



SYLLABUS

Course Title	ORGANIC CHEMISTRY II	
Course Code	PH403	
Course Credit	Lecture	: 3
	Practical	: 3
	Tutorial	: 0
	Total	: 6
Course Objectives		
On the completion of the course, students will be able to:		
1. Understand the fundamental concepts of organic chemistry.		
2. Understand the Chemical property and behavior of organic compounds, Reaction and reaction mechanism involve in synthesis of various organic compounds, Reactive intermediates of carbon and various name reaction in organic chemistry		
3. Identify the unknown organic compound using chemical test techniques.		
Detailed Syllabus		
Sr. No.	Name of Chapter & Details	Hours Allotted
	Section-I	
1	Stereochemistry Chirality, optical activity, stereoisomerism, nomenclature and associated physicochemical properties, specification of configuration, resolution of racemic mixture, reactions involving stereoisomers, stereoselective and	10

	stereospecific reactions, conformations – alkanes and cycloalkanes, chiral reagents, stereochemistry of biphenyls, allenes, and spirans – specification of their configuration.	
2	Structure, properties, nomenclature, preparation and reactions of the following class of functional groups: Benzene, polynuclear aromatic compounds, arenes,	10
3	Introduction to nanochemistry, microwave synthesis	04
	Section-II	
4	Structure, properties, nomenclature, preparation and reactions of the following class of functional groups amines, phenols, aldehydes and ketones, carboxylic acids and their derivatives.	15
5	α,β -unsaturated carbonyl compounds, conservation of orbital symmetry and rules, Nucleophilic aromatic substitution	04
6	Introduction to green chemistry.	02
Organic Chemistry II (Practical)		
<ol style="list-style-type: none"> 1. Systematic qualitative analysis of organic compounds (Liquid, solid) and preparation of their derivatives. (Organic compounds of all types of functional groups like acidic, basic, neutral, phenol, amphoteric) 2. Introduction and detailed demonstration to various synthetic techniques and apparatus used therein. Heating and cooling methods, distillation, reaction work-up, filtration, extraction, purification, identification. 3. Synthesis of selected organic compounds 		

Synthesis of at least fifteen selected compounds based on various reaction mechanisms like halogenation, nitration, alkylation, hydrolysis, oxidation, condensation, diazotization. Purification of the synthesized compound using precipitation or recrystallization. Monitoring progress of reaction by thin layer chromatography.

Instructional Method and Pedagogy:

- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval.
- Surprise tests/Quizzes/Seminar/Tutorials will be conducted.
- The course includes language practices such as Group Discussion, Interviews etc to develop the communication skills of the students.

Students Learning Outcomes:

- At the end of the course the students will be able to:
 1. Differentiate chiral and non chiral compounds and resolution of their racemic mixture
 2. Synthesize different types of new organic compounds
 3. They can identify organic compound by chemical tests.
 4. Knowledge of organic chemistry will help to design and synthesis of drug like molecules in medicinal chemistry.

Text Books:

1. Organic Chemistry, Robert T. Morrison and Robert N. Boyd, 6th Ed., Pearson Education, 2002.

Reference Books:

1. Organic Chemistry, G. Marc Loudon, 4th Ed., Oxford University Press, 2004.
2. Organic Chemistry, Vol I and II by I. L. Finar, 6th Ed., Pearson Education, 2000.
3. Advanced Organic Chemistry, Jerry March, 4th Ed., Wiley India, 2007.
4. Vogel's textbook of practical organic chemistry, 5th Edition, Pearson Education Ltd., 2005
5. "Experimental Organic Chemistry" L. M. Harwood, L. J. Moody, J. M. Percy, 2nd Edition, Blackwell Science, 2005.
6. Techniques and Experiment of Organic Chemistry, Addison Ault, 6th Edition, University Science Books, 1998.
7. Introduction to Organic Laboratory Techniques, A Microscale Approach, Donald L. Pavia, Gary M. Lampman, George S. Kriz, 3rd Edition, Harcourt College Pub., 4th Edition, 2007.

Additional Resources

- Soft copies pharmaceutical chemistry books are available on <http://www.pharmatext.org>
- Latest information regarding to pharmaceutical chemistry are available on <http://www.pharmainfo.net>