, microscopic, biological, …. etc.)	2
12	**Introduction to Pharmacognosy (continued)** Chemistry of crude drugs (Gums/mucilage, Resins, Tannins, Volatile oils, Alkaloids, Glycosides, … etc.)	2
13	**Plant physiology** Respiration, Glycolysis, Formation of Acetyl Coenzyme A	2
14	Krebs Cycle, Oxidative phosphorylation: electron transport and chemiosmosis	2
15	**Final written and oral exam**	

Week No.	Practical topics	Practical credit hours
1.	**Microscopy and plant cells** (Onion cell).	1
2.	**Ergastic cell substances (**Carbohydrates, proteins, fat, calcium carbonate and calcium oxalate).	1
3.	**Examination of Dusting Powders** (Keiselguhr, talc, chalk, kaolin, precipitated sulfur, lycopodium spores, kamala)	1
4.	**Dermal tissue (stomata and trichome)**	1
5.	**Ground tissue (pw. Cinnamon)**	1
6.	**Vascular tissue (T.S in pith)**	1
7.	**Leaf anatomy (T.S in Eucalyptus)**	1
8.	**Stem anatomy (T.S in basil stem)**	1
9.	**Root anatomy (T.S in radish root)**	1
10.	**Taxonomy of medicinally important monocot Plant Families.** Graminae, Liliaceae	1
11.	**Taxonomy of medicinally important dicot Plant Families.** Solanaceae, Zingiberaceae	1
12.	**Taxonomy of medicinally important dicot Plant Families** Compositae, Cruciferae	1
13.	**Taxonomy of medicinally important dicot Plant Families.** Leguminosae and Labiatae	1
14.	**Practical exam**	

5- Teaching and Learning Methods:

5.1	**Lectures using Power point (PPT) presentations**
	Computer aided learning: **a. Online learning through my mans "Mansoura university "as recorded – video lectures** **b. Inter active discussion through My Mans**
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

Mid Term exam	To assess understanding, intellectual and professional skills.
Practical exam	To assess professional and practical skills.
Final Written exam	To assess understanding, intellectual and professional skills.
Oral exam	To assess understanding, intellectual , general and transferable skills

b. Assessment schedule

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

c. Weighting of assessments

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

7- Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes											
		Domain 1					Domain 2				Domain 4		
		1.1.1.1	1.1.3.1	1.1.3.2	1.1.5.1		2.2.1.1	2.2.2.1	2.3.1.1		4.1.1.1	4.2.1.1	4.3.2.1
	1. Theoretical Part												
1	**Plant cell structure and function**	✓									✓	✓	
2	**Plant tissues** (Meristematic, dermal, ground)	✓			✓						✓	✓	
3	**Dusting powders** (Keiselguhr, talc, chalk, kaolin, precipitated sulfur, lycopodium spores, kamala)	✓			✓						✓	✓	
4	**Introduction to Pharmacognosy** - Definitions (Crude drug, pharmacopeia, …. etc.), History of Pharmacognosy and Production of crude drugs	✓			✓						✓	✓	
5	**Taxonomy: Introduction** Basis of classification of plant kingdom.		✓	✓								✓	
6	**Kingdom Plantae** Some important plant families (from medicinal point of view).		✓	✓									✓
7	**Plant physiology** (Minerals and Enzymes)		✓	✓		✓							✓
8	**Plant physiology** **Photosynthesis** Light-dependent reactions, Light-independent reactions		✓	✓		✓							✓
9	**Plant tissues:** **Supporting, vascular and secretory tissues.**		✓			✓							✓

10	**Anatomical features of some plant organs:** (leaf, stem and root)	✓		✓							✓		✓
11	**Introduction to Pharmacognosy (continued)** - Storage of drugs (deterioration, factors, …. etc.) - Adulteration (types, ….) - Evaluation of crude drugs (organoleptic, microscopic, biological, …. etc.)	✓		✓	✓						✓		✓
12	**Introduction to Pharmacognosy (continued)** Chemistry of crude drugs (Gums/mucilage, Resins, Tannins, Volatile oils, Alkaloids, Glycosides, … etc.)			✓	✓						✓		✓
13	**Plant physiology** Respiration, Glycolysis, Formation of Acetyl Coenzyme A	✓		✓							✓		✓
14	Krebs Cycle, Oxidative phosphorylation: electron transport and chemiosmosis	✓		✓	✓								✓
	2. **Practical Part**												
1	**Microscopy and plant cells** (Onion cell).						✓	✓	✓		✓	✓	✓
2	**Ergastic cell substances (**Carbohydrates, proteins, fat, calcium carbonate and calcium oxalate).						✓	✓	✓		✓	✓	✓
3	**Examination of Dusting Powders** (Keiselguhr, talc, chalk, kaolin, precipitated sulfur, lycopodium spores, kamala)						✓	✓	✓		✓	✓	✓
4	**Dermal tissue (stomata and trichome)**						✓	✓	✓		✓	✓	✓
5	**Ground tissue (pw. Cinnamon)**						✓	✓	✓		✓	✓	✓
6	**Vascular tissue (T.S in pith)**						✓	✓	✓		✓	✓	✓
7	**Leaf anatomy (T.S in Eucalyptus)**						✓	✓	✓		✓	✓	✓
8	**Stem anatomy (T.S in basil stem)**						✓	✓	✓		✓	✓	✓

9	**Root anatomy (T.S in radish root)**						✓	✓	✓		✓	✓	✓
10	**Taxonomy of medicinally important monocot Plant Families.** Graminae, Liliaceae						✓	✓	✓		✓	✓	✓
11	**Taxonomy of medicinally important dicot Plant Families.** Solanaceae, Zingiberaceae						✓	✓	✓		✓	✓	✓
12	**Taxonomy of medicinally important dicot Plant Families** Compositae, Cruciferae						✓	✓	✓		✓	✓	✓
13	**Taxonomy of medicinally important dicot Plant Families.** Leguminosae and Labiatae												

8- List of References:

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**
3.	Charles, B.B., An introduction to the plant structure and development, Cambridge University Press, 2015	**Book**
4.	**Goodwin, T.W., Introduction to Plant Biochemistry, 4nd edition, Cbs, 2016**	**Book**
5.	https://www.encyclopedia.com/social-sciences/applied-and-social-sciences-magazines/plant-anatomy. November, 2020	**websites**
6.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	**websites**

Course Coordinator	**Prof. Dr. Ahmed Abu El-Ghait Gohar**
Head of Department	**Prof. Dr. Mahmoud F. Elsebai**

Date: 6/9/2023

Mansoura University
Faculty of Pharmacy
Clinical Pharmacy Program

Course specification
2023- 2024

First Level **Course Specification** Cell Biology

University:	Mansoura University (MU)
Faculty:	Pharmacy
Department:	Biochemistry
Course title:	Cell biology
Course code:	MD 102

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level 1,First semester, 2023-2024
Date of course specification approval	16/9/2023

1. **Basic Information: Course data:**

Course title:	Cell biology	**Code:** MD 102
Specialization:	Clinical Pharmacy	
Prerequisite:	**Registration**	
Teaching Hours:	**Lecture: 1**	**Practical: 1**
Number of units: **(credit hours)**	**2 hours**	

2. Course Aims:

On the completion of the course, the students should be able:

2.1. To provide comprehensive coverage of cell biology and subcellular organisms.
2.2. To learn the interrelationship between cell cycle, apoptosis, and cancer
2.3. To study cell signaling mechanisms.
2.4. To equip students with skills those are both of value to future employment in some areas of biology.

3. Course k. elements:

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

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program Key elements no.	Course Key elements no.	Course Key elements
(1.1.1)	**(1.1.1.1)**	Recall in-depth and breadth knowledge of biochemical and clinical sciences.
(1.1.2)	**(1.1.2.1)**	Recognize appropriate pharmaceutical and medical terminology, abbreviations, and symbols in pharmacy practice
(1.1.5)	**(1.1.5.1)**	Identify and apply the principles, practice, and critical understanding of fundamental sciences to solve problems related to human health and health systems.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

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

DOMAIN 3: PHARMACEUTICAL CARE

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

DOMAIN 4: PERSONAL PRACTICE

Program Key elements no.	Course Key elements no.	Course Key elements
(4.1.1)	**(4.1.1.1)**	Share decision-making activities with other with other pharmacy team members and non-pharmacy team members and apply effective time management skills.

