Lecture Plan

Name of the college: Government College of Arts, Science and Commerce, Sanquelim- Goa

Name of Faculty: Dr. Sagar Narayan Patil | **Subject:** Chemistry

Paper code: CHC-142; Skills in Qualitative Organic Analysis | **Program: FYBSc; SEC**

Academic year: 2423 - 2025 | **Semester: I** | **Total (15)**

Course Objectives:

- To understand the theoretical aspects of qualitative organic analysis ● To explain mechanistically the chemical tests in qualitative organic analysis.

Student Learning Outcome: students will be able to,

1. Explain reactions involved in identifying the chemical nature of organic compounds. 2. Understand role of sodium fusion extract in detecting the presence of heteroelements. 3. Explain the reactions of various functional groups present in organic compounds. 4. Understand the need for purification techniques in organic analysis

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
June	27/6/2023		1	**Chemical nature of organic compounds** Nature of organic compounds based on physical state.	Structures and problems	PPT/ Smart Board	1. Pandey, O.P., Bajpai D. N. & Giri S. Practical Chemistry, Revised Edition, (For BSc. I, II, III Year Students of All Indian Universities) S. Chand Company Pvt Limited, 2014. 4. N. K. Vishnoi, Advanced Practical Organic Chemistry, third edition, 2010
July	04/07/2024	25/07/2024	4	Nature of organic compounds based on physical state of the following compounds: benzoic acid, m-nitroaniline, β-naphthol, acetone, aniline, naphthalene, benzophenone, m-dinitrobenzene (to be shown with structure); presence of saturated and unsaturated compounds using bromine water, potassium permanganate solution;	**ISA preparation** Structures and problems	Smart Board	1. Pandey, O.P., Bajpai D. N. & Giri S. Practical Chemistry, Revised Edition, (For BSc. I, II, III Year Students of All Indian Universities) S. Chand Company Pvt Limited, 2014. 4. N. K. Vishnoi, Advanced Practical Organic Chemistry, third edition, 2010

August	01/08/2024	29/08/2024	5	**Chemical nature of organic compounds** water solubility of organic compounds (any two water soluble and water insoluble compounds); chemical nature of organic compounds (to be explained with reactions)- water insoluble acid/phenol/base/neutral, water soluble acid/phenol/neutral.	Structures and problems ISA II	Smart Board	1. I. L. Finar, Organic Chemistry Vols I and II, Orient Longman 2. Morrison and Boyd, Organic Chemistry; 6th Edn. Prentice Hall India
September	05/09/2024	26/09/2024	4	2. Analysis of hetero elements and functional groups Detection and presence of hetero elements - N/S/X (to be explained with reactions); Detection and presence of functional groups – CH(O) acid- salicylic acid, CH(O) phenol- β-naphthol, CH(O) neutral- acetone, benzaldehyde, ethyl acetate and ethanol, CH(O)N acid p-nitrobenzoic acid, CH(O)N phenol -nitrophenol, CH(O)N base - nitroaniline , CH(O)N neutral- urea, CH(O)N,S neutral- thiourea, CH(O)Cl neutralchlorobenzene (to be explained with reactions).	mechanism & Structures and problems therein,	Smart Board	1. I. L. Finar, Organic Chemistry Vols I and II, Orient Longman 2. Morrison and Boyd, Organic Chemistry; 6th Edn. Prentice Hall India
October	03/10/2024	17/10/2024	3	3. Purification Techniques Recrystallisation, distillation, sublimation. Determination of physical constants of organic compounds- melting point, boiling point.	mechanism & Structures and problems therein Revision, tests	Smart Board	1. I. L. Finar, Organic Chemistry Vols I and II, Orient Longman 2. Morrison and Boyd, Organic Chemistry; 6th Edn. Prentice Hall India

Dr. Sagar Narayan Patil

CHC142; ISA:05