V SEMESTER

GMF 260-5 : Chemistry – V

(L:T:P = 4:0:0) Contact Hours : 60 Credits : 4 Workload : 4Hours/Week

Course Objectives:

1. Understand the formation and magnetic properties of metal ligand bonding in complexes.
2. Explain the magnetic properties of co-ordination compounds.
3. Explain the electrophilic substitution reaction.
4. Predict the probable mechanism for a given reaction.
5. Understand the concepts of ionic equilibria.
6. Know different types of electrochemical cell and cell reaction.
7. Illustrate the aromaticity, homoaromaticity of azulene, trophone, annulenes.
8. Understand the chirality of molecules.
9. Know the biological importance of vitamins.
10. Understand radiochemical reactions.
11. Explain photophysical process.
12. Understand the phase equilibria.
13. Learn the regions of electromagnetic radiations.
14. Understand the principles of Raman, vibrational and rotational spectroscopy.

V SEMESTER

GMF 260-6 : Chemistry – VI

(L:T:P = 4:0:0) Contact Hours : 60 Credits : 4 Workload : 4Hours/Week

Course Objectives:

1. Know the modern concepts of acids and bases.
2. Explain the classification of solvents.
3. Identify the structure and bonding in main group elements.
4. Understand the role and importance of carbohydrates.
5. Learn the synthesis of heterocyclic compounds.
6. Know the concepts of black body radiation and Compton effect.
7. Learn the concepts of operators.
8. Learn about the colligative properties.
9. Know the types of electronic transitions.
10. Illustrates the conjugated dienes with examples.
11. Explain the effect of steric hindrance and coplanarity.

VII SEMESTER

GMF 260-7 : Chemistry – VII

(L:T:P = 4:0:0) Contact Hours : 60 Credits : 4 Workload : 4Hours/Week

Course Objectives:

1. Understand the concept of valence bond theory.
2. Explain the magnetic properties of octahedral and tetrahedral complexes.
3. Construction of MO energy level diagram and predict the properties of molecules.
4. Explain the splitting of d-orbitals in different complexes on the basis of MOT.
5. The concepts of mechanism and its importance will be taught to the student.
6. Understand the nucleophilic substitution reaction.
7. Learn the concept of ionic equilibria.
8. Know the different types of electrochemical cells.
9. Explain the applications of EMF.
10. Explain the effect of hydrogen bonding, conjugation and resonace on IR absorption.
11. Illustrate the IR absorption frequency positions in hydrocarbons.

VIII SEMESTER

GMF 260-8 : Chemistry – VIII

(L:T:P = 4:0:0) Contact Hours : 60 Credits : 4 Workload : 4Hours/Week

Course Objectives:

1. Understand the manufacturing process of ceramics, refractories and abrasives.
2. Know the constituents and functions of paints.
3. Know the contents, role and importance of fertilizers.
4. Understand the basic concepts of nanotechnology and industrial applications.
5. Explain the mechanism of rearrangement reactions.
6. Understand the synthesis and classifications of amino acids and peptides.
7. Know the concept of Arrhenius equation.
8. Explain the kinetics of complex reactions.
9. Learn the kinetics of fast reactions.
10. Understand the concepts of NMR spectroscopy.
11. Interpretation of NMR spectra of molecules.

Program Outcome:

By the end of the programme the students will be able to:

1. To create enthusiasm among students for chemistry and its application in various fields of life.
2. To provide students with broad and balanced knowledge and understanding the key concepts in chemistry.
3. To develop the students a range of practical skills so that they can understand and assess risks and work safety measure to be followed in the laboratory.
4. To develop in students the ability to apply standard methodology to the solution of problems in chemistry.
5. To provide students with knowledge and skill towards employment or higher education in multi-disciplinary areas involving chemistry.
6. To provide students with the ability to plan and carryout experiments independently and assess the significance of out compes and to cater to the demands of chemical industries of well trained graduates.
7. To develop in students the ability to adapt and apply methodology to the solution of unfamiliar types of problems.
8. To instill critical awareness of advances at the fore front of chemical sciences, to prepare students affectively for professional employment or research degrees in chemical sciences and to develop an independent and responsible work ethics.