

Practical Plan

Name of the college: Government college of Arts Science and commerce Sanquelim Goa.

Name of Faculty: Ms. Dipika Gosavi

Subject: Chemistry

Paper code: CHC-306

Program: T.Y.B.Sc

Division: A

Academic year: 2025- 2026

Semester: I

Total Practicals/Labs: 10 (30 hours)

Credits: 1

Course Objectives:- To develop fundamental laboratory skills for determining solution properties, standardizing solutions, purifying compounds, and performing qualitative analysis with safe and accurate practices.

Expected Course Outcome:

- CO1: Apply fundamental principles of electrochemistry to verify conductometric and potentiometric theories such as the Debye–Hückel–Onsager equation.
- CO2: Analyze weak and strong electrolyte systems through conductometric and potentiometric titrations.
- CO3: Determine hydrolysis constants, dissociation constants, and equilibrium parameters for weak acids and salts.
- CO4: Perform quantitative chemical analysis of ionic species using titrimetric and instrumental techniques.
- CO5: Interpret experimental data related to adsorption, colloidal stability, and ultratrace ion detection.

Student Learning Outcome:

- SLO1: Students will be able to conduct conductometric and potentiometric experiments with accuracy and proper calibration of instruments.
- SLO2: Students will be able to calculate equilibrium constants, hydrolysis constants, and dissociation constants from experimental data.
- SLO3: Students will be able to identify equivalence points and analyze titration curves for different electrolyte systems.
- SLO4: Students will be able to estimate concentration, percentage composition, and amount of ions in given mixtures.
- SLO5: Students will be able to correlate theoretical concepts with experimental observations in adsorption and colloid chemistry.

Month	Practicals/Labs Scheduled Date	No. of Practical's/Labs planned	List of Experiments	Reference books
December	01/12/2025	07/12/2025	1. Verification of Debye –Hückel Onsager equation using dilute solution of KCl by conductometric method.	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
December	08/12/2025	14/12/2025	2. To determine the strength of mixture containing weak acid (CH_3COOH) and salt of weak base (NH_4Cl) by titrating against standard 0.1N NaOH solution conductometrically.	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
December	15/12/2025	18/12/2025	2. To determine the strength of mixture containing weak acid (CH_3COOH) and salt of weak base (NH_4Cl) by titrating against standard 0.1N NaOH solution conductometrically.	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
December	21/12/2025	23/12/2025	3. To determine hydrolysis and hydrolysis constant of Sodium Acetate / NH_4Cl .	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
January	03/01/2026	09/01/2026	3. To determine hydrolysis and hydrolysis constant of Sodium Acetate / NH_4Cl .	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
January	10/01/2026	16/01/2026	4. To determine potentiometrically the equivalence point of strong acid v/s strong base using quinhydrone and amount of acid present.	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
January	17/01/2026	23/01/2026	4. To determine potentiometrically the equivalence point of strong acid v/s strong base using quinhydrone and amount of acid present.	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.

January	24/01/2026	30/01/2026	5. To determine the percentage composition and the amount of halides from a mixture (any two halides) using standard 0.1N AgNO ₃ .	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
February	01/02/2026	07/02/2026	5. To determine the percentage composition and the amount of halides from a mixture (any two halides) using standard 0.1N AgNO ₃ .	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
February	08/02/2026	14/02/2026	6. To determine dissociation constant of a weak monobasic acid (CH ₃ COOH) by titrating against standard 0.1N NaOH using pH meter.	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
February	15/02/2026	21/02/2026	6. To determine dissociation constant of a weak monobasic acid (CH ₃ COOH) by titrating against standard 0.1N NaOH using pH meter.	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
February	22/02/2026	28/02/2026	7. To study the adsorption of oxalic acid by charcoal and verifying Freundlich adsorption isotherm.	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
March	01/03/2026	07/03/2026	7. To study the adsorption of oxalic acid by charcoal and verifying Freundlich adsorption isotherm.	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
March	08/03/2026	14/03/2026	8. To detect the ultralow concentration of Cu ²⁺ ions by silver colloids using colloid destabilization method..	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
March	15/03/2026	21/03/2026	8. To detect the ultralow concentration of Cu ²⁺ ions by silver colloids using colloid destabilization method..	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.

March	21/03/2026	27/03/2026	Repetition	W. Rajbhoj, T.K. Chondhekar, Anjali Publication, Systematic experimental Physical Chemistry, 2000, Aurangabad, 2nd edition. P.S. Sindhu, Practicals in Physical Chemistry, Macmillan India Publication, 2006, New Delhi, 1st edition.
March	28/03/2026	31/03/2026	Exam	

Assessment Rubrics

Component	Max Marks
ISA 1	-
ISA 2	-
Practical	25
Project	-
Semester End Exam	-