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

THIRD SEMESTER

COURSE: INDUSTRY & RESEARCH ASPECTS [30 HOURS]

Objectives

- To impart job-oriented skills through hands-on experiment on water quality assessment and spectrophotometric detection of various water contaminant.

Course Outcome

After the completion of the course, the students should be able to

- Analyze the ground and industrial waste water.
- Abletodeterminethe common watercontaminantusingspectrophotometrictechnique.
- Use Mathematica and Matlab softwares to perform algebraic and numerical calculationand visualize mathematical functions by plotting graphs relevant to the topics of physical chemistry like chemical kinetics, thermodynamics, quantum chemistry etc.

Pedagogy

- Teaching students about Water Quality Analysis
- Teaching students about Spectral studies
- Familiarize the students with chemdraw and ChemSketch.

UNIT-I [15 HOURS]

Water Quality Analysis:

Theoretical principle of determination of Total Alkalinity of water, total hardness of the watersample, pH of ground and waste water, Dissolved oxygen of waste water, Chemical oxygendemand of waste water, salinity of the given water sample, turbidity of various water sample,detection and measurement of various contaminant using spectrophotometric methodsuch asnitrate,chloride, fluoride, iron, micro-pollutants.

UNIT-II [15 HOURS]

ChemDraw and ChemSketch: Introduction of Chem Draw, chemical name to structure conversion, chemical structure to name conversion, mass spectrum simulation, NMR spectrum simulation (both ^{1}H NMR &^{13}C NMR), structure clean up, 3D chemical structure, export toSVG,PDF,TIFF.

Introduction to ChemSketch, molecular modelling, creating and modifying images of chemicalstructures,writingand performingchemicalequations and diagrams.

References:

1. Environmental Chemistry, (9^{th}ed.)-AnilKDe.
2. Water Quality Concepts, Sampling and Analyses-Y.Li,K.Migliaccio
3. Handbook of Methods in Environmental Studies, Vol.l Water and Wastewater Analysis-S. K.Maity.