Practical Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim, Goa		
Name of Faculty: Dr. Dipesh Sakharam Harmalkar	**Subject: Fundamentals of Chemistry (Major)**	
Paper code: CHC 100	**Program: F.Y.BSc.**	**Division:**
Academic year: 2024 - 2025	**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 and gravimetric estimations.
CO2: to purify organic compounds using purification techniques.
CO3: to identify chemical nature of different types 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 and gravimetric estimations.
LO2: to get hands on experience on the purification techniques for organic compounds.
LO3: to get hands on experience on the identification of chemical nature of organic compounds.

Month	Practical/Labs Scheduled Date	No. of Practical /Labs planned	List of Experiments	Reference books
July	05-07-2024	1 (Batch II)	Pre-Lab session (Laboratory safety, concept of normality and molarity and stoichiometric calculations).	[1, 2]
	12-07-2024	1 (Batch II)	Purification of organic compounds: i) Recrystallization of Benzoic acid by using water as solvent and determination of melting point.	[1]
	19-07-2024	1 (Batch II)	Purification of organic compounds: ii) Sublimation of Naphthalene and Determination of Melting point.	[1]
	26-07-2024	1 (Batch II)	Calibration of Burette and Pipettes.	[2]
August	02-08-2024	1 (Batch II)	Determination of viscosity of two unknown liquids or dilute solutions by using Ostwald's viscometer.	[3,4]
	09-08-2024	1 (Batch II)	Determination of viscosity of two unknown liquids or dilute solutions by using Ostwald's viscometer.	[3,4]
	16-08-2024	1 (Batch II)	Determination of solubility and chemical nature of both solids and liquids.	[1]
	23-08-2024	1 (Batch II)	Determination of solubility and chemical nature of both solids and liquids.	[1]
	30-08-2024	1 (Batch II)	Volumetry: To prepare 100 ml of 0.1 N KHP solution and standardize the given approximate 0.1 N NaOH solution.	[2]
September	13-09-2024	1 (Batch II)	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.	[2]
	20-09-2024	1 (Batch II)	Study of the variation of viscosity of an aqueous solution with concentration of solute.	[3,4]

	27-09-2024	1 (Batch II)	Gravimetric analysis: Determination of percentage composition of the given mixture ZnO + ZnCO3	[2]
October	04-10-2024	1 (Batch II)	Purification of organic compounds: iii) Distillation of Acetone and determination of boiling point.	[1]
	11-10-2024	1 (Batch II)	Determination of surface tension of two unknown liquids or dilute solutions by stalagmometer method.	[3,4]
	18-10-2024	1 (Batch II)	Determination of surface tension of two unknown liquids or dilute solutions by stalagmometer method.	[3,4]

References:

[1] A.I. Vogel, A., R. Tatchell, B. S. Furniss, A.J. Hannaford, Vogel's Textbook of Practical Organic Chemistry, 5thEd., Prentice Hall; 2011.
[2] Svehla, G. Vogel's Qualitative Inorganic Analysis, Pearson Education, 2012.
[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 (2011).

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