Practical Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim, Goa		
Name of Faculty: Dr. Dattaprasad D. Narulkar	**Subject: Fundamentals of Chemistry (Major)**	
Paper code: CHC-100	**Program: F.Y.BSc.**	**Division:**
Academic year: 2025 - 2026	**Semester: I**	**Total Practical/Labs: 15 (30 hours)**
Credits: **1**		

Course Objectives:

- To translate certain theoretical concepts learnt earlier into experimental knowledge by providing hands-on experience of basic laboratory techniques required for chemistry.
- To introduce the fundamentals and basic techniques of volumetric and gravimetric estimations.

Expected Course Outcome:

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

CO1: to perform basic volumetric, gravimetric estimations, viscosity and surface tension determination.
CO2: to purify organic compounds using purification techniques.
CO3: to identify the chemical nature of different types of organic compounds.

Student Learning Outcome:

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

LO1: to acquire the knowledge and skill of basic volumetric, gravimetric estimations and experiments related to Physical Chemistry.
LO2: to get hands-on experience on the purification techniques for organic compounds.
LO3: to get hands-on experience in the identification of the chemical nature of organic compounds.

Month	Practical/Labs Scheduled Date	No. of Practical/Labs planned	List of Experiments	Reference books
June	21/06/2025		-	
	28/06/2025	1	Pre-Lab session (Laboratory safety, concept of normality and molarity and stoichiometric calculations).	Ref 1 and 2
July	05/07/2025	1	Calibration of Burette and Pipettes.	Ref 1 and 2
	12/07/2025	1	To prepare 100 mL of standard 0.1 M $K_2Cr_2O_7$ solution and carry out dilution to 0.05, 0.01, 0.005, and 0.001 M in 100 mL standard flasks.	Ref 1 and 2
	19/07/2025	1	Volumetry: To prepare 100 ml of 0.1 N KHP solution and standardize the given approximate 0.1 N NaOH solution.	Ref 1 and 2
	26/07/2025	1	Purification of organic compounds: i) Recrystallization of Benzoic acid by using water as solvent and determination of melting point.	Ref 1 and 2
August	02/08/2025	1	Purification of organic compounds: ii) Sublimation of Naphthalene and Determination of Melting point.	Ref 1 and 2
	09/08/2025	1	Determination of surface tension of two unknown liquids or dilute solutions by stalagmometer method	Ref 1 and 2
	16/08/2025	1	Determination of viscosity of two unknown liquids or dilute solutions by using Ostwald's viscometer.	Ref 1 and 2
	23/08/2025	1	Study of the variation of viscosity of an aqueous solution with concentration of solute.	Ref 1 and 2
August-September	-	-	**Ganesh Chaturthi break (26/08/2025 - 01/09/2025)**	-
September	06/09/2025	1	Gravimetric analysis: Determination of percentage composition of the given mixture ZnO + $ZnCO_3$	Ref 1 and 2
	13/09/2025	1	Determination of solubility and chemical nature of both solids and liquids.	Ref 3
	20/09/2025	1	Determination of solubility and chemical nature of both solids and liquids.	3
	27/09/2025	1	Purification of organic compounds: iii) Distillation of Acetone and determination of boiling point.	3

Month	Practical/Labs Scheduled Date	No. of Practical/Labs planned	List of Experiments	Reference books
October	04/10/2025	1	Determination of surface tension of two unknown liquids or dilute solutions by stalagmometer method	Ref 1 and 2
	11/10/2025	1	Determining the viscosity of two unknown liquids or dilute solutions using Ostwald's viscometer.	Ref 1 and 2
	18/10/2025	1	Practical Exam	

References

1. Vogel's Text book of Inorganic Qualitative analysis
2. Vogel's Textbook of Inorganic Quantitative Analysis
3. Vogel's Text book of Organic Qualitative analysis

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