

20CY113 INORGANIC CHEMISTRY LAB - 1

Hours Per Week :

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-	-	4	2

COURSE DESCRIPTION

The main objectives of this course are to get skills on quantitative analysis of various inorganic compounds by volumetric and gravimetric methods.

COURSE OUTCOMES:

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

COs	Course Outcomes
1.	Perform the volumetric analysis of various inorganic samples by acid-base, redox and complex-metric titrations.
2.	Analyze the samples obtained from industrial waste and various metal salts from their respective ores.
3.	Analyze the various inorganic samples by gravimetric analysis

Quantitative Analysis

Volumetric Analysis

a. Acid-Base Titrations:

1. Determination of concentrations of oxalic acid and sulfuric acid by sodium hydroxide and KMnO_4 .
2. Determination of a mixture of carbonate and hydroxide- Analysis of commercial caustic soda

b. Redox Titrations:

1. Determination of Mn^{+2} in pyrolusite by titrating against KMnO_4 .
2. Determination of Fe^{+2} in hematite by titrating against $\text{K}_2\text{Cr}_2\text{O}_7$.
3. Determination of Chlorine from bleaching powder by iodometry

c. Complexometric Titrations:

1. Determination of Pb and Sn from solder
2. Determination of Hardness of water
3. Determination of Ni^{+2} ions by titrating against EDTA

d. Miscellaneous Titrimetric Determinations

1. Determination of Zn^{+2} ions by titrating against $\text{K}_4[\text{Fe}(\text{CN})_6]$
2. Determination of sulfate (SO_4^{2-}) by using indirect EDTA method.

Gravimetric Analysis

1. Determination of Ni as Nickel dimethyl glyoxime
2. Determination of Zn as Zinc Ammonium phosphate
3. Determination of Cu as cuprous thiocyanate
4. Determination of Aluminum using Oxine

Text Books

1. Vogel's qualitative inorganic analysis, by Svehla, G. Publisher: Harlow: Longman, 1996. 4.
2. Vogel's textbook of quantitative inorganic analysis: including elementary instrumental analysis. By: Arthur Israel Vogel; John Bassett Publisher: London; New York: Longman, 1978.