Shri Shivaji Education Society Amravati's

Shri Shivaji Arts, Commerce and Science College, Motala, Dist. Buldhana

Program Outcomes & Course Outcomes

Department of Chemistry

Name of the Program: B. Sc. Chemistry

Program Outcomes

- Program develops scientific temperament and attitude among the science graduates
- The qualities of science – observations, precision, logical thinking, clarity of thoughts and expressions qualitative and quantitative decision making are enlarged
- Create an awareness of the impact of chemistry on the environment, society and development outside the scientific community.
- Demonstrate, solve and an understanding of major concepts in all discipline of chemistry
- Gain the knowledge of chemistry through theory and practicals
- Use modern chemical tools Models Charts and equipments
- Understand good laboratory Practices and safety
- Identify chemical formulae and solve numerical problems
- Understand the interdisciplinary nature of chemistry and to integrate knowledge of mathematics, physics and other disciplines to a wide variety of chemical problems

Course outcomes of B. Sc. Chemistry

B. Sc. I Semester –I

Students will able to

- Understand periodic Properties.
- Know the periodic classification in S-block, P-block
- Discuss different physical and chemical properties
- Acquaint about reactive intermediate
- Study Aliphatic hydrocarbon and their properties
- Information about aromatic hydrocarbon
- Have a knowledge of Thermodynamics
- Solve numerical problems on thermodynamics
- Understand gaseous state

- Solve the problem on gaseous state
- Develop new concept of green synthesis
- Develop skill of organic preparation
- Identify acidic and basic radicals from mixtures
- Develop skill of inorganic separation

Course outcomes of B. Sc. Chemistry

B. Sc. I Semester –II

Students will able to

- Have the knowledge of p-block and noble gas elements
- Understand concept of hybridization, type of hybridization, geometry
- Know information regarding gravimetric analysis
- Organic chemistry
- Get the knowledge of alkyl halides
- Understand first, second order reaction their characteristics example
- Study electrical properties for polar and nonpolar molecule
- Know magnetic properties paramagnetic diamagnetic, ferromagnetic and antiferromagnetic
- Analysis of Glucose, a-naphthol, b-naphthol Toludine, Anthracine, Benzoic acid, Salicylic acid
- Measure surface tension, Viscosity, Parachor value, Cleaning power of detergent.
- Determine activation energy of reaction between K2 S2 O8 and KI

Course outcomes of B. Sc. Chemistry

B. Sc. II Semester –III

Students will able to

- Understand the concept of covalent bonding, metallic bonding
- Know frees electron theory, Valence bond theory and molecular orbital theory
- Understand concept of volumetric analysis
- Have an information regarding gravimetric analysis
- Get the information of different of aldehyde and carboxylic acid

- Understand the terms Optical isomerism and conformational isomerism
- Know meaning of resolution ,enatomers Diasteromers, Rand S Configuration
- Understand the concept of liquid state surface tension, Viscosity
- Understand measurement application of surface tension and viscosity
- Understand principal of redox titration during practicals
- Know importance of water, measurement of different parameters
- Develop skill based aptitude among the students
- Performs redox titration, iodometry and iodimetric titration
- Develop skill force construction of phase diagram.
- Develop laboratory skill for study order of reaction

Course outcomes of B. Sc. Chemistry
B. Sc. II Semester –IV

Students will able to

- Knowledge about 3d transition series elements
- Get the knowledge of metallurgy
- Understand inner transition elements
- Understand the chemistry of reactive methylene group
- Inculcate importance of carbohydrate
- Acquire importance of amino acids, diazonium salt and proteins
- Know the importance of colligative properties
- Understand crystalline state by using different models
- Know various parameters of water like hardness of water and its estimation
- Estimation of KMnO4 colorometrically and also copper
- Determination of equivalent weight of organic acid

Course outcomes of B. Sc. Chemistry
B. Sc. III Semester –V

Students will able to

- Understand Werners formulation of complexes and identify the type of valencies
- Get importance of electronic spectra of transition series elements
- Solve numerical on crystal field theory
- Have the knowledge of various drugs their synthesis and application
- Knowledge about various pesticides and herbicides
- Acquaint about mode of action of drugs on various diseases
- Understand different terms Lamberts law Beers law, Quantum yield ,Fluorescence, phosphorescence
- Derive expression for rotational spectra, vibrational spectra, band spectra
- Solve numerical on rotational and vibrational spectroscopy

- Know idea for prepartion of complexes like tetrammine Cu(II) sulphate, hexamine Ni(II) chloride, prussian blue, Sodium thiosulphate
- Perform titration and estimation by conductometry, potentiometric, polariometrically

Course outcomes of B. Sc. Chemistry

B. Sc. III Semester –VI

Students will able to

- Knowledge of different reaction SN1 and SN2 substitution reaction
- Understand various concept of beers law verification, expressions
- Understand chromatography types
- Know the role Na ,K, Ca, Mg haemoglobin myoglobin in biological system
- Understand different spectroscopic terms In electronic spectroscopy chromophore, auxochrome bathochromic shift, hypsochromic shift
- Know application of electronic spectra for dienes unsaturated aldydes and ketones, aromatic compound
- Understand concept of NMR, Mass spectroscopy and their application in structure determination
- Determination pH of solutionby using hydrogen ,glass, quinhydrone electrode
- Understand different terms of nuclear chemistry Shell model,liquid drop model, meson theory
- Knowledge about nuclear fusion and fission, Q value
- Know the application of radioisotope in industries agriculture and medicine
- Know the idea to perform various titration formaldehyde, ascorbic acid, phenol, aniline, urea
- Develop skill based practicals like separation of mixtures of dyes
- To develop titration skill for conductometry, potentiometry , pH metry.

Verify lamberts beers law by using colorimeter