

Odd Semester 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- 201 Concepts in Organic and Analytical Chemistry

Program/Course: S.Y. B.Sc.

Division: A

Academic year: 2026 – 2027

Semester: III

Total Lectures: 15

Course Objectives: Practicals -1. To apply theoretical concepts to experiments.

2. To acquire hands on training in organic preparation experiments and inorganic qualitative analysis.

3. To evaluate data for central tendency and dispersion.

4. To apply extraction methods to separate given mixture.

Course Learning Outcome: Practical - At the end of the course, students will be able to

1. Write the mechanism for substitution reactions of alkyl and aryl halides; and reactions for preparation and reactivity effects in case of alcohols, phenols, aldehydes, ketones and benzene.
2. Explain the scope of analytical chemistry and principles involved in Classical methods, uv-visible spectrophotometric and Solvent extraction.
3. Synthesize simple organic compounds, analyse and identify organic compounds using classical qualitative analysis.
4. Solve numericals based on statistical data obtained from experimental results.
5. Compare different methods of quantitative and qualitative analysis, perform extraction and separation of chemical mixtures.

Month	Lectures From: To:	No. of lectures allotted	Topic, Subtopic to be covered	Learning outcome	ICT Tools	Reference books
June 2026	22/6/26 - 27/6/26	02	Syllabus discussion General instructions. Pre-sessions	Weighing and preparations.	Chalk and talk	1. Furniss, B. S., Hannaford, A. J., Smith P. W. G. and Tatchell, A. R., Vogel's Textbook of Practical Organic Chemistry, 5th ed., Pearson Education Ltd., UK.

June- July	30/6/26 - 11/7/26	02	Organic preparations	Synthesizing simple organic compounds.		2. Pasto, D., Johnson C. and Miller, M., Experiments and Techniques in Organic Chemistry, 1st ed., Prentice Hall
July	13/7/26 - 18/7/26	02	Organic preparations	Synthesize simple organic compounds.		3. Fieser, L. F. and Williamson, K. L., Organic Experiments, 7th ed., D. C. Heath and Company, Massachusetts, USA, 1992.
July	21/7/26 - 26/7/26	02	Organic qualitative analysis	Students will be able to analyse and identify organic compounds		4. Bansal, R. K., Laboratory Manual of Organic Chemistry, 5th ed., New Age International Publishers, New Delhi, India,
July	21/7/26 - 26/7/26	02	Organic qualitative analysis	Students will be able to analyse and identify organic compounds		5. Jeffery, G. H., Bassett, J., Mendham, J., Denney, R. C., Vogel's Text Book of Quantitative Chemical Analysis, 5th Ed., John Wiley, New York, 1989
July-August	27/7/26- 01/8/26	02	Organic qualitative analysis	Students will be able to analyse and identify organic compounds		6. Mendham, J., Denney, R. C., Barnes, J. D., Thomas, M., Vogel's Textbook of Quantitative Inorganic Analysis, 6th Ed.
August	27/7/26- 01/8/26	02	Organic qualitative analysis	Students will be able to analyse and identify organic compounds		7. Elias, A. J., Collection of Interesting chemistry experiments, University Press (India) private limited, Hyderabad
August	03/8/26 - 08/8/26	02	Organic qualitative analysis	Students will be able to analyse and identify organic compounds		
August	10/8/26 - 14/8/26	02	Organic qualitative analysis	Students will be able to analyse and identify organic compounds		

August	17/8/26 - 22/8/26		Evaluation of data Succinic acid-NaOH	Applying formulas based on statistical data		
September	24/8/26 – 29/8/26	02	Evaluation of data: Ca-EDTA	numericals based on statistical data		
September	31/08/26- 05/09/25	02	Colorimetry – KMnO ₄	quantitative and qualitative analysis.		
September	07/09/26- 12/09/26	02	Spectrophotometry- K ₂ Cr ₂ O ₇	quantitative and qualitative analysis.		
September October	12/09/26- 26/09/26	02	Colorimetry – Cu ²⁺ as [Cu(NH ₃) ₄] ²⁺	Use instruments compare different methods of quantitative and qualitative analysis.		
October	28/09/26- 03/10/26	02	Solvent Extraction - mixture of benzoic acid and β-naphthol	Perform extraction and separation		
October	05/10/26- 10/10/26	02	Solvent Extraction of Caffeine from tea leaves decoction	Perform extraction and separation		
	12/10/26 14/10/26-	02	Repetition	Viva-Questions Journal Certification		