Sohag University

Faculty of Pharmacy

Department of Pharmaceutical Chemistry.

Course Specifications

[Pharmaceutical Organic Chemistry 2]

1- Basic Information

Code: ***PC*-**122	**Title:** Pharmaceutical Organic Chemistry 2	**Level: 1st year, 2nd semester**
Credit hours:	**Lectures: 2/w**	**Practical: 2/w** **Total: 4/w**

2- Aims of Course	1- To provide students with knowledge needed in the area of pharm. Organic Chem. and to prepare them for related subjects in the design and synthesis of simple organic molecules. 2- To give students skills related to chemistry so they can complete in the higher years. Students are also taught the necessary knowledge needed to practice the pharmacy profession in academic institutions and research centers. .

3- Intended Learning Outcomes of Course (ILOs)	
a- Knowledge and Understanding**:**	al- To define basic principle in pharm. org. chem. Especially aliphatic organic compounds such as alcohols, carbonyl and β-dicarbonyl compounds. a2- Appropriate knowledge concerning chemical reaction mechanisms and their application in the synthesis of simple medicinal agents. In addition to illustrate different potential interactions between organic molecules.
b- Intellectual Skills:	b1- To predict the methods of synthesis and properties of medicinal agents. b2- Explaining the reaction mechanism of an organic reaction.
c- Professional and practical Skills:	c1- .Learning safety procedure for dealing with organic chemicals and be aware of the rules of good laboratory practice (GLP). c2- To handle properly chemicals in the lab. and be aware of the rules of good laboratory practice (GLP) and to diagnose elements in organic compounds and determine their functional groups.
d- General and Transferable Skills**:**	d1- Ability to make an organic reaction using scientific procedures.. d2- To work effectively in a team and to give seminar to small group of students. d3- Time management effectively, and reporting data. d4- Being professional for dealing with chemicals. d5- social and cultural activities through; problem solving and decision making abilities in a variety of theoretical and practical situations.

4- Course Contents

Topic	No. of hours	lectures	Tutorial/ Practical
1- Introduction on Stereochemistry + Amino acids classifications Laboratory safety and glassware	2+1	1	
1- Compounds with chiral atoms + Amino acids synthesis Laboratory techniques	2+1	1.5	
2- Compounds with two chiral atoms Melting point determination	2	1	
3- **Primary structure of protein + Synthesis of dipeptide** Recrystalization	2+2	2.5	
4- **cis-trans isomers** Synthesis of aspirin	2	1	
5- Conformational isomerism Synthesis of acetanilide	3	1	
6- **Dynamic stereochemistry** Synthesis of *p*-bromoacetanilide	3	2	
7- Alicyclic compounds nomenclature +Classes of Polymers Synthesis of tribromophenol	2+2		
8- Synthesis of Alicyclic compounds + reactions of polymers Tutorial	2+1		
9- Reactions of Alicyclic compounds Synthesis of *p*-methylacetanilide	2		
10-Monosaccharides Synthesis of *p*-nitroacetanilide	3		
11- Disaccharides Synthesis of chalcones	3		
12- Polysaccharides practical exam	4		
Total hours	28	**14**	

N.B. each class containing selected examples of drugs in market and their uses.

5- Teaching and Learning Methods

4.1- Lectures

4.2- Practical training (Laboratory)

4.3- Tutorials and class activity

4.4- Discussion and net research

6- Teaching and Learning Methods for disables

- Extra office hours
- Tutorials

7- Students assessment

a- Student Assessment methods

6.1- Final written exam to assess ILOs: a,b

6.2- Oral exam to assess ILOs: a,b and d

6.3- Practical exam to assess ILOs: a,b,c and d

6.4- Mid-Term exam to follow up and to assess ILOs: a,b

b- Students Assessment Schedule

No.	Assessment	week
1.	Mid-Term Exam	8^{th} week
2.	Practical Exam	14^{th} week
3.	Oral Exam	At the end of semester
4.	Final written Exam	At the end of semester

c- Weighting of assessment

No.	Exam.	Mark	%
1.	Mid-Term Exam	15	10%
2.	Practical Exam	30	20%
3.	Oral Exam	15	10%
4.	Final written Exam	90	60%
	Total	150	100%

8- List of references

a- Course Notes

Notes on Pharm.Organic Chemistry Vol. II

b- Essential Books (Text Books)

* T.W.Graham Solomons, Organic chemistry, 9 th ed., John Wiley and Sons, INC, New York, 2008.

* Furniss, Hanna Ford, Smith, Tutchell, Vogel's textbook of Practical Organic Chemistry, 5 th ed, Longman Group UK Ltd, England, 1989.

c- Recommended Books

* Jerry March, Advanced Organic Chemistry, Reactions, Mechanisms, and structures, 4 th ed. John Wiley and Sons, New York, 1992.

d- Periodicals, Web Sites, …. Etc

Journal of organic chemistry

e- Facilities Required for Teaching and Learning:

Computer modeling and computational chemistry programs