(4.1.2)	**(4.1.2.1)**	Collect information and analyze data, identify problems, and present solutions, participate independently and collaboratively with other team members in the healthcare system.
(4.2.1)	**(4.2.1.1)**	Use clear language, pace, tone and non-verbal communication and writing skills when dealing with patients, other health team and communities.
(4.2.2)	**(4.2.2.1)**	Utilize advanced technologies and channels whenever possible to present relevant information.
(4.3.1)	**(4.3.1.1)**	Conduct self-evaluation strategies to manage and improve professional of pharmacy.
(4.3.2)	**(4.3.2.1)**	Promote continuous professional development by practicing self and independent learning.

4. Course Contents:

Week No	Topics	Lecture credit hours
1	Mission and Vision of the Biochemistry Department, Course Aims & Course Objectives	1
2	Cell Biology and Cell Theory	1
3	Levels of Biological Organization, Subcellular Structures (Organelles)-1	1
4	Levels of Biological Organization, Subcellular Structures (Organelles)-2	1
5	Biological Membranes	1
6	Cell inclusions	1
7	Transport Across Cell Membrane	1

8	Macromolecules	1
9	Protein Folding and Processing	1
10	Cell division and cell cycle	1
11	Cell cycle control and cancer	1
12	Cell-cell communication	1
13	Cellular energetics	1
14	**Revision and quiz**	1
15	**Final written & oral**	
Week No	**Topics**	**Practical credit hours**
1	Lab safety and devices	1
2	Microscopes: Types, parts, and specifications	1
3	Units, Amounts, Concentrations	1
4	Types of white blood cells	1
5	Factors affecting blood hemolysis	1
6	Composition and permeability of cell membrane	1
7	Sub-Cellular Fractionation & Sub-cellular Fraction identification	1
8	**Mid-term exam**	
9	Enzymes	1
10	Blood grouping	1
11	Pipettes	1
12	How to research for certain topic	1
13	Revision	1
14	Practical Exam	

5. Teaching and learning Methods:

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

5.2	Class Activity Discussion
5.3	Practical sessions using Laboratory equipment, white board, and Data show
5.4	Computer aided learning: Group discussion
5.5	Problem solving- based learning and Brain storming

6. Student Assessment:

1. **Assessment methods**

1. Mid Term exam	1.1.1.1, 1.1.2.1, 1.1.5.1, 2.3.1.1, 4.1.2.1
2. Practical exam	2.3.1.1, 2.3.2.1, 3.1.1.1, 3.1.4.1
3. Final Written exam	1.1.1.1, 1.1.2.1, 1.1.5.1, 2.3.1.1, 2.3.2.1,
4. Oral exam	1.1.1.1, 1.1.2.1, 1.1.5.1, 4.1.1.1, 4.1.2.1, 4.2.1.1, 4.2.2.1, 4.3.1.1, 4.3.2.1

2. **Assessment schedule**

Assessment 1	Practical	14th week
Assessment 2	Periodical	8th week
Assessment 3	Oral	15th week
Assessment 4	Written	15thweek

3. **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. Matrix of course content versus course key elements:

Study Wee	Course contents	Domains / Key elements Outcomes															
		Domain 1				Domain 2			Domain 3			Domain 4					
		1.1	1.1	1.1		2.3	2.3		3.1.	3.		4.1	4.1	4.2	4.2	4.3	4.3

k		.1.1	.2.1	.5.1		.1.1	.2.1		1.1	1.4.1		.1.1	.2.1	.1.1	.2.1	.1.1	.2.1
	A) Theoretical part																
1	Mission and Vision of the Biochemistry Department, Course Aims & Course Objectives	✔	✔			✔			✔			✔		✔			✔
2	Cell Biology and Cell Theory	✔	✔			✔	✔								✔	✔	
3	Levels of Biological Organization, Subcellular Structures (Organelles)-1		✔	✔		✔	✔		✔			✔					✔
4	Levels of Biological Organization, Subcellu			✔		✔				✔			✔	✔	✔		

	lar Structures (Organelles)-2															
5	Biological Membranes			✔		✔			✔			✔		✔			✔
6	Cell inclusions	✔	✔				✔		✔						✔	✔	
7	Transport Across Cell Membrane	✔		✔		✔	✔		✔					✔		✔	
8	Macromolecules	✔		✔		✔	✔		✔	✔			✔	✔			
9	Protein Folding and Processing	✔		✔		✔	✔		✔	✔			✔	✔			
10	Cell division and cell cycle		✔			✔	✔		✔	✔				✔			✔
11	Cell cycle control and cancer	✔	✔				✔		✔			✔		✔	✔		✔
12	Cell-cell communication	✔	✔			✔	✔		✔				✔	✔			
13	Cellular energeti	✔		✔			✔		✔				✔	✔		✔	

	cs															
	B) Practical part															
1	Lab safety and devices		✔	✔		✔	✔		✔				✔	✔	✔		✔
2	Microscopes: Types, parts, and specifications	✔		✔		✔	✔		✔	✔			✔	✔			
3	Units, Amounts, Concentrations	✔		✔		✔	✔		✔			✔			✔		✔
4	Types of white blood cells		✔				✔			✔			✔		✔		
5	Factors affecting blood hemolysis		✔	✔		✔	✔		✔			✔				✔	✔
6	Composition and permeability of cell membrane	✔		✔			✔		✔	✔			✔				
7	Sub-Cellular Fractionation &		✔			✔	✔		✔	✔			✔	✔	✔	✔	

	Sub-cellular Fraction identification															
9	Enzymes	✔		✔		✔	✔		✔	✔			✔			✔	
10	Blood grouping	✔	✔			✔	✔		✔	✔		✔		✔	✔	✔	
11	Pipettes	✔		✔		✔	✔		✔	✔				✔	✔		
12	How to research for certain topic	✔	✔	✔			✔		✔			✔	✔		✔		
13	Revision	✔	✔				✔		✔			✔	✔		✔	✔	

8. List of References

No	Reference	Type
1.	Cell biology course notes by staff members of Biochemistry department	Course notes
2.	Molecular cell biology, by Lodish 5th edition	Essential Book
3.	Biology: N.A Campbell, J.B. Reece, L.G. Mitchell, 7th edition	Supplementary Textbooks
4.	Molecular and Cellular Biology: https://mcb.asm.org	websites

Mansoura University
Faculty of Pharmacy
Clinical Pharmacy Program

Course specification
2023- 2024

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

Date: 16/9/2023

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

Level one

Course Specification: Mathematics and statistics

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacology and toxicology
Course title: Mathematics and statistics
Course code: MS 101

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level 1, First semester, 2023-2024
Date of course specification approval	18/9/2023

1. Basic Information: Course data:

Course title:	**Mathematics and statistics**	**Code: MS 101**
Specialization:	**Basic**	
Prerequisite:	**Registration**	
Teaching Hours:	**Lecture: 2**	**Practical: -**
Number of units: (credit hours)	**2**	

2. Course Aims:

1. The students can make interpretation of any data using statistical analysis.
2. The students can determine different methods of sampling and mathematical calculations.
3. The students can handle the results of different experimental and research studies using suitable statistical techniques.

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
1-1-3	1-1-3-1	Combine the principles of mathematical sciences to identify and analyze synthetic/natural pharmaceutical raw materials and finished products.

1-1-5	1-1-5-1	Gather and apply the principles and practice of mathematical sciences to solve problems related to health systems
1-1-6	1-1-6-1	Access, retrieve, statistically analyze and apply relevant scientific literature and other scientific resources to make professional final decisions
1-1-7	1-1-7-1	Collect and statistically analyze new information that may be applicable to pharmaceutical industry and patient care.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2-2-4	2-2-4-1	Enroll quality control and quality assurance principles including Mathematical calculations, biostatical analysis, and assessment procedures of all the processes of pharmaceutical formulations.
2-6-1	2-6-1-1	Enroll the basic principles involved in managing financial, human resources and business administration in the pharmacy.
2-6-2	2-6-2-1	Use guidelines of sales, marketing, accounting and outcomes of pharmacoeconomic analysis.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4-1-2	4-1-2-1	Collect information and analyze data, identify problems and present solutions, participate with other team members in the healthcare system.

