

Practical Plan

Name of the college: Government College of Arts, Science & Commerce, Sankhali, Goa		
Name of Faculty: Dr. Ranjana Gupta	Subject: Concepts in Inorganic and Physical Chemistry	
Paper code: CHC-200	Program: S.Y.BSc.	Division:
Academic year: 2025 - 2026	Semester: III	Total Practical/Labs: 30 hours
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: Explain the trend of periodic properties of elements, geometry of molecules, and stability of ionic solids. CO2: Construct and interpret the molecular orbital diagram of homonuclear and heteronuclear molecules. CO3: Predict the colligative properties of different systems. CO4: Calculate the distribution coefficient of binary systems. CO5: Prepare normal and molar solutions of a substance. CO6: Calculate the amount of substance in given solutions. CO7: Carry out volumetric and gravimetric experiments for the estimation of unknown substances. CO8: Deduce the lattice parameters of crystalline solids.		
Student Learning Outcome: At the end of the course students will be able: LO1: Prepare and standardize and determine strength of chemicals by volumetric titrations. LO2: Determine percentage composition of mixture of salts. LO3: Estimate percentage metal from compound by gravimetry. LO4: Synthesize inorganic complexes. LO5: Index and determine lattice parameters. LO6: Determine partition coefficient & molecular condition by distribution method and also determine colligative property.		

Month	Practical/Labs Scheduled Date	No. of Practical /Labs planned	List of Experiments	Reference books
July	14-07-2025	1 (Batch III)	Estimation of Fe as Fe ₂ O ₃ from the given solution of ferrous ammonium sulphate.	[1-2]
	21-07-2025	1 (Batch III)	Determination of the percentage composition of the mixture of NH ₄ Cl and BaSO ₄ .	[1-2]
	28-07-2025	1 (Batch III)	Preparation of Zn(II) Oxalate.	[1-2]
August	04-08-2025	1 (Batch III)	Determination of the strength of sodium thiosulphate using standard iodine solution.	[1-2]
	11-08-2025	1 (Batch III)	To draw the phase diagram of binary system; Diphenylamine and α -Naphthol	[3-6]
	18-08-2025	1 (Batch III)	To determine the molecular condition of benzoic acid by distribution method	[3-6]
	25-08-2025	1 (Batch III)	Determination of molal freezing point depression constant of NaCl and water system	[3-6]
September	08-09-2025	1 (Batch III)	Preparation of Fe(III) Oxalate.	[1-2]
	15-09-2025	1 (Batch III)	Determination of molal boiling point elevation constant of NaCl in water system	[3-6]
	22-09-2025	1 (Batch III)	To determine the partition coefficient of iodine between 1,2-dichloroethane and water	[3-6]
	29-09-2025	1 (Batch III)	Indexing and determination of lattice parameters of simple cubic, FCC and BCC crystal systems.	[6]
October	06-10-2025	1 (Batch III)	Estimation of the amount of calcium in the given calcium chloride solution (EDTA method).	[1-2]
	13-10-2025	1 (Batch III)	Preparation of 0.1N HCl and standardization with anhydrous Na ₂ CO ₃ /Borax.	[1-2]

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
Practical	25