



SILVER OAK UNIVERSITY
SILVER OAK COLLEGE OF PHARMACY (067)

Programme Name: B. Pharm (18)

Subject Name: Pharmaceutical Organic Chemistry III

Subject Code: 1180673206

Semester: IV

Prerequisite:

Scope: This subject imparts knowledge on stereo-chemical aspects of organic compounds and organic reactions, important named reactions, chemistry of important hetero cyclic compounds. It also emphasizes on medicinal and other uses of organic compounds.

Objectives: Upon completion of the course the student shall be able to

1. Understand the methods of preparation and properties of organic compounds
2. Explain the stereo chemical aspects of organic compounds and stereo chemical reactions
3. Know the medicinal uses and other applications of organic compounds

Teaching Scheme:

Teaching Scheme				
L	T	P	Contact Hours	Credit
3	1	0	4	4

Content:

Unit No.	Contents	Teaching Hours	Weightage %
1	Stereo isomerism Optical isomerism – Optical activity, enantiomerism, diastereoisomerism, meso compounds Elements of symmetry, chiral and achiral molecules DL system of nomenclature of optical isomers, sequence rules, RS system of nomenclature of optical isomers Reactions of chiral molecules Racemic modification and resolution of racemic mixture. Asymmetric synthesis: partial and absolute	10	22%
2	Geometrical isomerism Nomenclature of geometrical isomers (Cis Trans, EZ, Syn Anti systems) Methods of determination of configuration of geometrical isomers. Conformational isomerism in Ethane, n-Butane and Cyclohexane. Stereo isomerism in biphenyl compounds (Atropisomerism) and conditions for optical activity. Stereospecific and stereoselective reactions	10	22%

3	Heterocyclic compounds: Nomenclature and classification Synthesis, reactions and medicinal uses of following compounds/derivatives Pyrrole, Furan, and Thiophene Relative aromaticity and reactivity of Pyrrole, Furan and Thiophene	10	22%
4	Synthesis, reactions and medicinal uses of following compounds/derivatives Pyrazole, Imidazole, Oxazole and Thiazole. Pyridine, Quinoline, Isoquinoline, Acridine and Indole. Basicity of pyridine Synthesis and medicinal uses of Pyrimidine, Purine, azepines and their derivatives	08	18%
5	Reactions of synthetic importance Metal hydride reduction (NaBH ₄ and LiAlH ₄), Clemmensen reduction, Birch reduction, Wolff Kishner reduction. Oppenauer-oxidation and Dakin reaction. Beckmanns rearrangement and Schmidt rearrangement. Claisen-Schmidt condensation	07	17%

Course Outcome: After Completion of Syllabus Students will able to

Sr. No.	CO statement	Unit No
CO-1	Students can learn about nomenclature of stereoisomer and optical isomer	1
CO-2	Students learn about Types of geometric isomerism and nomenclature	2
CO-3	Students know about how to draw Heterocyclic compound and its uses	3
CO-4	Heterocyclic rings with its importance and uses	4
CO-5	Various synthetic reactions with mechanism and its importance	5

Teaching & Learning Methodology: -

The various methods or tools follows by the faculties to teach the above subject are:

1. Chalk and board method
2. Experiential learning.
3. Power point presentation and slide show method

Books Recommended

1. Organic chemistry I.L. Finar, Volume-I & II.
2. Arun Bahl, B.S. Bahl A text book of organic chemistry –
3. Raj K. Bansal Heterocyclic Chemistry
4. Morrison and Boyd Organic Chemistry
5. T.L. Gilchrist Heterocyclic Chemistry

CO-PO-PSO Matrix:

Co. No.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO-1	3	2	3	2	-	2	1	2	2	2	3	2	3
CO-2	3	2	3	2	-	-	-	2	2	2	2	3	2
CO-3	3	2	3	3	-	1	2	3	2	3	3	2	3
CO-4	3	2	3	2	1	1	2	3	2	1	2	3	2
CO-5	3	2	3	1	-	1	2	1	2	1	1	3	2