COMPLEMENTARY COURSE- CHEMISTRY

SEM-I Chemistry for Physical & Biological Sciences (1C01CHE)

Course Outcome

On successful completion of this course, students should be able to

1) Understand the atomic structure, basics of quantum chemistry and its applications.

2) Explain theories of chemical bonding and molecular structure.

3) Classify environmental pollution and recognise the causes of pollution

4) Understand the basic concept of Chemical equilibrium and theories of acids and bases

5) Calculate pH values

6) Explain common ion effect and solubility product

SEM-II 2C02CHE

Course Outcome

On successful completion of this course, students should be able to

1) Understand the basic concept of classification, IUPAC nomenclature, bonding and structure of Organic compounds

2) Explain the concept of aromaticity and non-benzenoid aromatics

3) Understand the basic concepts of chemical equilibrium . Explain colloids, their properties and applications

4) Illustrate the laws of photochemistry and Explain the photochemical phenomena such as Photosensitization, quenching, Fluorescence, Phosphorescence, Chemi luminescence and bioluminescence.

5) Familiarise different types of analytical methods in chemistry and explain the principle of colorimetry

6) Explain the principles underlying the qualitative and quantitative analysis

SEM-III (3C03CHE)

Course Outcome

On successful completion of this course, students should be able to

1) i) Understand the basic concept of Coordination Chemistry, nomenclature, Werner's coordination theory and Valance bond theory of coordination complexes

ii) Write the name of Coordination compounds

iii) Explain Werner's coordination theory and Valance bond theory of coordination complexes

iv) Explain the application of coordination complexes

2) i) Understand the electron displacement effects in organic molecules

ii) Explain the mechanism of nucleophilic substitutions and eliminations in alkyl halides

iii)Explain the mechanism of aromatic electrophilic substitution reactions

3) i) Classify the isomerism in organic molecules

ii) Distinguish the geometrical isomers and explain their stability

iii) Explain the characteristics of chiral compound

iv) Explain the conformational isomers in alkanes and cycloalkanes

4) i) Explain the important types of polymerization, thermoplastics and thermosetting plastics

ii) Understand the characteristics of biodegradable plastics

5) Understand the basic concept of thermodynamics and laws of thermodynamics

6) i) Understand the basic concept of chemical kinetics

ii)Calculate Ea from the values of k at two temperatures

iii) Explain homogeneous catalysis, heterogeneous catalysis and Characteristics of catalysis reactions

SEM-IV (4C04CHE)

On successful completion of this course, students should be able to

1) Illustrate the preparatory methods of glucose and fructose and explain their configurations Familiarize the structure and properties of sucrose and poly sachrides

2) Know the structure of important five membered and six membered heterocyclic compounds

and explain their reactivity and important reactions .Explain the preparation and properties of Quinoline and iso quinoline

3) Understand the structure and functions of neuclic acids , Classify amino acidsand explain the structure of protein and its importance

CO4) Understand the mechanism of enzyme action , enzyme catalysis

CO5) Know the structure of Vitamin A, B and C. and hormones progesterone, Testosterone, cortisone, adrenaline and Thyroxin

CO6) Understand the importance of metal ions in biological systems and Mechanism of O2 and CO2 transportation – Nitrogen Fixation Na-K pump

COMPLEMENTARY CHEMISTRY PRACTICAL (4C05 CHE)

COURSE OUTCOME

On successful completion of this course, students should be able to

CO 1) Apply the theoretical concepts while performing experiments.

CO2) Acquire practical skill to estimate acid, base, oxidizing agents etc by volumetric titration method

CO3) Acknowledge experimental errors and their possible sources.

CO 4) Design, carry out, record and analyze the results of chemical experiments

CO5) Acquire practical skill to analyse the anions and cations qualitatively present in a mixture of inorganic salts

CO 6) Learns the effective usage of chemicals