Course specification
2019- 2020
Faculty of Pharmacy
Mansoura University

First Level

Course Specification
Pharmaceutical Organic Chemistry (2)

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

Program on which the course is given	B. Pharm
Academic Level	First Level, Secondsemester
Date of course specification approval	6/5/2020

1. Basic Information: Course data:

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

2. Course Aims:

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

3. Intended learning outcomes (ILO_S):

a- Knowledge and understanding

a1	Identify the principles of basic and pharmaceutical, medical, behavioral, management, health and environmental sciences as well as pharmacy practice

a2	Determine the basic science of alkenes, alkynes, Polyunsaturated Hydrocarbons
a3	Define the physical, and chemical properties of various substances used in preparation of medicines and the properties of different pharmaceutical dosage forms.

b- Intellectual skills

b1	Propose novel methods for isolation, synthesis of Alkenes, Alkynes, Poly unsaturated hydrocarbons , Aromatic hydrocarbons, Alcohols, Phenols, Ethers, and Epoxides
b2	Predict the physical and chemical properties and biological activity of natural and synthetic compounds based on molecular structure.
b3	Propose novel methods for isolation, synthesis of Alkenes, Alkynes, Poly unsaturated hydrocarbons , Aromatic hydrocarbons, Alcohols, Phenols, Ethers, and Epoxides.
b4	Deduce biological activity of Alkenes, Alkynes, Poly unsaturated hydrocarbons , Aromatic hydrocarbons, Alcohols, Phenols, Ethers, and Epoxides based on molecular structure

c- Professional and practical skills

c1	Handle and dispose hazardous chemicals, biological and pharmaceutical preparations safely.
c2	Apply appropriate methods for extraction, isolation, synthesis, purification, identification and standardization of active substances from different origins
c3	Conduct experimental and research studies and present, analyze and interpret the results.
C4	Employ screening methodologies and some assay mechanism and structure-based design of natural drugs and their in-vitro and in-vivo testing.

d- General and transferable skills

d1	Interact effectively in team working
d2	Exploit calculations and statistical methods as well as information technology (IT) tools.
d3	Practice independent learning needed for continuous professional development
d4	Promote critical thinking, problem-solving, decision-making, and time managing capabilities.

d 5	Plan strategies to fulfill workplace pharmaceutical needs
d6	Record the consideration encountered in establishing a community pharmacy

4. Contents:

Week No	Topics	No.of hours	Lecture credit hours	Practical credit hours
Theoretical Topics				
1-2	Alkenes	4	2 hours	
3.	Alkynes	2		
4.	polyunsaturated hydrocarbons	2	2 hours	
5.	Aromaticity and its concepts	2	2 hours	
6.	Electrophilic aromatic substitution	2	2 hours	
7.	Mid term exam			
8.	Arenes	2	2 hours	
9.	polynuclear aromatic hydrocarbons	2	2 hours	
10.	Alcohols	2	2 hours	
11.	phenols	2	2 hours	
12.	Thiols	2	2 hours	
13.	Ethers and epoxides	2	2 hours	
Practical topics				
Week No	Topics	No.of hours	Lecture credit hours	Practical credit hours

1 & 2	Alcohols	4		1 hour
3 & 4	Phenols	4		1 hour
5	Aromatic Hydrocarbons	2		1 hour
6	Halogenated Hydrocarbons	2		1 hour
7.	Mid term exam			
8,9	Aliphatic Carboxylic Acids	4		1 hour
10, 11	Aromatic Carboxylic Acids	4		
12-13	Revision	6		1 hour

5. Teaching and learning Methods:

5.1	Lectures using whiteboard
5.2	Lectures using Datashow, PowerPoint presentations
5.3	Models, Animation files
5.4	Case study
5.5	Discussion session

6. Student Assessment:

a- Assessment methods

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

b- Assessment schedule

Assessment 1	Practical	14th week
Assessment 2	Mid-term	7thweek
Assessment 3	Oral	15thweek
Assessment 4	Written	15thweek

c-Weighting of assessments

1.	Mid-term examination	10%

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

7. List of References

No	Reference	Type
1.	Practical course notes prepared by the department staff members	Course notes
2.	Introduction to Organic chemistry, 5th Edition, Donald L. Pavia, 2015.	Book
3.	J. E. McMurry, R. C. Fay in Chemistry, 5th Ed., Pearson Education Inc., 2008.	Book
4.	Practical Org. Chem., A.I.Vogel, Longman, London.	Website

8. Matrix of knowledge and skills of the course

S	Items	Details	Basic knowledge	Intellectual skills	Professional skills	General skills
	Course contents	Alkenes	a2	b1	c2	d3
		Alkynes	a1	b2	c4	d2
1		polyunsaturated hydrocarbons	a1	b 4	c2	d 1
		Aromaticity and its concepts	a4	b 2,3	c2	d 5
		Electrophilic aromatic substitution	a1	b 4	c4	d 6
		Arenes and polynuclear aromatic hydrocarbons	a1,a2	b 1,2	c2	d 4

		Alcohols	a1	b 3,4	c1	d 3
		phenols	a2	b 3,4	c1	d 6
		Thiols	a2	b 2	c2	d3
		Ethers and epoxides	a3	b 3	c2	d4
2	Teaching and learning methods	Lectures using whiteboard.	a1	b 2	c2	d3,d4
		Lectures using power point presentations.	a1,a2	b 2,3	c4	d5,d6
		Laboratory equipments and glasswares.	a2,a3	b 4	c1	d1
		Animation Videos.	a4	b 2,b1	c2	d2
3	Activities and sources of teaching and learning	Practical assembley	a1	b 3	c4	d4
4	Student assessment	Practical exams	a1	b5	c2	d3
		Written exams	a2	b 4	c4	d4,d5
		oral exams	a 3	b 3	c1,c2	d4,d5

Course Coordinator:	**د/ ولاء محمود عادل الحسيني**
Head of Department:	**أ.م.د/ شاهندة متولي المسيري**