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| | Practical Plan | |
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| Name of the college: Government college of Arts Science and commerce Sanquelim Goa. | | |
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| Name of Faculty: Ms. Dipika Gosavi | Subject: Chemistry | |
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| Paper code: CHC-306 | Program: T.Y.B.Sc | Division: A |
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| Academic year: 2025- 2026 | Semester: I | Total Practicals/Labs: 10 (30 hours) |
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| Credits: 1 | | |
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| Course Objectives:- To develop fundamental laboratory skills for determining solution properties, standardizing solutions, purifying compounds, and performing qualitative analysis with safe and accurate practices. | | |
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| 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. | | |
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| 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 ₃ COOH) and salt of weak base (NH ₄ Cl) 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 ₃ COOH) and salt of weak base (NH ₄ Cl) 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 ₄ Cl. | 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 ₄ Cl. | 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. |

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| 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. |

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| 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 | - |