Practical Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim, Goa		
Name of Faculty: Dr. Dipesh Sakharam Harmalkar	**Subject: Concepts in Inorganic and Physical Chemistry**	
Paper code: CHC 200	**Program: S.Y.BSc.**	**Division:**
Academic year: 2024 - 2025	**Semester: III**	**Total Practical/Labs: 13 (30 h)**
Credits: 1		

Course Objectives:

- To prepare standard solutions and determine strength of solutions.
- To synthesize metal oxalates and estimate the metal ions by volumetric and gravimetric methods.
- To introduce colligative properties and their applications.
- To study the Nernst distribution law and its applications.

Expected Course Outcome:

At the end of the course students will be able:
CO1: to prepare normal and molar solutions of a substance.
CO2: to calculate the amount of substance in given solutions.
CO3: to carry out volumetric and gravimetric experiments for the estimation of unknown substances.
CO4: to deduce the lattice parameters of crystalline solids.

Student Learning Outcome:

At the end of the course students will be able:
LO1: to prepare standard solutions and determine strength of solutions.
LO2: to synthesize metal oxalates and estimate the metal ions by volumetric and gravimetric methods.
LO3: to explain and apply colligative properties.
LO4: to explain and apply Nernst distribution law.

Month	Practical/Labs Scheduled Date	No. of Practical /Labs planned	List of Experiments	Reference books
June	---	---	No Practical	
July	01-07-2024	1 (Batch I)	Pre Lab Session	[1,2]
	08-07-2024	1 (Batch I)	Preparation of 0.1N HCl and standardization with anhydrous Na_2CO_3/Borax.	[1,2]
	15-07-2024	1 (Batch I)	Determination of the percentage composition of the mixture of NH_4Cl and $BaSO_4$.	[1,2]
	22-07-2024	1 (Batch I)	To draw the phase diagram of binary system; Diphenylamine and α-Naphthol.	[3-6]
	29-07-2024	1 (Batch I)	Estimation of the amount of calcium in the given calcium chloride solution (EDTA method).	[1,2]
August	05-08-2024	1 (Batch I)	Determination of the strength of sodium thiosulphate using standard iodine solution.	[1,2]
	12-08-2024	1 (Batch I)	To determine the partition coefficient of iodine between 1,2 dichloroethane and water	[3-6]
	19-08-2024	1 (Batch I)	Estimation of Fe as Fe_2O_3 from the given solution of ferrous ammonium sulphate.	[1,2]
	26-08-2024	1 (Batch I)	To determine the molecular condition of benzoic acid by distribution method	[3-6]
	30-08-2024	1 (Batch I)	Preparation of Fe (III) Oxalate.	[1,2]
September	02-09-2024	1 (Batch I)	Determination of molal boiling point elevation constant of NaCl in water system	[3-6]

	16-09-2024	1 (Batch I)	Preparation of Zn (II) Oxalate.	[1,2]
	23-09-2024	1 (Batch I)	Determination of molal freezing point depression constant of NaCl and water system	[3-6]
	30-09-2024	1 (Batch I)	Indexing and determination of lattice parameters of Simple cubic, FCC and BCC crystal systems.	[3-6]
October	07-10-2024	1 (Batch I)	Indexing and determination of lattice parameters of Simple cubic, FCC and BCC crystal systems.	[3-6]
	14-10-2024	1 (Batch I)	Indexing and determination of lattice parameters of Simple cubic, FCC and BCC crystal systems.	[3-6]
	21-10-2024	1 (Batch I)	Revision	

References:

[1] J. Mendham, R. C. Denney, J. D. Barnes, M. Thomas, B. Sivasankar, Vogel's Textbook of Quantitative Chemical Analysis, 6th Edn. Pearson Education.

[2] G. Marr and B. W. Rockett, Practical inorganic Chemistry, Van Nostrand Reinhold Company, London (1972).

[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.

[5] B. Sc. Chemistry Experiments, Talent Development Centre, IISc. 2021, Bengaluru.

[6] C. Suryanarayana M. Grant Norton, X Ray Diffraction: A Practical Approach, Plenum Press (1998) New York, 1st Edn.

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