4- Contents:

Week No.	Topics	Lecture credit Hours
1	Math introduction	2
2	Differentiation	2
3	Functions and Domain	2
4	Logarithmic functions	2
5	Integration	2
6	Biostatistics introduction – types of variables	2
7	Descriptive statistics (tubular)	2

8	Descriptive statistics (diagrams)	2
9	Numerical description of data (mean, median, mode)	2
10	Measures of dispersion, Tests of significance	2
11	Confidence limits, Normal deviate test	2
12	Unpaired t test	2
13	Paired t test (Self learning)	2
14	**Quiz**	2
15	**Final written exam**	

5. Teaching and learning Methods:

5.1	**Advanced Lectures:** **A. Lectures using data show, Power point (PPT) presentations.**
5.2	**Distance learning:** • **Online learning through my mans "Mansoura university"** • **Inter active session discussion through my mans**
5.3	**Self-learning**
5.4	**Collaborative learning**

6. Student Assessment:

a- Assessment Methods:

Written exam	1-1-3, 1-1-5, 1-1-6, 1-1-7, 2-2-4, 2-6-1, 2-6-2
Mid-term exam	1-1-3, 1-1-5, 1-1-9, 2-2-4, 2-6-1, 2-6-2, 4-1-2

b- Assessment schedule

Assessment 1	**Mid-term exam**	8th week
Assessment 2	**Final written exam**	Start from 15th week

c- Weighing of assessments

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

7. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes									
		Domain 1					Domain 2				Domain 4
		1.1.3.1	1.1.5.1	1.1.6.1	1.1.7.1		2.2.4.1	2.6.1.1	2.6.2.1		4.1.2.1
1	Math introduction	√	√								
2	Differentiation	√	√				√	√	√		√
3	Functions and Domain	√	√				√	√	√		
4	Logarithmic functions	√	√				√	√	√		
5	Integration	√	√				√	√	√		√
6	Biostatistics introduction – types of variables-			√	√		√				√
7	Descriptive statistics (tubular)			√	√		√				√
8	Descriptive statistics (diagrams)			√	√		√				√
9	Numerical description of data (mean, median, mode)			√	√		√				√
10	Measures of dispersion, Tests of significance			√	√		√				√
11	Confidence limits, Normal deviate test			√	√		√				√
12	Unpaired t test			√	√		√				√
13	Paired t test (self-learning)			√	√		√				√
14	Quiz	√	√	√	√		√	√	√		√

8. List of References

N0.	Reference	Type
1	Theoretical course Notes prepared by staff members	Course notes
2	Essential Statistics for the Pharmaceutical Sciences, 2nd Edition, Philip Rowe, ISBN: 978-1-118-91338-3 September 2015 Wiley-Blackwell-440 Pages	Reference textbook
3	Medical Statistics at a Glance, 4th Edition, Aviva Petrie, Caroline Sabin, ISBN: 978-1-119-16783-9 July 2019 Wiley-Blackwell 208 Pages	Reference textbook

Course Coordinator	Dr. Marwa Elsayed Abdelmageed
	
Head of Department	Prof. Dr. Manar A Nader 

Date: 18/9/2023

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

المستوى الأول

توصيف مقرر English Language

Faculty : Faculty of Pharmacy
Department : Clinical Pharmacy Program

1- Course data :-

Code:	EN 101	Course name:	English Language	Level:	One
Specialization:	• pharmaceutical sciences				
Teaching Hours:					
	Lecture:	2	Tutorial:		Practical:
Number of units:	14				

2- Course aims :-

1. improve the academic skills required by the students to cope with the requirements of their academic field

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
1.1.2	1.1.2.1	Utilize the proper pharmaceutical and medical terminology in pharmacy practice and recall names of drug.

Domain 4: Personal Practice:

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

4.1.2	**4.1.2.1**	Share decision-making activities with other team members and apply effective time management skills.
4.3.2	**4.3.2.1**	Practice independent learning needed for continuous professional development.

4- Course contents :-

S	Course contents	No. of credit hours
1	Parts of the sentence	2
2	Copmlements	2
3	Phrases	2
4	Clauses and Sentence Structure	2
5	Diagraming Sentences	2
6	Organizing the essay	2
7	Giving Examples	2
8	Defining	2
9	Describing Process	2
10	Punctuation	2
11	Vocabulary (Roots- Prefix- Suffix- Words for Size)	2
12	Reading (Finding Main Ideas And Supporting Details- Skimming For Specific Information- How Thoughts Are Related- Making Inferences	2
13	Abbrieviations	2
14	Translation	2

5- Teaching and learning methods :-

S	Method	1.1.2.1	4.1.2.1.	4.3.2.1.
1	Lectures using data show and board	√	√	√
2	Group tutorial	√	√	√
3	Home works, reports and discussion groups	√	√	√

6- Teaching and learning methods of disables :-

1. Dividing them into smaller groups
2. Assigning them to do some more work to be evaluated

7- Activities and sources of teaching and learning :-

S	Activities and resources	1.1.2.1	4.1.2.1.	4.3.2.1.
1	Course book drills	√	√	√
2	Photocopied materials and activities	√	√	√
3	Power Point Presentations	√	√	√

8- Student assessment :-

a- Student assessment methods

No	Method	1.1.2.1	4.1.2.1.	4.3.2.1.
1	Mid exam- Final exam	√	√	√
2	Final exam	√		

b- Assessment schedule

No	Method	Week
1	Midterm exam	Week 8
2	Final exam	Week 15

c- Weighting of assessments

No	Method	Weight
1	Mid_term examination	10
2	Final_term examination	90
3	Oral examination	0
4	Practical examination	0
5	Semester work	0
6	Other types of assessment	0
Total		100%

9- List of references

S	Item	Type
1	Anthology by ESP Center - Mansoura University	Books
2	Peterson's Master Toefl Reading Skills	Books
3	Academic Writing A Handbook For International Students	Books
4	Prefixes and Suffixes	Books
5	English for Pharmacy Writing and Oral Communication	Books

10- Matrix of knowledge and skills of the course

S	Course contents	Study week	1.1.2.1	4.1.2.1.	4.3.2.1.
1	Parts of the sentence	1	√	√	√
2	Copmlements	2	√	√	√
3	Phrases	3	√	√	√
4	Clauses and Sentence Structure	4	√	√	√
5	Diagraming Sentences	5	√	√	√
6	Organizing the essay	6	√	√	√
7	Giving Examples	7	√	√	√
8	Defining	8	√	√	√
9	Describing Process	9	√	√	√
10	Punctuation	10	√	√	√
11	Vocabulary (Roots- Prefix- Suffix- Words for Size)	11	√	√	√
12	Reading (Finding Main Ideas And Supporting Details- Skimming For Specific Information- How Thoughts Are	12	√	√	√

	Related- Making Inferences				
13	Abbrieviations	13	√	√	√
14	Translation	14	√	√	√

Course Coordinator(s): -

1. Neven

Head of department: -

Vice dean of education and Students affairs

First Level

Course Specification Pharmaceutical Organic Chemistry

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutical Organic Chemistry
Course title: Pharmaceutical Organic Chemistry -2
Course code: ……PC203 …

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level 1, Second semester, 2023-2024
Date of course specification approval	20/9/2023

1. Basic Information: Course data:

Course title:	Pharmaceutical Organic Chemistry -2..	**Code:** PC203……
Specialization:	Basic Sciences	
Prerequisite:	Pharmaceutical Organic Chemistry -1	
Teaching Hours:	**Lecture: 2**	**Practical: 1**
Number of units: (credit hours)	**3**	

2. Course Aims:

2.1. Orienting the students to gain the basic principles of organic chemistry concerning the aromaticity and physical properties related to aromaticity.

2.2. Recognizing different aromatic substitution reactions and their mechanisms.

2.3. Knowing the basic principles of stereochemistry of aromatic compounds.

2.4. Knowing the basic principles of organic chemistry related to the structures, preparations, properties and reactions of different aromatic compounds.

2.5. Recognizing different functional group transformations.

2.6. Gaining the basic aspects of structure elucidation of simple 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	List and recognize the basic principles of different mechanisms of organic reactions of hydroxy compounds, carboxylic acids and amines.
1.1.3	1.1.3.1	Combine the principles of organic chemistry sciences to handle, identify, design and prepare different synthetic pharmaceutical materials.

