

JSS Mahavidyapeetha



JSS COLLEGE OF ARTS, COMMERCE AND SCIENCE
OOTY ROAD, MYSURU – 570 025

POSTGRADUATE DEPARTMENT OF CHEMISTRY



SYLLABUS
A VALUE-ADDED COURSE

2018-19

VALUE ADDED COURSE IN CHEMISTRY

SECOND SEMESTER

COURSE: BASIC TOOLS AND OPERATIONS OF ANALYTICAL CHEMISTRY

[30 HOURS]

Objectives

- Use reagent-grade chemicals.
- How to use the analytical balance, Volumetric glassware and how to use it, how to calibrate glassware.
- How to prepare standard acid and base solutions.
- Common laboratory apparatus for handling and treating samples.

Course Outcome

- To enhance the knowledge on usage of analytical terminologies.
- To build the skills on stoichiometric solutions.
- To acquire the skills on reagents preparations.

Pedagogy

- Teaching students about weighing importance.
- Teaching students about preparation of solutions.
- Familiarize the students with principles used to prepare reagents.

Course Content

UNIT-I

[15 HOURS]

The Laboratory Notebook-Your Critical Record

Laboratory Materials and Reagents, The Analytical Balance-The Indispensable Tool, Volumetric Glassware-Also Indispensable, Preparation of Standard Base Solutions, Preparation of Standard Acid Solutions, Other Apparatus-Handling and Treating Samples, Igniting Precipitates-Gravimetric Analysis, Obtaining the Sample-Is It Solid, Liquid, or Gas? Operations of drying and Preparing a Solution of the Analyte.

UNIT-II

[15 HOURS]

Numbers in Analytical Chemistry, Fundamental Units of Measure, Significant Figures, Units for Expressing Concentration, Molarity and Formality, Normality, Molality, Weight, Volume, and Weight-to-Volume Ratios, Converting Between Concentration Units, Functions, Stoichiometric Calculations. Conservation of Mass, Conservation of Charge, Conservation of Protons, conservation of Electron Pairs.

References:

1. Analytical Chemistry- Gary D. Christian, Purnendu K. Dasgupta, Kevin A. Schug
2. Modern Analytical Chemistry-David Harvey
3. Vogel's Textbook of Quantitative Chemical Analysis by Arthur Israel Vogel