

Lecture Plan

Name of the college: Government College of Arts, Science & Commerce, Sankhali, Goa		
Name of Faculty: Dr. Dipesh Sakharam Harmalkar	Subject: Organic Chemistry II	
Paper code: CHC-300	Program/Course: T.Y.BSc.	Division:
Academic year: 2026 - 2027	Semester: V	Total Lectures: 15
Credits: 3		
Course Objectives: • To predict aromaticity and mechanism for electrophilic aromatic substitution of benzene. • To understand the stereochemical reactions. • To acquire knowledge of carbohydrate and amino acid chemistry. • To understand and apply enolate chemistry. • To understand Infrared spectroscopy and solve problems based on it. • To understand mechanism of different name reactions and rearrangements.		
Expected Course Outcome: At the end of the course students will be able to: CO-1 To recall fundamental concepts of aromaticity, stereochemistry, natural products and principles of infrared (IR) spectroscopy. CO-2 To explain the mechanisms of electrophilic aromatic substitution, natural product syntheses, stereochemical transformations and named organic reactions. CO-3 To apply mechanistic knowledge of Organic Chemistry to predict products and describe functional group identification using IR spectroscopy. CO-4 To analyze complex name reactions, rearrangements and correlate analytical data to deduce molecular structures and reaction pathways.		
Learning Outcome: At the end of the course students will be able: LO1: Identify aromatic, antiaromatic, and non-aromatic compounds and explain organic reaction stereochemistry. LO2: Apply enolate chemistry to predict and explain reaction mechanisms. LO3: Write mechanisms for key name reactions and molecular rearrangements.		

LO4: Interpret IR spectra to determine functional groups in organic compounds. LO4: to evaluate and explain the practical applications of solvent extraction, chromatographic techniques, and electroanalytical methods.

Month	Lectures From	Lectures To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise /Assignment	ICT Tools	Reference books
June	20-06-2026	30-06-2026	01	2. Stereochemical reactions: Stereospecific and stereoselective reactions.		Smart board, Power point presentation, Google classroom	[1-5]
July	01-07-2026	31-07-2026	05	2. Stereochemical reactions: Addition of bromine to 3-Hexene with mechanism. Regioselectivity in addition of hydrogen halides to alkenes: Markownikoff's and anti-Markownikoff's addition. Substitution reactions: SN1, SN2, SNi reactions with mechanisms. Elimination reactions: E1, E2, E1cb reactions with mechanism. Substitution reactions: SN1, SN2, SNi reactions with mechanisms.	ISA I	Smart board, Power point presentation, Google classroom	[1-5]
August	07-08-2026	07-08-2026	01	2. Stereochemical reactions: Elimination reactions: E1, E2, E1cb reactions with mechanism.		Smart board, Power point presentation, Google classroom	[1-5]
	14-08-2026	28-08-2026	03	6. Name Reactions and Rearrangements -I: Reaction and mechanism of the following: Benzoin, Aldol, Knoevanagel,		Smart board, Power point presentation, Google classroom	[1-5]
Septem ber	01-09-2026	30-09-2026	04	6. Name Reactions and Rearrangements -I: Michael addition. Rearrangement with mechanism: Beckmann, and Wolff. Reaction and two applications of Diekmann, Stobbe.	ISA II	Smart board, Power point presentation, Google classroom	[1-5]
October	02-10-2026	02-10-2026	01	6. Name Reactions and Rearrangements -I: Reaction and two applications of Favorskii and Hofmann Rearrangement.	ISA III	Smart board, Power point presentation, Google classroom	[1-5]
	09-10-2026	09-10-2026	01	Revision			

References:

1. Carey, F., Organic Chemistry, 4th ed., McGraw Hill, New York, USA, 2000.
2. Bruice, P. Y., Organic Chemistry, 3rd ed., Pearson Education, Asia, 2014.
3. McMurry, J., Fundamentals of organic chemistry, 7th ed., Cengage Learning India Edition, Noida, India, 2013.
4. Morrison, R.T., Boyd, R.N. and Bhattacharjee, S. K., Organic Chemistry, 7th ed., Pearson, 2010.
5. Sykes, P., A guidebook to mechanism in organic chemistry, 6th ed., Longman Scientific & Technical, England, UK, 1985.

* Assessment Rubrics	
Component	Max Marks
ISA	15
Practical	25
Semester End Exam	60