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, design and prepare pharmaceutical materials from different origins.
2.2.3	2.2.3.1	Show the ability to use lab equipment to identify and design synthetic processes for raw materials and finished pharmaceutical products.
2.5.3	2.5.3.1	Apply scientific principles of research and systematic approaches in the search for best available chemical pathways to identify organic compounds.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Apply effective time management skills for identifying different unknown organic compounds and reaction pathways.

4.1.3	4.1.3.1	Demonstrate creativity in applying entrepreneurial skills in chemical transformations of different functional groups.
4.3.2	4.3.2.1	Practice dependent learning to develop professional learning skills.

4. Course Contents:

Week No	Topics	Lecture credit hours
1	Aromatic Compounds Structure of benzene The concept of Aromaticity Nomenclature Electrophilic Aromatic Substitution. Reactivity and Orientation Nucleophilic Aromatic Substitution Benzene and its Homologues: synthesis and reactions Polynuclear Hydrocarbons	2
2	Aromatic Halides Nomenclature of Aryl Halides Structure of Aryl Halides Physical Properties of Aryl Halides Preparation of Aryl Halides . Nucleophilic Aromatic Substitution.	2
3	Aromatic Nitro Compounds . Physical properties of nitro compounds . Preparation of nitro compounds . Reactions of nitro compounds . Importance of nitro compounds in synthetic pathways.	2
4	Phenols Structure of phenols. Classification of phenols. Physical Properties of phenols. Preparation of phenols. Chemical Properties: acidity, ring substitution. Pharmaceutical importance of phenols.	2
5	Aromatic Aldehydes and Ketones Structure of aldehydes and ketones Nomenclature aldehydes and ketones Physical Properties of aldehydes and ketones Preparation of aldehydes and ketones Nucleophilic addition Reactions. Reaction at the α-carbon. Oxidation and reduction reactions	2
6	Aromatic Carboxylic Acids	2

	Structure of Aromatic Carboxylic Acids and Acidity Concept Nomenclature Aromatic Carboxylic Acids Physical Properties of Aromatic Carboxylic Acids Preparation of Aromatic Carboxylic Acids Chemical Properties of Aromatic Acids Carboxylic Acids derivatives: acid chlorides, acid anhydrides, acid esters, acid amides, nitriles Preparation of Carboxylic Acids Derivatives Reactions of Carboxylic Acids Derivatives Saturated and Unsaturated Dicarboxylic Acid Sulfonic acids: Preparation and Properties	
7-9	Spectroscopy Mass Spectroscopy	6
10	Spectroscopy Nuclear Magnetic Resonance Spectroscopy Infrared and Ultraviolet-Visible Spectroscopy	2
11	Spectroscopy Deduction of Chemical Structure Using IR spectroscopy	2
12	Spectroscopy Deduction of Chemical Structure Using NMR spectroscopy	2
13	General Spectroscopy Problems	2
14	Applications of spectroscopy	2
15	Revision/Quiz	2
16	Final written & oral exams	
Week No	**Practical Topics** **Identification of single organic compounds belonging to the following organic classes**	**Practical / Tutorial credit hours**
1-2	Alcohols and phenols	2
3-4	Aldehydes, Ketones, and carboxylic acids.	2
5-6	Ester, Amides, and Imides Ammonium and Metallic Salts of aliphatic Acids	2
7	Ammonium and Metallic Salts of Aromatic Acids	1
8	**Periodical Exam**	
9	Amines and Amine salts	1
10	Anilides	1
11.	General Scheme of solid identification	1
12	General Scheme of liquid identification	1

13	UV Lab problems	1
14	Spectroscopy Problems	1
15	Practical exam	1

5. Teaching and learning Methods:

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

6. Student Assessment:

a- Assessment methods

1- Periodical exam	To assess understanding, intellectual and professional skills.
2- Practical exam	To assess professional and practical skills.
3- Oral exam	To assess understanding and intellectual skills and general and transferrable skills.
4- Final Written exam	To assess understanding, intellectual and professional skills.

b- Assessment schedule

Assessment 1	**Practical**	15th week
Assessment 2	**Periodical**	8th week
Assessment 3	**Oral**	16th week
Assessment 4	**Written**	16th 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. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes								
		Domain 1			Domain 2			Domain 4		
		1.1.1.1	1.1.3.1		2.2.1.1	2.2.3.1	2.5.3.1	4.1.1.1	4.1.3.1	4.3.2.1
	A) Theoretical part									
1	Aromatic Compounds	✓	✓		✓	✓	✓	✓	✓	
2	Aromatic Halides	✓	✓		✓		✓	✓		✓
3	Aromatic Nitro Compounds	✓	✓		✓	✓	✓	✓	✓	
4	Phenols	✓	✓		✓	✓	✓	✓		✓
5	Aromatic Aldehydes and Ketones	✓	✓		✓	✓	✓	✓	✓	
6	Aromatic Carboxylic acid	✓	✓		✓	✓	✓	✓		✓
7-9	Spectroscopy Mass Spectroscopy	✓	✓		✓		✓	✓		
10	Spectroscopy Nuclear Magnetic Resonance Spectroscopy Infrared and Ultraviolet-Visible Spectroscopy	✓	✓		✓	✓	✓	✓	✓	✓
11	Spectroscopy Deduction of Chemical Structure Using IR spectroscopy	✓	✓		✓	✓	✓	✓	✓	✓
12	Spectroscopy Deduction of Chemical Structure Using NMR spectroscopy				✓	✓	✓	✓	✓	✓
13	General Spectroscopy Problems				✓	✓	✓	✓	✓	✓
14	Applications of spectroscopy									
15	Revision/Quiz				✓	✓	✓	✓	✓	✓
	B) Practical part									
1-2	Alcohols and phenols	✓	✓		✓	✓	✓	✓	✓	✓
3-4	Aldehydes, Ketones, and	✓	✓		✓	✓	✓	✓	✓	✓

	carboxylic acids.								
5-6	Ester, Amides, and Imides Ammonium and Metallic Salts of aliphatic Acids	✓	✓	✓	✓	✓	✓	✓	✓
7	Ammonium and Metallic Salts of Aromatic Acids	✓	✓	✓	✓	✓	✓	✓	✓
9	Amines and Amine salts	✓	✓	✓	✓	✓	✓	✓	✓
10	Anilides	✓	✓	✓	✓	✓	✓	✓	✓
11	General Scheme of solid identification	✓	✓	✓	✓	✓	✓	✓	✓
12	General Scheme of liquid identification	✓	✓	✓	✓	✓	✓	✓	✓
13	UV Lab problems		✓	✓	✓	✓	✓	✓	✓
14	Spectroscopy Problems	✓	✓	✓	✓	✓	✓	✓	✓

8. List of References:

N0.	Reference	type
1	Theoretical course Notes prepared by staff members	Course notes
2	Organic Chemistry,T. W. Graham Solomons, Craig B. Fryhle, Scott A. Snyder, 12th Edition (2016).	Book
3	Practical Skill in Chemistry. By John RDean, Alan M. Jones, David Holmes, Rob Reed, Jonathan Weyers and Allan Jones. Pearson Education Limited	Book
4	Mc Murry, J. in organic chemistry, 8th ed. (2011), Brooks/Cole, London	Book
5	http://www.Chemhelper.com. http://www.Lib.duke.edu/chem/infolist.html http://www..tamu.edu/ http://www.Chemistry.msu.edu/	Website

Course Coordinator:	**Prof .Shahenda El Messery**
Head of Department:	**Prof .Shahenda El Messery**

Date: 20/09/2023

First Level

Pharmaceutical Analytical Chemistry I

University: Mansoura University (MU)

Faculty: Pharmacy

Department: Pharmaceutical Analytical Chemistry

Course title: **Pharmaceutical Analytical Chemistry I**

Course code: PC 205

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

1. Basic Information: Course data :

Course title: **Pharmaceutical Analytical Chemistry I** **Code: PC 205**

Specialization: **Pharmaceutical**

Prerequisite: **Registration**

Teaching Hours: **Lecture: 2** **Practical: 1**

Number of units: **3**

(credit hours)

2. Course Aims:

The course provides the basic concepts of quantitative chemical methods of analysis, including acid-base titration, non-aqueous titration, complexometric, precipitation titration.
The course covers the application of these methods to pharmaceutical 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 in-depth and breadth the principles of basic and pharmaceutical sciences and clarify the theory and principles of acid-base, non-aqueous and precipitation methods of analysis.
(1.1.3)	(1.1.3.1)	Combine the principles of fundamental sciences to quantify 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)	Detect the impurities of pharmaceutical materials and identify them. Select and apply different analytical methods to analyze pharmaceutical materials
(2.2.3)	(2.2.3.1)	Demonstrate the principles of various analytical instruments and apply proper equipment to assess raw materials and pharmaceutical products.
(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. Explain the principles of pharmaceutical calculations and their applications to pharmaceutical analysis
(2.3.1)	(2.3.1.1)	Select and apply proper handling and disposal of chemical compounds and materials used in pharmaceutical analysis.
(2.3.2)	(2.3.2.1)	Choose best practices and adhere to high ethical and safety standards for management of chemical compounds and 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 analyze information to solve problems, and work individually or effectively in a team.
(4.2.2)	(4.2.2.1)	Apply artificial technology whenever possible to present relevant information.
(4.3.1)	(4.3.1.1)	Use effective strategies to manage and improve self-practice of pharmacy.

