

16BSC101P					Chemistry –I Practical					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs./Week	Theory			Practical		Total Marks
								LW	LE/Viva	
0	0	2	1	2				50	50	100

**COURSE OBJECTIVES**

- Learn the safety rules regarding working in the chemical laboratory.
- Imparting scientific methodology for importance of chemistry for industrial and domestic use.
- Acquire the concept of sampling method which are practical used.
- Comprehend the theoretical back ground of each practical.
- Able to calculate the unknown concentration through different titration procedure.
- To enhance the thinking capabilities in line with the modern trends in science and technology.

**LIST OF EXPERIMENTS**

1. **Calibration and use of apparatus**  
(a)Preparation of solutions of different Molarity/Normality of titrants, (b) Calibration of burette and pipette
2. **Acid-Base Titrations**  
(a)Estimation of carbonate and hydroxide present together in mixture, (b) Estimation of carbonate and bicarbonate present together in a mixture, (c) Estimation of free alkali present in soaps/detergents
3. **Oxidation-Reduction Titrimetry**  
(a)Estimation of Fe(II) and oxalic acid using standardized  $\text{KMnO}_4$  solution, (b) Estimation of oxalic acid and sodium oxalate in a given mixture  
Estimation of Fe(II) with  $\text{K}_2\text{Cr}_2\text{O}_7$ .
4. **Complexometric titration**  
(a)Estimation of Hardness of water by EDTA, (b) Estimation of chloride in water sample
5. Determine the surface tension by (i) drop number (ii) drop weight method.
6. Viscosity measurement using Ostwald's viscometer of (i) polymer (ii) ethanol and sugar at RT.
7. Quantitative estimations of  $\text{Ni}^{+2}$  as Ni-dimethyl glyoxime.
8. Preparation of Prussian blue from iron fillings.
9. Preparation of tetraamine cupric sulphate.
10. To study the distribution of iodine between water and  $\text{CCl}_4$ .
11. Determine the number of molecules of water of crystallisation in ferrous ammonium sulphate  $\text{FeSO}_4 (\text{NH}_4)_2\text{SO}_4 \cdot x\text{H}_2\text{O}$ , 20 gm of which have been dissolved per litre provided app.  $N/20 \text{ KMnO}_4$  solution.
12. To determine the percentage purity of the given sample of  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$  and also determine the percentage of magnesium in it by  $N/20 \text{ EDTA}$  solution.
14. To determine the specific reaction rate of the hydrolysis of ethyl acetate (or methyl acetate) catalyzed by hydrogen ions at room temperature.

**COURSE OUTCOMES**

On completion of the course, student will be able to

CO1– Able to design and perform a set of experiment

CO2– Capable to synthesis different inorganic complexes

CO3– Analyze the hard and soft water limit in water through complexometric titration

CO4– Apply basic techniques for laboratory for sample preparation, purification and concentration measurement

CO5–Identify, interpret and analyse the data integrity and the results from the experiments

CO6– Use the scientific method to create, test, and evaluate a hypothesis

**TEXT/REFERENCE BOOKS**

1. Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.
2. A. I. Vogel, A text book of quantitative Inorganic Analysis, ELBS.
3. A. K. Nad, B. Mahapatra & A. Ghosal, An Advanced Course in Practical Chemistry, New Central, 2007. Vogel's Text Book of Practical Organic Chemistry (5th Edn).

**SEMESTER EXAMINATION PATTERN**

**Max. Marks: 100**

LW(Daily lab performance plus journal maintain each 25 marks)

LE (Viva-voce plus Lab examination each 25 marks)

**Exam Duration: 3 Hrs**

50 Marks

50 Marks