



I Year - I Semester		T	P	C
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<b>ENGINEERING CHEMISTRY LABORATORY (R13217)</b>				

**Pre-requisite Course:** Students should have basic understanding of Chemistry lab.

**Course Description and Objectives:** The students entering into the professional course have practically very little exposure to lab classes. The experiments introduce volumetric analysis; redox titrations with different indicators; EDTA titrations; then they are exposed to a few instrumental methods of chemical analysis. Thus at the end of the lab course, the student is exposed to different methods of chemical analysis and use of some commonly employed instruments. They thus acquire some experimental skills.

**Course Outcomes:**

Upon completion of the course, the student will be able to achieve the following outcomes.

CO	Course Outcomes	POs
1	Analyze the need, design and perform a set of experiments	5
2	Learn and apply basic techniques used in chemistry laboratory for volumetric analysis; redox titrations with different indicators; EDTA titrations	6
3	Enhance the thinking capabilities in the modern trends in Engineering & Technology	5
4	Expose to different methods of chemical analysis and use of some commonly employed instruments. Explain and demonstrate a few instrumental methods of chemical analysis	6
5	Function as a member of a team, communicate effectively and engage in further learning. Also, learn safety rules in the practice of laboratory investigations	6

**SYLLABUS:**

**List of Experiments**

1. Introduction to chemistry laboratory – Molarity, Normality, Primary, Secondary standard solutions, Volumetric titrations, Quantitative analysis, Quantitative analysis etc.,
2. Trial experiment – Estimation of HCl using standard  $\text{Na}_2\text{CO}_3$  solutions
3. Estimation of  $\text{KMnO}_4$  using standard Oxalic acid solution.
4. Estimation of Ferric iron using standard  $\text{K}_2\text{Cr}_2\text{O}_7$  solution.



5. Estimation of Copper using standard  $K_2Cr_2O_7$  solution.
6. Estimation of Total Hardness water using standard EDTA solution.
7. Estimation of Copper using standard EDTA solution.
8. Estimation of Copper using Colorimeter
9. Estimation of pH of the given sample solution using pH meter.
10. Conductometric Titrations between strong acid and strong base
11. Conductometric Titrations between strong acid and Weak base
12. Potentiometric Titrations between strong acid and strong base
13. Potentiometric Titrations between strong acid and Weak base
14. Estimation of Zinc using standard potassium ferrocyanide solution
15. Estimation of Vitamin – C

### **TEXT BOOKSS**

1. Dr. Jyotsna Cherukuis (2012) Laboratory Manual of Engineering Chemistry-II, VGS Techno Series.
2. Chemistry Practical Manual, Lorven Publications.
3. K. Mukkanti (2009) Practical Engineering Chemistry, B.S.Publication