(4.3.2)	**(4.3.2.1)**	Build the ability to learn independently.

4. Course Contents:

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Acid-Base titrations: introduction, theory of acids and bases	2	2	
2.	Acid-Base titrations: pH value and its significance, pH of different solutions, buffers	2	2	
3.	Acid-base indicators, problems, types of acid-base titrations	2	2	
4.	Acid-base titration curves	2	2	
5.	Applications of acid-base titration.	2	2	
6.	Pharmaceutical applications of acid-base titration.	2	2	
7.	Non-aqueous titrations.	2	2	
8.	Precipitation titration; introduction, solubility product constant (Ksp).	2	2	
9.	Factors affecting solubility of PPT, precipitation titration curve	2	2	
10.	Methods of precipitation titration and application.	2	2	
11.	Complexometric titration; introduction, EDTA titration, metallochromic indicators.	2	2	

12.	EDTA titration curve, types of EDTA titrations, EDTA selectivity, and analysis of mixtures of metal ions.	2	2	
13.	Methods of complexometric titration	2	2	
14	Application of complexometric titration	2	2	
15	**Revision and quiz**	2	2	
16.	**Written and oral exam**			

Practical topics

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Handling rules.	2		1
2.	Determination of HCl.	2		1
3.	Determination of NH_4Cl (Back titration),	2		1
4.	Determination of (NH_4Cl & HCl) mixture.	2		1
5.	Determination of NaOH / Na_2CO_3 mixture.	2		1
6.	Determination of Na_2CO_3 / $NaHCO_3$ mixture.	2		1
7.	Determination of HCl / CH_3COOH mixture.	2		1
8.	**Periodical exam**	--		--
9.	Determination of Aspirin (Application).	2		1
10.	Determination of NaCl (Mohr's method).	2		1
11.	Determination of NaBr (Mohr's method).	2		1
12.	Determination of NaCl (Volhard's method).	2		1
13.	Determination of NaBr (Volhard's method).	2		1

14.	Determination of NaCl (Fajans' method).	2		1
15.	**Final Practical Exam**	–		–

5. Teaching and Learning Methods:

5.1	Computer-aided learning: a. Lectures using Data show, power Point presentations b. Distance learning 6. Online learning through my mans "Mansoura university "as recorded – video lectures 7. Inter active discussion through My Mans
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.4	Class Activity: Group discussion offline and online.
5.5	Problem – based learning and brainstorming
5.6	Research assignments to design Formative Assignments
5.7	Roleplay offline
5.8	Tutorial offline and online

6. Student Assessment:

a- Assessment methods

Periodical exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1
Practical exam	2.3.1.1, 2.3.2.1, 4.1.2.1, 4.2.2.1, 4.3.1.1., 4.3.2.1
Written exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1
Oral exam	4.1.2.1, 4.3.2.1, 1.1.1.1, 1.1.3.1

b. Assessment schedule

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

c. Weighting of assessments

1.	Periodical exam	10 %
2.	Written exam	50 %
3.	Oral exam	15 %

4.	Practical exam	25 %
Total		100 %

7. Matrix of course content versus course key elements:

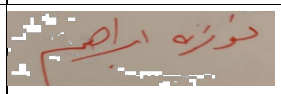
Study Week	Course contents	Domains / Key elements Outcomes												
		Domain 1			Domain 2						Domain 4			
		1.1.1.1	1.1.3.1		2.2.1.1	2.2.3.1	2.2.4.1	2.3.1.1	2.3.2.1		4.1.2.1	4.2.2.1	4.3.1.1	4.3.2.1
	A) Theoretical part													
1	Acid- Base titrations; introduction, theory of acids and bases	▯	▯					▯			▯	▯	▯	▯
2	pH value and its significance, pH of different solutions, buffers		▯			▯					▯	▯	▯	▯
3	Acid- base indicators, problems, types of acid- base titrations	▯	▯				▯				▯	▯	▯	▯
4	Acid-base titration curves	▯	▯								▯	▯	▯	▯
5	Applications of acid-base titration	▯	▯						▯		▯	▯	▯	▯
6	Pharmaceutical applications of acid-base titration	▯	▯						▯		▯	▯	▯	▯
7	Non-aqueous titrations.	▯	▯			▯					▯	▯	▯	▯

8	Precipitation titration; introduction, solubility product constant (Ksp)	▯	▯							▯	▯	▯	▯	
9	Factors affecting solubility of PPT, precipitation titration curve	▯	▯				▯			▯	▯	▯	▯	
10	Methods of precipitation titration and application.	▯	▯							▯	▯	▯	▯	
11	Complexometric titration; introduction, EDTA titration, metallochromic indicators.		▯		▯		▯			▯	▯	▯	▯	
12	EDTA titration curve, types of EDTA titrations, EDTA selectivity, and analysis of mixtures of metal ions.		▯				▯		▯	▯	▯	▯	▯	
13	Methods of complexometric titration and		▯				▯	▯		▯	▯	▯	▯	
14	Application. of complexometric titration		▯				▯	▯		▯	▯	▯	▯	
15	**Revision and quiz**	▯	▯		▯	▯	▯	▯	▯	▯	▯	▯	▯	
	B) Practical part													
1	Handling rules								▯					
2	Determination of HCl.	▯	▯		▯	▯	▯	▯		▯	▯	▯	▯	

3	Determination of NH_4Cl (Back titration)	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
4	Determination of (NH_4Cl & HCl) mixture	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
5	Determination of NaOH / Na_2CO_3 mixture	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
	Determination of Na_2CO_3 / $NaHCO_3$ mixture	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
6	Determination of HCl / CH_3COOH mixture	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
7	Determination of Aspirin (Application).	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
9	Determination of NaCl (Mohr's method)	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
10	Determination of NaBr (Mohr's method)	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
11	Determination of NaCl (Volhard's method)	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
12	Determination of NaBr (Volhard's method)	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐
13	Determination of NaCl (Fajans' method)	☐	☐		☐	☐	☐	☐			☐	☐	☐	☐

8. List of References:

No	Reference	Type
1.	Lectures notes, prepared by Staff Members of the Department	Course notes
2.	Practical notes, prepared by Staff Members of the Department	Course notes
3.	Recorded videos prepared by stuff members	Videos on platform
4.	Pharmaceutical Analytical Chemistry, Quantitative Analysis, Amer, M.M. Faculty of Pharmacy, Cairo University	Essential Book
5.	Fundamentals of Analytical Chemistry , Douglas A.; Skoog ; Donald M., West, F. James Holler,Stanely, R.Crouch Thomson, Australia , 9th Edition (2013).	Essential Book
6.	Analytical Chemistry, Gary D. Christian, 6th ed. John Wiely and Sons, New York (2004)	Essential Book
7.	Quantitative Chemical Analysis, Daniel C. Books Harris, 8th ed., W.H. Freeman and Company,New York (2011)	Essential Book
8.	Vogel,s Textbook of Quanitative Chemical Analysis, J. Mendham, M.A, MSc, C. Chem, M. RSC, 6th ed., India (2004)	Supplementary Textbooks
7.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	websites

Course Coordinator	**Prof. Dr. Fawzia Ibrahim**
	
Head of Department	**Prof. Dr. Jenny Jeehan Mohamed Nasr** 

Date: 10/9/2023

Level-1 Clinical Pharmacy Students	**Pharmacognosy-I**

University: **Mansoura**

Faculty: **Pharmacy**

Department: **Pharmacognosy**

Course title: **Pharmacognosy-I**

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level **1**, Second semester, 2023-2024
Date of course specification approval	6/9/2023

1. Basic Information : Course data :

Course title:	**Pharmacognosy-I**	**Code: PG 202**
Specialization:	**Clinical Pharmacy (Pharmaceutical science)**	
Prerequisite:	**Medicinal Plants**	
Teaching credit Hours:	**Lecture: 2**	**Practical: 1**
Total Number of units: (credit hours)	**3 hours**	

2. Course Aims:

This course enables the students to:

- Learn the basic of pharmacognosy and drugs derived from different plant parts leaves, barks, flowers, seeds and woods.
- Differentiate between these different plant organs morphologically and microscopically.
- Identify their active constituents, medicinal uses, side effects.

