

COURSE TITLE : APPLIED SCIENCE LAB
COURSE CODE :
COURSE CATEGORY : F
PERIODS/WEEK : 2
PERIODS/YEAR : 72 (In S1 & S2)
CREDITS : 2

LIST OF PRACTICAL EXPERIMENTS – PHYSICS

1. Vernier Calipers
2. Screw Gauge
3. Common balance
4. Simple Pendulum
5. Hooke's law
6. Moment bar
7. Inclined Plane
8. Concurrent forces (Mass of the body)
- 9 U-tube
10. Resonance column
11. Diode Characteristics
12. Convex lens
13. Ohm's law
14. Sonometer
15. Concave mirror

At least 10 experiments should be done in first and second semester together.

PART B - CHEMISTRY

OBJECTIVES

I. VOLUMETRIC ANALYSIS

1.1 Acidimetry Alkalimetry

- 1.1.a. Determine the strength of the given hydrochloric acid solution using a standard solution of sodium hydroxide and calculate the amount of HCl in a given volume
- 1.1.b. Determine the strength of given sulphuric acid solution using a standard solution of sodium carbonate. Calculate the amount of sulphuric acid in a given volume
- 1.1.c. Determine the strength of given sodium hydroxide solution given a standard solution of sodium carbonate using a standard solution sulphuric acid/hydrochloric acid. Calculate the amount of sodium hydroxide in a given volume
- 1.1.d Determine the strength of given nitric acid solution given a standard solution of oxalic acid using standard solution sodium hydroxide/potassium hydroxide. Calculate the amount of nitric acid in a given volume.

1.2 Permanganometry

- 1.2.a. Determine the strength of given potassium permanganate solution using a standard solution of ferrous ammonium sulphate

1.2.b. Determine the strength and calculate the amount of crystalline ferrous sulphate solution

1.3 Hardness estimation

1.3.a Determine the degree of hardness of a given sample of hard water using a standard solution of EDTA.

II. pH DETERMINATION

2.1.1 Determine the pH of three different solutions using pH meter

2.1.2 Determine the pH value of three different solutions using universal indicator

2.1.3 Determine the pH value of three different solutions using pH test paper

III. PREPARATION OF STANDARD SOLUTIONS

3.1.1 Weigh accurately a crystalline substance using a chemical balance

3.1.2 Prepare a standard solution of sodium carbonate by weighting out accurately solid sodium carbonate and making it into a definite volume

3.1.3 Prepare a standard solution of oxalic acid when oxalic acid crystals are given.

CONTENT DETAILS

I. VOLUMETRIC ANALYSIS

1.1 Acidimetry Alkalimetry

a) Estimation of Hydrochloric acid

b) Estimation of Sulphuric acid

c) Estimation of Sodium hydroxide given standard sodium carbonate solution

d) Estimation of Nitric acid given standard sulphuric acid solution

1.2 Permanganometry

1.3 Estimation of potassium permanganate

1.4 Estimation of crystalline ferrous sulphate

1.5 Estimation of sodium hydroxide, given standard ferrous salt solution

1.6 Hardness estimation. Estimation of total hardness of water – using standard EDTA solution

II. pH DETERMINATION

2.1 Determination of pH using pH meter

2.2 Determination of pH using universal indicator, pH test paper.

2.3 Determination of pH using pH test paper.

III. PREPARATION OF STANDARD SOLUTION

3.1 Preparation of a standard solution of sodium carbonates

3.2 Preparation of a standard solution of oxalic acid

REFERENCE BOOKS:-

A.O. Thomas & Mani Practical Chemistry for B.Sc. Main

* Examination at the end of second semester only.