



Anil Neerukonda Institute of Technology & Sciences (Autonomous)

(Permanent Affiliation by Andhra University & Approved by AICTE
Accredited by NBA (ECE, EEE, CSE, IT, Mech. Civil & Chemical) & NAAC)
Sangivalasa-531 162, Bheemunipatnam Mandal, Visakhapatnam District
Phone: 08933-225083/84/87 Fax: 226395

Website: www.anits.edu.in

email: principal@anits.edu.in

R23 Engineering Chemistry Lab Syllabus (1/IV B.Tech. EEE, ECE, MECH, Chemical) WEF 2023-24

Course Code: 23CY1201/1202

| L | T | P | E | O | Credits | Semester marks | Sessional |
|---|---|---|---|---|---------|----------------|-----------|
| - | - | 3 | - | - | 1.5 | 50 | 50 |

L- Lecture hour, T- Tutorial, P-Practical.

Course Objectives:

1. To impart students with practical knowledge and hands-on experience in analytical chemistry and its engineering applications.
2. To enhance students proficiency in utilizing instrumental analysis techniques for industrial and environmental applications.

By the end of the course, students will be able to

| CO | Statement |
|----|---|
| 1 | Apply volumetric analysis and titration principles to prepare standard solutions, standardize acids with strong bases, and assess water quality, food, and soil samples. |
| 2 | Proficiently employ diverse analytical methods (spectrophotometric, pH metric, conductometric, and potentiometric) to estimate chemical properties of substances and accurately interpret data results. |
| 3 | Cultivate problem-solving and critical thinking skills through practical application of analytical methods and instrumentation in engineering design and decision-making. |

List of Experiments:

1. Preparation of Standard solutions and Standardisation of Secondary standard solution.
2. Determination of Hardness, pH, TDS in ground water sample.
3. Estimation of Zinc in food samples by Complexometric method.
4. Analysis of Cement sample for Lime content to test the quality.
5. Estimation of available chlorine content in potable water using Iodometric method.
6. Estimation of Iron in an iron ore using potassium thiocyanate by Spectrophotometric method.
7. Determination of Strength of an acid in Lead acid battery by pH metric method
8. Estimate the strength of acids in an acid mixture by using Conductometric method.
9. Estimation of Chromium in Dichromate by using Potentiometric method.
10. Determination of Viscosity of various liquid fuels using Ostwald's Viscometer.

Demonstration Experiments

11. Determination of Dissolved Oxygen in a water sample using Iodometric method.
12. Synthesis of Bakelite a thermosetting polymer.
13. Determination of rate constant of ester hydrolysis.

Prescribed Textbooks:

1. Vogel's text book of Quantitative analysis, 5th edition, G.H.Jeffery, J.Bassett, J.Mendham, R.S.Denney.
2. Vogel's A text book of Macro and semi micro Inorganic analysis, revised by G.Svehla