

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

FIRST SEMESTER

COURSE: LABORATORY SAFETY & BASIC COMPUTER SKILLS FOR CHEMISTS

[30 HOURS]

Objectives

- Practice safety rules while performing experiments in the lab.
- Develop good laboratory practices.
- Confidently handle various chemicals used in a general chemistry lab.

Course Outcome

- Perform first-aid treatment in case of common injuries/accidents in the lab.
- Apply IT tools to process the raw experimental data and make conclusions.
- Write a project report and also give a presentation on it.

Pedagogy

- Teaching students about basic laboratory safety
- Teaching students about first aid in minor lab accidents
- Familiarize the students with chemdraw, power point presentation and excel sheet.

Course Content

UNIT-I

[15 HOURS]

Safety in laboratory & Green Chemistry: Laboratory safety rules: General guidelines, general precautions, personal protective equipments, apparel in the lab, conduct and hygiene practices in the lab, housekeeping, chemical safety rules, fire and electrical safety rules; common chemistry laboratory practices; safety and hazard symbols; how to deal with accidents; DON'Ts in the lab. • Material Safety Data Sheet (MSDS): What is MSDS? MSDS of frequently used laboratory chemicals; Lab waste management and disposal.

First aid in chemistry laboratory: Preventing and treating lab accidents

Green Chemistry: Definition, brief introduction of twelve principles of Green Chemistry with examples (special emphasis on atom economy, reducing toxicity and green solvents); CO₂: an alternative solvent.

UNIT-II

[15 HOURS]

Computer Skills for Chemists:

Introductory writing activities: Introduction to word processor and structure drawing (ChemSketch, ChemDraw) softwares. Incorporating chemical structures, chemical equations, expressions from chemistry into word processing documents.

Handling numeric data: Spreadsheet software (Excel), creating a spreadsheet, entering and formatting information, basic functions and formulae, creating charts, tables and graphs. Incorporating tables and graphs into word processing documents. Simple calculations and plotting graphs using a spreadsheet.

PowerPoint presentation and general introduction to project report writing.

References:

- 1) Hill Jr, Robert H., and David C. Finster. *Laboratory safety for chemistry students*. John Wiley & Sons, 2016.
- 2) Hall, Stephen K. *Chemical safety in the laboratory*. CRC Press, 2018.
- 3) Karthikeyan, Muthukumarasamy, and Renu Vyas. *Practical chemoinformatics*. Springer, 2014.