

ENGINEERING CHEMISTRY LABORATORY

I Semester: AE CE ME								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
AHS103	Foundation	L	T	P	C	CIA	SEE	Total
		-	-	3	2	30	70	100
Contact Classes: Nil		Tutorial Classes: Nil		Practical Classes: 45			Total Classes: 45	
<p>OBJECTIVES: The course should enable the students to:</p> <ol style="list-style-type: none"> I. The course intends to provide an overview of the working principles and mechanism of reactions. II. This course relies on elementary treatment and qualitative analysis and makes use of simple models and equation to illustrate the concepts involved. III. To provide an overview of preparation and identification of organic compounds. IV. To gain the knowledge on existing future upcoming devices, materials and methodology. <p>COURSE LEARNING OUTCOMES (CLOs): The students should enable to:</p> <ol style="list-style-type: none"> 1. Preparation of Aspirin. 2. Estimation of hardness of water by EDTA method. 3. Conductometric titration of strong acid Vs strong base. 4. Potentiometric titration of strong acid Vs strong base. 5. Conductometric titration of mixture of acid Vs strong base. 6. Potentiometric titration of weak acid Vs strong base. 7. Determination of surface tension of a given liquid using Stalagmometer. 8. Determination of viscosity of a given liquid by using Ostwald's viscometer. 9. Estimation of dissolved oxygen in water. 10. Preparation of Thiokol rubber. 11. Determination of percentage of copper in brass. 12. Estimation of MnO₂ in pyrolusite. 								
LIST OF EXPERIMENTS								
Week-1	PREPARATIONS OF ORGANIC COMPOUNDS							
Preparation of Aspirin								
Week-2	VOLUMETRIC ANALYSIS							
Estimation of hardness of water by EDTA method								
Week-3	CONDUCTOMETRIC TITRATIONS							
Conductometric titration of strong acid Vs strong base								
Week-4	POTENTIOMETRIC TITRATIONS							
Potentiometric titration of strong acid Vs strong base								
Week-5	CONDUCTOMETRIC TITRATIONS							
Conductometric titration of mixture of acid Vs strong base								
Week-6	POTENTIOMETRIC TITRATIONS							
Potentiometric titration of weak acid Vs strong base								
Week-7	PHYSICAL PROPERTIES							

Determination of surface tension of a given liquid using stalagmometer	
Week-8	PHYSICAL PROPERTIES
Determination of viscosity of a given liquid by using Ostwald's viscometer	
Week-9	VOLUMETRIC ANALYSIS
Estimation of dissolved oxygen in water	
Week-10	PREPARATION OF RUBBER
Preparation of Thiokol rubber	
Week-11	VOLUMETRIC ANALYSIS
Determination of percentage of copper in brass	
Week-12	VOLUMETRIC ANALYSIS
Estimation of MnO ₂ in pyrolusite	
Text Books:	
1. Vogel's, "Quantitative Chemical Analysis", Prentice Hall, 6 th Edition, 2000.	
2. Gary D.Christian, "Analytical Chemistry", Wiley India, 6 th Edition, 2007.	
Reference Books:	
1. A text book on experiments and calculation Engg. S.S. Dara.	
2. Instrumental methods of chemical analysis, Chatwal, Anand, Himalaya Publications.	
Web References:	
1. http://www.iare.ac.in	
2. https://en.wikipedia.org/wiki/Chemistry	