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 knowledge of macroscopical and microscopical characters of some medicinal; leaves, flowers, barks, woods, 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 seed
(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. element
(2.2.1)	(2.2.1.1)	Analyze and evaluate the natural pharmaceutical materials from different origins as leaves, flowers, barks, woods, 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. element
(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.
(4.3.2)	(4.3.2.1)	Practice self-learning to improve professional skills.

4. Course Contents:

A. Theoretical part:

Week No.	Topics	Hours
1	**Leaves** (Introduction, Senna, Bearberry, Henna, Witch-Hazel, Gingko)	2
2	**Leaves** (Digitalis, Squill, Coca, Jaborandi, Boldo, Tea)	2
3	**Leaves** (Solanaceous leaves, Mentha, Eucalyptus, Buchu, Rosemary, Thymus, Gujava)	2
4	**Bark** (Introduction, Cassia, Cinnamon)	2
5	**Bark** (Cinchona, Cascara, Frangula, Pomegranate, Quillaia, Salix, Witch-Hazel, Wild cherry), **Aleppo Galls**	2
6	**Wood** (Introduction)	2
7	**Wood** (Quassia, Guaiacum, Sandal (yellow/red), Log wood)	2
8	**midterm exam**	
9	**Flowers** (Introduction)	2
10	**Flowers** (Clove, Hibiscus, Chamomile, Pyrethrum)	2
11	**Flowers** (Santonica, Calendula, Lavender, Saffron, Safflower, Tilia, Red-rose, Arnica)	2
12	**Seeds** (Introduction, Linseed, *Nux-vomica*)	2

13	**Seeds** (Strophanthus, Fenugreek, Black mustard)	
14	**Seeds** (Cardamon, Nutmeg)	2
15	**Seeds** (Colchicum, Psyllium, Unofficial seeds)	2
16	**Final written and oral Exam**	

B. Practical part:

Week No.	Topics	Hours
1	**Leaves** (Introduction, Senna)	2
2	**Leaves** (Digitalis)	2
3	**Leaves** (Solanaceous leaves)	2
4	**Leaves** (Eucalyptus, Rosemary, Gujava)	2
5	**Wood** (Quassia, Guaiacum, Sandal (yellow/red), Log wood)	2
6	**Bark** (Cassia, Cinnamon)	2
7	**Bark** (Cinchona)	2
8	**midterm exam**	
9	**Flowers** (Clove, Hibiscus)	2
10	**Flowers** (Chamomile, Pyrethrum)	2
11	**Flowers** (Santonica, Calendula)	2
12	**Seeds** (Linseed, *Nux-vomica*)	2
13	**Seeds** (Fenugreek, Black mustard)	2
14	**Seeds** (Cardamon, Nutmeg)	2
15	**Practical exam**	

5. Teaching and Learning Methods:

5.1	**Lectures using Power point (PPT) presentations**
	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 sessions using laboratory equipment**
5.3	**Self-learning**
5.4	**Formative Assignments**
5.5	**Class Activity Discussion / Brainstorming / problem solving**

6. Student Assessments:

a- Assessment methods

Mid Term exam	To assess understanding, intellectual and professional skills.
Practical exam	To assess professional and practical skills.
Final Written exam	To assess understanding, intellectual and professional skills.
Oral exam	To assess understanding, intellectual , general and transferable skills

b. Assessment schedule

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

c. Weighting of assessments

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

Total	100 %

7. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes											
		Domain 1					Domain 2				Domain 4		
		1.1.1.1	1.1.2.1	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	4.3.2.1
	Theoretical Part												
1	**Leaves** (Introduction, Senna, Bearberry, Henna, Witch-Hazel, Gingko)	✓											✓
2	**Leaves** (Digitalis, Squill, Coca, Jaborandi, Boldo, Tea)	✓									✓	✓	✓
3	**Leaves** (Solanaceous leaves, Mentha, Eucalyptus, Buchu, Rosemary, Thymus, Gujava)	✓	✓	✓	✓						✓		
4	**Bark** (Introduction, Cassia, Cinnamon)	✓	✓	✓	✓								✓
5	**Bark** (Cinchona, Cascara, Frangula, Pomegranate, Quillaia, Salix, Witch-Hazel, Wild cherry), **Aleppo Galls**	✓	✓	✓	✓						✓	✓	✓
6	**Wood** (Introduction)	✓	✓	✓	✓						✓	✓	✓
7	**Wood** (Quassia, Guaiacum, Sandal (yellow/red), Log wood)	✓	✓	✓	✓						✓	✓	✓
9	**Flowers** (Introduction)	✓	✓	✓	✓						✓	✓	✓
10	**Flowers** (Clove, Hibiscus, Chamomile, Pyrethrum)	✓	✓	✓									

11	**Flowers** (Santonica, Calendula, Lavender, Saffron, Safflower, Tilia, Red-rose, Arnica)	✓	✓	✓	✓				✓		✓
12	**Seeds** (Introduction, Linseed, *Nux-vomica*)	✓	✓	✓	✓				✓	✓	✓
13	**Seeds** (Strophanthus, Fenugreek, Black mustard)	✓	✓		✓				✓		✓
14	**Seeds** (Cardamon, Nutmeg)	✓	✓	✓	✓				✓		✓
15	**Seeds** (Colchicum, Psyllium, Unofficial seeds)	✓	✓	✓	✓				✓	✓	✓
	Practical Part										
1	**Leaves** (Introduction, Senna)					✓	✓	✓	✓	✓	✓
2	**Leaves** (Digitalis)					✓	✓	✓	✓	✓	✓
3	**Leaves** (Solanaceous leaves)					✓	✓	✓	✓	✓	✓
4	**Leaves** (Eucalyptus, Rosemary, Gujava)					✓	✓	✓	✓	✓	✓
5	**Wood** (Quassia, Guaiacum, Sandal (yellow/red), Log wood)					✓	✓	✓	✓	✓	✓
6	**Bark** (Cassia, Cinnamon)					✓	✓	✓	✓	✓	✓
7	**Bark** (Cinchona)										
9	**Flowers** (Clove, Hibiscus)					✓	✓	✓	✓	✓	✓
10	**Flowers** (Chamomile, Pyrethrum)					✓	✓	✓	✓	✓	✓
11	**Flowers** (Santonica, Calendula)					✓	✓	✓	✓	✓	✓

12	**Seeds** (Linseed, *Nux-vomica*)						✓	✓	✓		✓	✓	✓
13	**Seeds** (Fenugreek, Black mustard)						✓	✓	✓		✓	✓	✓
14	**Seeds** (Cardamon, Nutmeg)						✓	✓	✓		✓	✓	✓

8. List of References:

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**
3.	Charles, B.B., An introduction to the plant structure and development, Cambridge University Press, 2015	**Book**
4.	**Goodwin, T.W., Introduction to Plant Biochemistry, 4nd edition, Cbs, 2015.**	**Book**
5.	https://www.encyclopedia.com/social-sciences/applied-and-social-sciences-magazines/plant-anatomy. November, 2020	**websites**
6.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	**websites**

Course Coordinator	**Prof. Dr. Elsayed Shaker Mansour**
Head of Department	**Prof. Dr. Mahmoud F. Elsebai**

Date: 6/9/2023

المستوى الاول

Course Specification: Histology

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacology & Toxicology
Course title: Histology
Course code: MD 203

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level 1, Second semester, 2023-2024
Date of course specification approval	18/9/2023

1. Basic Information: Course data:

Course title:	Histology	**Code:** MD 203
Specialization:	Medical sciences	
Prerequisite:	Registration	
Teaching credit Hours:	**Lecture:** 1	**Practical:** 1
Total Number of units: (credit hours)	2 **hours**	

2. Course Aims:

This course enables the students to be provided with competency concerning the proper functions of cells, tissues, organs, and body system as well as integrate physiological data and mechanisms with ongoing taught sciences: histology.

