Course specification
2019- 2020
Faculty of Pharmacy
Mansoura University

Second Level | **Pharmaceutical Organic Chemistry (3)**

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmaceutical Organic Chemistry
Course title: Pharmaceutical Organic Chemistry (3)
Course code: PO 213

Program on which the course is given	B. Pharm
Academic Level	Second Level, First semester
Date of course specification approval	12/12/2019

1. Basic Information: Course data:

Course title:	**Pharmaceutical Organic Chemistry (3)**	**Code: PO 213**
Specialization:	**Pharmaceutical sciences**	
Prerequisite:	**Registration**	
Teaching Hours:	**Lecture: 2**	**Practical: 1**
Number of units: (credit hours)	**3**	

2. Course Aims:

2.1. Gain an understanding of the basic principles of organic chemistry.
2.2. Have a good idea about stereo-chemistry and organic reactions to help in understanding of the next applied sciences.
2.3. Apply the chemistry of many bioorganic compounds in the biological and natural product fields

3. Intended learning outcomes (ILO_S):

a- Knowledge and understanding

a1	Identify the principles of basic and pharmaceutical sciences.
a2	Define the physical and chemical properties of various substances used in preparation of medicines.
a3	Enumerate the theories of synthesis, purification and identification methods of chemicals, natural and pharmaceutical compounds.

b- Intellectual skills

b1	Recommend good laboratory practice (GLP) and good safety practice (GSP) guidelines in pharmaceutical research.
b2	Design appropriate methods for synthesis, purification and identification of various chemicals and pharmaceutical compounds.
b3	Interpret experimental data and published literatures, based on relevant chemical, pharmaceutical and statistical principles.

c- Professional and practical skills

c1	Handle and dispose hazardous chemicals, biological and pharmaceutical preparations safely.
c2	Apply appropriate methods for, synthesis, purification, and identification of active substances from different origins.
c3	Conduct experimental and research studies and present, analyze and interpret the results.

d- General and transferable skills

d1	Interact effectively in team working.
d2	Practice independent learning needed for continuous professional development.
d3	Promote critical thinking, problem-solving, decision-making, and time managing capabilities.

4. Contents:

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Aliphatic And Aromatic Aldehydes & Ketones	٨	2 hours	
2.	Aliphatic And Aromatic Carboxylic Acids , Halo Acids , Monobasic Hydroxy Acids , Unsaturated Monocarboxylic Acids & Saturated Dicarboxylic Acids	4		
3.	Aliphatic And Aromatic Carboxylic Acid Derivatives: Esters, Thioesters, Amides & Lactams	2	2 hours	

4.	Aliphatic And Aromatic Acid Halides And Acid Anydrides	2	2 hours	
5.	Aliphatic And Aromatic Nitro Compounds And Amines	2	2 hours	
6.	Mid-term Exam			
7.	Amino Acids And Protein	2	2 hours	
8.	Carbohydrates	4	2 hours	
14.	Week 15 Final written & oral			
	Practical topics			
Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1.	Aldehydes	2		
2.	Ketones	2		1 hour
3.	Armoatic acids	2		1 hour
4.	Salts of aromatic acids	2		1 hour
5.	Esters	2		1 hour
6.	Amides	2		
7.	Aromatic amines and their salts	2		1 hour
8.	Anilides	2		1 hour
9.	Carbohydrates	2		1 hour

5. Teaching and learning Methods:

5.1	Lectures using whiteboard
5.2	Lectures using Data show, PowerPoint presentations
5.3	Research assignments

6. Student Assessment:

a- Assessment methods

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

b- Assessment schedule

Assessment 1	Mid-term	4th week
Assessment 2	Oral Practical	11th week and
Assessment 3	Practical	12th week
Assessment 4	Written	15th week
Assessment 5	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. List of References

No	Reference	Type
1.	Practical course notes and lectures notes prepared by the department staff members	Course notes
2.	Advanced Org. Chem: Reactions, Mechanism and Structure, Jerry March, Wiley – Interscience Publication	Book
3.	Fundanental of Org – Chem., TW Solomons, John wiley & Sons Inc.	Book
4.	Organic Chemistry, RT Morrison and R N Boyds, A Simon and Schuster , New Jersey.	Book
5.	The Org. Chem. Problem solvers, M. Fogiel, Research and Education Association, , New Jersey	Book
6.	Practical Org. Chem., A.I.Vogel, Longman, London	Book

8. Matrix of knowledge and skills of the course

No	Course contents	Study Week	ILOS			
			Knowledge & understanding	Intellectual skills	Professional and practical skills	General & transferable skills
1.	ALIPHATIC AND AROMATIC Aldehydes & Ketones	1st -4th	a1	b1	c1	d1,d2

2.	ALIPHATIC AND AROMATIC Carboxylic acids , HALO ACIDS , MONOBASIC HYDROXY ACIDS , UNSATURATED MONOCARBOXYLIC ACIDS & SATURATED DICARBOXYLIC ACIDS	5th and 6th	a2	b2	c1	d2,d3
3.	ALIPHATIC AND AROMATIC CARBOXYLIC ACID DERIVATIVES: ESTERS, THIOESTERS, AMIDES & lactams	7th	a2,a3	b2	c1, c2	d2
4.	ALIPHATIC AND AROMATIC ACID HALIDES and ACID ANYDRIDES	8th	a2, a3	b2	c2	d2,d3
5.	ALIPHATIC AND AROMATIC NITRO COMPOUNDS AND AMINES	9th	a3	b3	c1, c2	d2,d3
6.	AMINO ACIDS AND PROTEIN	10th	a2, a3	b2,b3	c2, c3	d1, d2,d3
7.	CARBOHYDRATES	11th and 12th	a2	b2	c2, c3	d2,d3

Course Coordinator:	**Hassan Eisa**
Head of Department:	**Shahenda Metwally EL-Messery**