

Lecture Plan		
Name of the college: Government College of Arts, Science and Commerce, Sanquelim- Goa		
Name of Faculty: Dr. Sagar Narayan Patil	Subject: Organic Chemistry	
Paper code: CHC300: : Organic Chemistry II	Program: TYBSc	Division: -
Academic year: June 2025- 2026	Semester: V	Total Lectures: 30
Course Objectives: 1. To predict aromaticity and mechanism for electrophilic aromatic substitution of benzene. 2. To understand the stereochemical reactions. 3. To acquire knowledge of carbohydrate and amino acid chemistry. 4. To understand and apply enolate chemistry. 5. To understand Infrared spectroscopy and solve problems based on it. 6. To understand mechanism of different name reactions and rearrangements.		
Student Learning Outcome: student will be able, 1. To predict aromaticity and mechanism for electrophilic aromatic substitution of benzene. 2. To understand the stereochemical reactions. 3. To acquire knowledge of carbohydrate and amino acid chemistry. 4. To understand and apply enolate chemistry. 5. To understand Infrared spectroscopy and solve problems based on it. 6. To understand mechanism of different name reactions and rearrangements.		

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
June	20/06/2025	30/06/2025	03	Aromaticity and electrophilic substitution reactions: Huckel's rule of Aromaticity (4n+2) Rule, 4n Rule for antiaromaticity, Electrophilic Aromatic substitution (w.r.t Benzene): Mechanism of Nitration, Sulphonation, Halogenation,	Structures and problems	PPT/ Smart Board	1. Baliga and Shetty, College Analytical Chemistry, 15th edition, Himalaya Publishing House, 2004 2. K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, 5th Edn., Sheth Publishers Pvt. Ltd. Page 87 of 225 Reference Books: 1. G. D. Christian Analytical Chemistry by, 5th edition Wiley publications. 2. G. Chatwal and S. Anand, Instrumental Methods of Chemical Analysis 5th edition (reprint 2003), Himalaya publication. 3. Vogel's Textbook of Quantitative Inorganic Analysis 4th edition ELBS.
July	01/07/2025	31/07/2025	08	Benzene): Mechanism of Nitration, Sulphonation, Halogenation, Friedel – Crafts alkylation and acylation. Reactivity and orientation of activating, deactivating groups (ortho, para and meta effects) with examples. interpretation of results.	ISA-I preparation Assignment	Smart Board	Listed as above

August	01/08/2025	31/08/2025	7	Stereochemical reactions Stereospecific and stereoselective 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.	ISA-II preparation Assignment	Smart Board	Listed as above

September	01/9/2025	30/09/2025		Infra-Red Spectroscopy in Organic Chemistry Principle of IR Spectroscopy (Hooke's law), types of molecular vibrations (Stretching and bending). Functional group region and Fingerprint region. Applications of IR Spectroscopy: Functional group analysis, detection of purity of sample, establishing the identity of an unknown molecule, Effect of H-bonding, conjugation, resonance and ring size on IR absorptions. To study	06		Listed as above
October	05/10/2024	19/10/2024	09	Chemistry of Enolates Chemistry of Enolates. Definition of enolate ion, acidity of carbonyl compounds, pkavalues, generation of enolate ion, role of bases in enolate ion formation, alkylation of carbonyl compounds with reference to cyclohexanone, acetone, ethylacetoacetate, malonic ester. Claisen condensation for		Smart Board	2. G. Chatwal and S. Anand, Instrumental Methods of Chemical Analysis 5th edition (reprint 2003), Himalaya publication. 3. Vogels Textbook of Quantitative Inorganic Analysis 4th edition ELBS.

				preparation of ethylacetoacetate (reaction and mechanism). Keto-enol tautomerism of ethylacetoacetate. Malonic ester synthesis of carboxylic acids, ethylacetoacetate synthesis of ketones. Alkylation of 1,3-dithianes. Alkylation via enamine synthesis.			
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Paper code: CHC-300 : Organic Chemistry II		Program: T.Y.B.Sc		Division: -
Academic year: June 2025- 2026		Semester: V		Total Practical's/Labs: 30 (B-I & B-III)
Credits: 2				
Course Objectives:-• 1. To apply theoretical concepts to experiments. 2. To acquire hands on training in organic preparation experiments. 3. To acquire hands on training in organic qualitative analysis of data.				
Student Learning Outcome: Students will be able to 1. To apply theoretical concepts to experiments. 2. To acquire hands on training in organic preparation experiments. 3. To acquire hands on training in organic qualitative analysis.				
Month	Practicals/Labs Scheduled Date	No. of Practical's/Labs planned	List of Experiments	Reference books
June	20/06/2025 to 30/06/2025	02	Organic preparations List of organic preparations to be performed. Purification by recrystallization, calculation of % yield and determination of melting point. a) Chalcone from acetophenone and benzaldehyde	
July	01/07/2025 - 29/07/2025	09	Organic preparations b) Benzoin from Benzaldehyde c) Cinnamic acid from benzaldehyde	-

			e) Hippuric acid from glycine	
August	04/08/2025 - 27/08/2025	07	f) <i>m</i> -dinitrobenzene from nitrobenzene g) diazoaminobenzene from aniline Organic Estimations experiments (Any 3) a) Estimation of acid and amide.	A.I. Vogel, A.R. Tatchell, B. S. Furniss, Hannaford, Vogel's Textbook of Practical Chemistry, 5th Ed., Prentice Hall; 2011.
September	01/09/2025 - 30/09/2025	09	Organic Estimations experiments (Any 3) b) Estimation of acid and ester. c) Estimation of number of acetyl groups.	A.I. Vogel, A.R. Tatchell, B. S. Furniss, Hannaford, Vogel's Textbook of Practical Chemistry, 5th Ed., Prentice Hall; 2011.
October	01/10/2025 - 18/10/2025	03	Revision/repetition/ Journal certification	