Practical Plan

Name of the college: Government College of Arts,Science and Commerce Sanquelim		
Name of Faculty: Dr. Sagar Narayan Patil	**Subject: Chemistry**	
Paper code: CHC 200 Concepts in organic and Anaytical Chemistry	**Program: SY BSc**	**Division: Batch II**
Academic year: June2024– 2025	**Semester: III**	**Total Practicals/Labs: 15**
Credits: 01		

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.
4. To evaluate data for central tendency and dispersion.
5. To apply extraction methods to separate given mixtures

Student Learning Outcome:

students will be able to

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

Month	Practicals/Labs Scheduled Date	No. of Practicals/Labs planned	List of Experiments	Reference books
June	25/07/2024	1	Introduction of experiments	Furniss, B. S., Hannaford, A. J., Smith P. W. G. and Tatchell, A. R., Vogel's Textbook of Practical Organic Chemistry, 5thed., Pearson Education Ltd., UK, 2011.
July	02/7/2024 to 30/07/2024	5	Organic preparations List of organic preparations	5. Jeffery, G. H., Bassett, J.,

			to be performed. Purification by recrystallization, calculation of % yield and determination of melting point. (Any 2) c) 2,4-dinitrophenylhydrazone of benzaldehyde/acetophenone. d) Oxime of Cyclohexanone. II. Organic qualitative analysis Preliminary tests, chemical nature, detection of elements, functional group determination and physical constant. (any one from each category). a) Water soluble compounds: succinic acid, oxalic acid, urea, thiourea.	Mendham,J., Denney, R. C., Vogel's Text Book of Quantitative Chemical Analysis, 5th Ed., John Wiley, New York, 1989. 6. Mendham,J., Denney,R.C., Barnes, J.D., Thomas,M., Vogel's Textbook of Quantitative Inorganic Analysis, 6th Ed., Pearson Education Asia, 2000,
August	06/08/2024 to 27/08/2024	4	II. Organic qualitative analysis b) Water insoluble Acids/ Phenols: benzoic acid, cinnamic acid, salicylic acid, p-nitrobenzoic acid, o-chlorobenzoic acid, α-naphthol, β-naphthol. c) Water insoluble Base: m-nitroaniline, p-toluidine. d) Water insoluble Neutral: acetanilide, benzamide, p-dichlorobenzene, m-dinitrobenzene, e) Liquids: Acetone, ethyl acetate, ethanol, benzaldehyde, acetophenone, aniline.	. Mendham,J., Denney,R.C., Barnes, J.D., Thomas,M., Vogel's Textbook of Quantitative Inorganic Analysis, 6th Ed., Pearson Education Asia, 2000,
September	03/09/2024 to 24/09/20224	4	Evaluation of data 1. Titration of supplied calcium chloride solution with 0.01M EDTA solution. (More than 5 observations to be taken followed by statistical analysis to determine - mean, median, range, accuracy in terms of relative error) 2. Titration of given 0.1N NaOH solution using primary standard 0.1N Succinic acid solution.	3. S. W. Rajbhoj and T. K. Chondhekar, Systematic Experimental Physical Chemistry, Anjali Publication, Second Edition 2000. 4. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry,

			(5 observations to be taken followed by statistical analysis to determine - Relative Deviation, Average Deviation, Relative Average Deviation (RAD), Standard deviation, Variance and Coefficient of variance, True Value to be provided). 04 IV. UV-Visible spectrophotometry and Colorimetry 1. Determine λmax for 0.1M K2Cr2O7 by spectrophotometry.	R. Chand & Co.: New Delhi, 2018.
October	1/10/2024 to 22/10/2024	3	Verify Beer's law using KMnO4 by colorimetric method and determine molar extinction coefficient. 3. Estimation of Cu2+ as [Cu(NH3)4] 2+ complex in the given unknown solution using Calibration curve method. 06 V. Solvent Extraction 1. Separation of mixture of benzoic acid and β-naphthol using ethyl acetate by solvent extraction method. 2. Determination of partition coefficient of acetic acid in water and n-butyl alcohol. 3. Extraction of Caffeine from tea leaves decoction using dichloromethane as organic solvent.	3. S. W. Rajbhoj and T. K. Chondhekar, Systematic Experimental Physical Chemistry, Anjali Publication, Second Edition 2000. 4. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi, 2018.