Lecture Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim, Goa		
Name of Faculty: Dr. Dipesh Sakharam Harmalkar	**Subject: Organic Chemistry I**	
Paper code: CHC-202	**Program/Course: S.Y.BSc.**	**Division:**
Academic year: 2024 - 2025	**Semester: IV**	**Total Lectures: 15**
Credits: 3		

Course Objectives:

- To understand the preparation and reactions of carboxylic acids and amines.
- To apply knowledge of UV Visible spectroscopy in calculating absorption values.
- To understand stereochemistry of organic compounds.

Expected Course Outcome:

At the end of the course students will be able to:

CO1. Explain the preparation and reactions of carboxylic acids and amines.

CO2. Identify conjugation and calculate λmax of organic compounds.

CO3. Draw stereoisomers of organic compounds.

CO4. Assign E/Z and R/S configuration to organic compounds.

Learning Outcome:

At the end of the course students will be able to:

1. Explain the preparation methods and key reactions of carboxylic acids and amines, demonstrating their relevance in organic synthesis.
2. Identify conjugated systems and calculate their maximum wavelength of absorption (λmax) using UV-Vis spectroscopic principles.
3. Represent stereoisomers of organic compounds accurately through structural diagrams.
4. Assign and interpret E/Z (geometric) and R/S (optical) configurations in organic compounds, emphasizing their stereochemical significance.

Month	Lectures From	Lectures To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/Assignment	ICT Tools	Reference books
December	10-12-2024	31-12-2024	02	**1. Carboxylic acids and its derivatives:** IUPAC nomenclature of aliphatic and aromatic carboxylic acids; Functional group identification. Acidic and alkaline hydrolysis of esters; Oxidation of toluene to benzoic acid.		Smart board, Power point presentation, Google classroom.	[1-3]
January	02-01-2025	31-01-2025	04	**1. Carboxylic acids and its derivatives:** Toluene to benzoic acid. Hydrolysis of cyanides, Grignard synthesis of carboxylic acids. Reactions: Hell Reactions: Hell-Volhard Zelinsky Reaction. Carboxylic acid derivatives (aliphatic): (up to 5 carbons) Preparation: Acid chlorides, Anhydrides, Esters and Amides from acids and their interconversions,	ISA I: Assignment	Smart board, Power point presentation, Google classroom, Google quiz	[1-3]
February	01-02-2025	17-02-2025	03	**1. Carboxylic acids and its derivatives:** Reactions: Comparative study of the nucleophilicity towards acyl derivatives. Hydrolysis of acid chlorides, acid amide to carboxylic acids.	ISA II: Written test	Smart board, Power point presentation, Google classroom, Google quiz	[1-3]
	17-02-2025	24-02-2025	01	**2. Amines and Diazonium Salts:** Amines (aliphatic and aromatic) (upto 5 carbons) IUPAC nomenclature,		Smart board, Power point presentation, Google classroom	[1-3]

March	01-03-2025	31-03-2025	05	**2. Amines and Diazonium Salts:** nomenclature, Preparation: from alkyl halides, Gabriel's phthalimide synthesis, Hofmann bromamide reaction (with mechanism). Reduction of cyanides, reduction of nitroarenes. Reactions: Elimination reactions Hofmann vs. Saytzeff elimination, Carbylamine test, Hinsberg test, with HNO_2, Schotten-Baumann reaction. Electrophilic substitution of aniline: nitration,	ISA III: Quiz	Smart board, Power point presentation, Google classroom	[1-3]
April	01-04-2025	11-04-2025	01	Revision			

References:

[1] Morrison, R.T. & Boyd, R.N. Organic Chemistry, Pearson, 2010.

[2] Bahl, A. & Bahl, B.S. Advanced Organic Chemistry, S. Chand, 2010.

[3] Singh, J. & Yadav, L. Undergraduate Organic Chemistry, Vol 1, 6th edition, 2004

* Assessment Rubrics	
Component	**Max Marks**
ISA	15
Semester End Exam	60
Practical	25
Total	100