

## Physical Chemistry Lab (Chemical Engineering)

Course Code: 22BC1106

L	T	P	C
0	0	3	1.5

**Course Outcomes:** At the end of the course students will be able to

CO1: Apply distribution law for solvent extraction method (L3).

CO2: Determine the chemical reaction rates (L3).

CO3: Interpret phase equilibria (L2).

CO4: Determine the properties like viscosity and surface tension of a liquid (L3).

CO5: Use electroanalytical techniques to determine the concentration of salts (L3).

Any **TWELVE** of the following experiments are to be performed during the semester.

### LIST OF EXPERIMENTS

1. Distribution of iodine between Carbon Tetrachloride or Chloroform and Water
2. Distribution of benzoic acid between benzene and water
3. Distribution of succinic acid between ether and water
4. Distribution of acetic acid between n-butanol and water
5. Determination of rate constant and order of ester hydrolysis.
6. Determination of rate constant and order of reaction between persulfate and iodide.
7. Determination of CST of Phenol-Water system
8. Determination of solubility of sparingly soluble salt (AgCl).
9. Study of inversion of sucrose by polarimetry.
10. Determination of Viscosity of a liquid.
11. Determination of surface tension of a liquid.
12. Determination of Fe(II) using potassium dichromate.
13. Determination of acid dissociation constant.
14. Determination of eutectic temperature of binary system (urea-Benzoic acid)
15. Potentiometric determination of Fe(II) using potassium dichromate.

### **Reference Books:**

1. N.K Bhasin and Sudha Rani, *Laboratory Manual on Engineering Chemistry*, 3rd edition, Dhanpat Rai & Sons, New Delhi, 2007.
2. P.C. Jain and M. Jain, *Engineering Chemistry*, 15th edition, Dhanapat Rai & Sons, Delhi, 2014.
3. A.I.Vogel, *A Textbook of quantitative chemical analysis*, 6th edition, Pearson Education Pvt. Ltd, 2002.