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
1.1.7	**1.1.7.1**	Gather new information, including evidence-based information, that may be applicable to patient care

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 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4-2-1	4-2-1-1	Use clear language, pace, tone, and non-verbal communication when dealing with other health team and communities.

4. Course Contents:

Week No	Topics	Lecture credit hours
1	**Cytology**	1
2	**Histology of muscular and connective tissues**	1
3	**Histology of digestive system and associated glands**	1
4	**Histology of respiratory system**	1
5	**Histology of nervous system**	1
6	**Histology of blood vessels**	1
7	**Histology of heart**	1
8	**Histology of skin**	1
9	**Histology of lymphatic organs**	1
10	**Histology of urinary system**	1
11	**Histology of reproductive system**	1
12	**Histology of eye**	1
13	**Histology of endocrine glands (part 1)**	1
14	**Histology of endocrine glands (self-learning)**	1
15	**Revision/quiz**	1
16	**Final written exam**	
Week No	**Practical Topics**	**Practical credit hours**

1	**Cytology**	1
2	**Histology of muscular and connective tissues**	1
3	**Histology of digestive system and associated glands**	1
4	**Histology of respiratory system**	1
5	**Histology of nervous system**	1
6	**Histology of blood vessels**	1
7	**Histology of heart**	1
8	**Mid-term Exam**	-
9	**Histology of skin**	1
10	**Histology of lymphatic organs**	1
11	**Histology of urinary system**	1
12	**Histology of reproductive system**	1
13	**Histology of endocrine glands**	1
14	**Revision**	1
15	**Practical Exam**	1

5. Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning • On line learning through my mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans
5.2	Self-learning
5.3	Practical session using laboratory equipment and/ or tutorials
5.4	Class Activity: Group discussion offline and online.

6. Student Assessment:

a- Assessment methods

Mid Term exam	**1.1.1.1, 1.1.7.1, 2.3.1.1, 2.5.3.1**
Practical exam	**1.1.1.1, 1.1.7.1, 2.3.1.1, 2.5.3.1,** 4-2-1-1
Final Written exam	**1.1.1.1, 1.1.7.1, 2.3.1.1, 2.5.3.1**
Oral exam	----------

b. Assessment schedule

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

Assessment 3	Written	16th week
Assessment 3	Oral	----------

c. Weighting of assessments

1.	Mid-term examination	10 %
2.	Final-term examination	65 %
3.	Oral examination	0 %
4.	Practical examination and Semester work	25 %
Total		100 %

7. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes					
		Domain 1			Domain 2		Domain 3
		1.1.1.1	1.1.7.1		2.3.1.1	2.5.3.1	4.2.1.1
1	Cytology	√	√		√	√	
2	Histology of muscular and connective tissues	√	√		√	√	
3	Histology of digestive system and associated glands	√	√		√	√	
4	Histology of respiratory system	√	√		√	√	
5	Histology of nervous system	√	√		√	√	
6	Histology of blood vessels	√	√		√	√	√
7	Histology of heart	√	√		√	√	√
8	Histology of skin	√	√		√	√	√
9	Histology of lymphatic organs	√	√		√	√	√
10	Histology of urinary system	√	√		√	√	√
11	Histology of reproductive system	√	√		√	√	√
12	Histology of eye	√	√		√	√	√
13	Histology of endocrine glands (part 1)	√	√		√	√	√
14	Histology of endocrine glands (self-learning)	√	√		√	√	√
15	Revision	√	√		√	√	√
	Practical part						

1	Cytology	√	√		√	√		√
2	Histology of muscular and connective tissues	√	√		√	√		√
3	Histology of digestive system and associated glands	√	√		√	√		√
4	Histology of respiratory system	√	√		√	√		√
5	Histology of nervous system	√	√		√	√		√
6	Histology of blood vessels	√	√		√	√		√
7	Histology of heart	√	√		√	√		√
9	Histology of skin	√	√		√	√		√
10	Histology of lymphatic organs	√	√		√	√		√
11	Histology of urinary system	√	√		√	√		√
12	Histology of reproductive system	√	√		√	√		√
13	Histology of endocrine glands	√	√		√	√		√
14	Revision	√	√		√	√		√

8. List of References

No	Reference	Type
1.	**Electronic book prepared by staff members.**	**Course notes**
2.	Richard L. Drake, A. Wayne Vogl, Adam W. M. Mitchell. Gray's Anatomy for Students 4th Edition (2019)	**Book**
3.	https://WWW.ekb.eg/ https://WWW.google scholer.com/ https://WWW.pubmed.com/ https://WWW.sciencedirect.com/	**websites**

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

Date: 18/9/2023

First Level

Physical Pharmacy
Course Specifications

University:	Mansoura
Faculty:	Pharmacy
Department:	Pharmaceutics
Course title:	Physical Pharmacy
Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level one, second semester, 2023-2024
Date of course specification approval	20/9/2023

1. Basic Information: Course data:

Course title:	Physical Pharmacy	**Code:** PT 201	
Specialization:	Pharmaceutical sciences		
Prerequisite: Registration			
Teaching Hours:	**Lecture: 2**	**Practical:1**	

2. Course Aims:

On completion of the course, the student will be able to describe and calculate the properties of solutions, understand factors that govern solubility. Also, able to describe and determine the solubility properties of different solutes, apply the various techniques for studying the solubility and dissolution rate of organic compounds in aqueous media, know the different types of solutions and their rout of administration and understand the principle of physical pharmacy of the following areas: rheology and surface phenomena.

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. Course Contents:

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Solubility and solution - Types of solutions - Colligative properties -	2	
2	Solubility of gases in liquids, liquids in liquids, solid in liquids - Distribution coefficient and its applications.	2	
3	Rheology of liquids Fundamental of rheology, viscosity & Newtonian and non-Newtonian systems	2	

4	Surface properties of liquids and solids	2	
5	Fundamentals of surface phenomena and interfacial tension.	2	
6	Adsorption	2	
7	Application of adsorption in pharmacy and medicine	2	
8	Stability and Reaction Kinetics (**Mid-term**)	2	
9	Stability and Reaction Kinetics	2	
10	Fundamental degradation pathways and reaction kinetics.	2	
11	Dispersion system (colloid) & Self-learning	2	
12	Dispersion system (suspension and emulsion).	2	
13	Problems on reaction kinetics.	2	
14	Revision	2	
16	**Final written and oral exam**		
Week No	**Practical Topics**	**Lecture credit hours**	**Practical credit hours**
1	Determination of relative viscosity by Oswald viscometer		1
2	The relation between the concentration of polymer and viscosity.		1
3	Determination of an average molecular weight of gelatin by viscosity method.		1
4	Determination of oxalic acid by titration method.		1
5	Adsorption of oxalic acid by activated charcoal.		1
6	Determination of relative surface tension of surfactant by stalagmometer.		1
7	Determination of Critical Micelle Concentration (CMC)		1
8	**Mid-term Exam**		-
9	Micellar Solubilization		1
10	Adsorption of oxalic acid by talc powder- part 1		1
11	Adsorption of oxalic acid by talc powder- part 2		1
12	Tri-phase diagram- part 1		1
13	Tri-phase diagram- part 2		1

14	Revision		1
15	**Practical Exam**		

5. Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning 1. Online learning through my mans "Mansoura university "as recorded – video lectures 2. Interactive discussion through My Mans
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.5	Problem – based learning and brainstorming

