VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF CHEMISTRY
CHEMISTRY LAB

Instruction : 2 Hrs / week	Semester End Exam Marks : 50	Subject Reference Code : U21BS011CH
Credits : 1	Continuous Internal Exam Marks : 30	Duration of semester End Exam : 3 Hours

LEARNING OBJECTIVES:	**LEARNING OUTCOMES:**
The course will enable the students to:	**At the end of the course, students should be able to:**
1.Describe the quantitative analytical techniques 2.Learn the skills to handle the instruments 3.Apply the theoretical principles in experiments 4. Examine the accuracy	1.Determine the amount of metals in the given solutions. 2.Analyse the hardness, alkalinity and chloride content of a given sample. 3.Estimate the amount of a substance in a given solution by conductometry, potentiometry and pH metry. 4.Use the principle of colorimetry in the estimation of Permanganate / Copper (II) in a given solution.

CO-PO MAPPING FOR CHEMISTRY LAB

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	3	2	-	-	-	-	-	-	2	-	-	1
2	3	2	-	-	-	-	-	-	2	-	-	1
3	3	2	-	-	-	-	-	-	2	-	-	1
4	3	2	-	-	-	-	-	-	2	-	-	1

1. Preparation of standard FAS or oxalic acid solution and standardization of $KMnO_4$ or NaOH solution.
2. Estimation of ferrous iron in the given solution by permanganometry.
3. Estimationof chromium in the given solution by standardized FAS.
4. Estimation of copper in brass or given solution by hypo.
5. Estimationof available chlorine in bleaching powder.
6. Estimation of total hardness of given water sample.
7. Estimation of alkalinity of a given sample.
8. Conductometric acid-base titrations -Determination of strength of given acids (HCl *Vs* NaOH and CH_3COOH *Vs* NaOH).
9. Conductometric acid-base titrations- Determination of strength of acids in a given mixture of acids (HCl and CH_3COOH *Vs* NaOH)
10. Determination of strength of a given acid by Potentiometry.
11. Determination of concentration of a given $FeSO_4$ using redox titration by Potentiometry.
12. Determination of strength of a given acid by pH metry.
13. Determination of strength of permanganate or copper in brass solution by Colorimetry.
14. Determination of concentration of a salt by ion exchange method.
15. Synthesis of Aspirin or Phenol formaldehyde resin.

Learning Resources:

Text Books:

1. Sunita rattan, Experiments in applied chemistry, S K Kataria & Sons (2010)
2. M S Kaurav, Engineering chemistry with laboratory experiments, PHI learning (P) ltd, New Delhi.

Reference Books:

1. G H Jeffery, J Bassett, J Mendham, R C Denney, Vogel's text book of quantitative chemical analysis, Fifth Edition.
2. A text book on experiments and calculation Engineering Chemistry, S.S. Dara.