6- Student Assessment:

a. Assessment methods

Mid Term exam	1.1.1.1, 2.2.1.1
Practical exam	1.1.1.2, 2.2.1.1, 4.1.2.1, 4.3.2.1
Final Written exam	1.1.1.1, 1.1.1.2, 2.2.1.1
Oral exam	1.1.1.1, 1.1.1.2, 2.2.1.1, 4.1.2.1, 4.3.2.1

b. Assessment schedule

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

c. Weighting of assessments

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

7. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes					
		Domain 1			Domain 2		Domain 4	
		1.1.1.1	1.1.1.2		2.2.1.1		4.1.2.1	4.3.2.1
	A) Theoretical part							
1	Solubility and solution - Types of solutions - Colligative properties -	□					□	□
2	Solubility of gases in liquids, liquids in liquids, solid in liquids - Distribution coefficient and its applications.	□					□	□

3	Rheology of liquids Fundamental of rheology, viscosity & Newtonian and non-Newtonian systems	□	□		□	□
4	Surface properties of liquids and solids	□		□	□	□
5	Fundamentals of surface phenomena and interfacial tension.	□		□	□	□
6	Adsorption	□		□	□	□
7	Application of adsorption in pharmacy and medicine	□			□	□
8	Stability and Reaction Kinetics (**Mid-term**)	□			□	□
9	Stability and Reaction Kinetics	□			□	□
10	Fundamental degradation pathways and reaction kinetics.	□			□	□
11	Dispersion system (colloid) & Self-learning	□			□	□
12	Dispersion system (suspension and emulsion).	□			□	□
13	Problems on reaction kinetics.	□			□	□
14	Revision	□			□	□
	B) Practical part					
1	Determination of relative viscosity by Oswald viscometer	□	□	□	□	□
2	The relation between the concentration of polymer and viscosity.	□	□	□	□	□

3	Determination of an average molecular weight of gelatin by viscosity method.	□	□	□	□	□
4	Determination of oxalic acid by titration method.	□		□	□	□
5	Adsorption of oxalic acid by activated charcoal.	□		□	□	□
6	Determination of relative surface tension of surfactant by stalagmometer.	□		□	□	□
7	Determination of Critical Micelle Concentration (CMC)	□		□	□	□
9	Micellar Solubilization	□		□	□	□
10	Adsorption of oxalic acid by talc powder- part 1	□		□	□	□
11	Adsorption of oxalic acid by talc powder- part 2	□	□	□	□	□
12	Tri-phase diagram- part 1	□	□	□	□	□
13	Tri-phase diagram- part 2	□	□	□	□	□
14	Revision	□	□	□	□	□

8- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**
3.	Martin's: Physical pharmacy and pharmaceutical sciences" 8th Ed., Patrick J. Sinko Ph.D., Lippincott Williams and Wilkins, New delhi, Philadelphia, (2023).	**Book**
4.	"Remington's: The science and practice of pharmacy" 23rd Ed., Pharmaceutical Press, Lippincott Williams and Wilkins, Philadelphia, (2020).	**Book**
6.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	**websites**

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

Date: 20/9/2023

First Level

Human Rights
Course Specifications

University:	Mansoura
Faculty:	Pharmacy
Department:	Pharmaceutics
Course title:	Human Rights and Fighting Corruption
Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level one, second semester, 2023-2024
Date of course specification approval	20/9/2023

1. Basic Information: Course data:

Course title:	Human Rights and Fighting Corruption	**Code:** HU 201	
Specialization:	University Requirements		
Prerequisite: Registration			
Teaching Hours:	**Lecture: 1**	**Practical: ---**	

2. Course Aims:

1- Knowing the different information about human rights in Egypt including honor pharmacy profession-pharmacy ethics-foundations of pharmacy ethics.
2- Understanding the basic knowledge of pharmaceutical care, patient care, and storage of medicine.
3- Knowing human rights from the medical point of view which includes patients, pharmacists, and physician rights.
4- Informing a list of the professions of the general federation of pharmacists in the Arab Republic of Egypt.

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 structural, systemic factors which affect the quality of life of persons of different ages, gender, social class, sexual orientation, disability, and racial/ethnic backgrounds.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Evaluate explanations given by structural-functionalism, conflict, and symbolic interactionist perspectives concerning causes and consequences of social problems related to deviance, inequality, social institutions, and modernization.
2.1.2	2.1.2.1	Assess and describe social problems resulting from modernization, such as urbanization, population growth, environmental issues, changes in science and technology, and international conflict.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.3.1	4.3.1.1	Apply effective time management skills.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills.
	4.3.2.2	Apply different strategies for adult learning to achieve illiteracy.

4. Course Contents:

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Introduction to the course	1	
2	Honor pharmacy profession-pharmacy ethics-foundations of pharmacy ethics. شرف مهنه الصيدلة	1	
3	The human rights from the medical point of view أسس أخلاقيات المهنة	1	
4	The human rights in Islamic law Proper management of pharmaceutical care in pharmacy.	1	

	حقوق الإنسان في الشريعة الإسلامية		
5	The restrictions that are listed on human rights. القيود التي ترد على حقوق الإنسان	1	
6	Fields of the pharmacist work, the difference between the pharmaceutical care, and clinical pharmacy. المجالات المختلفة لعمل الصيدلي والمقارنة بين الرعاية الصيدلانية والصيدلة الإكلينيكية.	1	
7	Principles of ethics of pharmacy in Egypt & **Self-learning** حقوق الإنسان من الناحية الطبية	1	
8	Responsibilities Role of pharmacist in dealing with narcotic drugs of patients, pharmacists, and physician.(**Mid-term exam)** حقوق المرضى والصيادلة والأطباء	1	
9-14	Subjects by Faculty of Law	6	
16	**Final written exam**		

5. Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning 3. Online learning through my mans "Mansoura university "as recorded – video lectures 4. Interactive discussion through My Mans
5.2	Self-learning
5.5	Problem – based learning and brainstorming

6. Student Assessment:

a- Assessment methods

Mid Term exam	**1.1.1.1, 2.1.1.1, 2.1.2.1, 4.3.1.1, 4.3.2.2**
Final Written exam	**1.1.1.1, 2.1.1.1, 2.1.2.1**

b. Assessment schedule

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

c. Weighting of assessments

1	Mid-term examination	25 %
2	Final-term examination	75 %
3	Oral examination	0 %

4	Practical examination & Semester work	0 %
Total		100%

7. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes							
		Domain 1		Domain 2			Domain 4		
		1.1.1.1		2.1.1.1	2.1.2.1		4.3.1.1	4.3.2.1	4.3.2.2
1	Introduction to the course			☐	☐		☐	☐	☐
2	Honor pharmacy profession-pharmacy ethics-foundations of pharmacy ethics. شرف مهنه الصيدلة	☐		☐			☐	☐	☐
3	The human rights from the medical point of view أسس أخلاقيات المهنة	☐			☐		☐	☐	☐
4	The human rights in Islamic law Proper management of pharmaceutical care in pharmacy. حقوق الإنسان في الشريعة الإسلامية				☐		☐	☐	☐
5	The restrictions that are listed on human rights. القيود التي ترد على حقوق الإنسان				☐		☐	☐	☐
6	Fields of the pharmacist work, the difference between the pharmaceutical care, and clinical pharmacy. المجالات المختلفة لعمل الصيدلي والمقارنة بين الرعاية الصيدلانية والصيدلة الإكلينيكية.	☐		☐			☐	☐	☐
7	Principles of ethics of pharmacy in Egypt & **Self-learning** حقوق الإنسان من الناحية الطبية	☐		☐			☐	☐	☐
8	Responsibilities Role of pharmacist in dealing with narcotic drugs of patients, pharmacists, and physician.(**Mid-term exam)** حقوق المرضى والصيادلة والأطباء	☐		☐			☐	☐	☐
9-12	Subjects by Faculty of Law	☐		☐	☐		☐	☐	☐

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1.	Electronic book prepared by staff members	**Course notes**

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3.	حقوق الإنسان والمبادئ القانونية العامة	**Book**
4.	"Remington's: The science and practice of pharmacy" 21st Ed., Gennaro, A. R., ed., Mack publishing C., Lippincott Williams and Wilkins, Philadelphia, (2006).	**Book**
6.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	**websites**

Course Coordinator	**Dr/ Noha Mohamed Saleh**
	
Head of Department	**Prof. Dr. Irhan Ibrahim Abu Hashim**
	

Date: 20/9/2023