DEPARTMENT OF CHEMISTRY

PSOs and COs

Program specific outcomes (PSO)

PSO1: Understand the basic concepts of organic, inorganic, analytical, and pharmaceutical.

PSO2: Evaluate the practical knowledge about gravimetrical analysis, inorganic analysis and instrumental knowledge.

PSO3: Understand water treatment and analysis.

PSO4: Understand nutritive value of food items and diet.

PSO5: Apply industrial and pharmaceutical related sectors.

COURSE OUTCOME

SEMESTER – I

COURSE: GENERAL CHEMISTRY-I   **CREDIT: 6**

CO1: Identify electronic configuration and periodic properties.

CO2: Understand the different types of chemical bonds.

CO3: Describe about nomenclature of aliphatic and alicyclic compounds.

CO4: Analyze different types of states of matter

CO5: Describe basic concepts of bonding in Organic Chemistry

CO6: Explain about different types of Volumetric Analysis

CO7:Analyze classification of elements and factors affecting atomic radii.

COURSE: ALLIED ZOOLOGY-I   **CREDIT : 4**

CO1: Acquire Knowledge about different kinds of animal species.

CO2: Understand the systematic and functional morphology of invertebrates and chordate

CO3: Acquire practical skills to comprehend the psychology of each and every vital system.

CO4: Understand the systematic morphology of reptiles.

CO5: Acquire knowledge about different species of Mammalia.

SEMESTER - II

COURSE: GENERAL CHEMISTRY-II   **CREDIT : 5**

CO1: Discuss about s and p-block elements group study.

CO2: Analyse the comparative study of alkane

CO3: Explain about dienes and stability of cycloalkanes

Co4: Discuss about quantum mechanics and thermodynamics

CO5: Describe about first law of thermodynamics.

CO6: Discuss about thermochemical equations.

COURSE: ALLIED ZOOLOGY-II   CREDIT : 3

CO1: Understand the principles of cell biology, genetics, development biology, physiology, ecology and evolution.

CO2: Explain the study of the internal structure of animals.

CO3: Explain the relationship between the organisms and their surrounding environments

CO4: Understand heredity and its vibrations.

COURSE: VOLUMETRIC ANALYSIS CORE PRACTICAL-I   CREDIT : 3

CO1: Understand lab safety and handling of apparatus.

CO2: Estimate Acidimetry.

CO3: Estimate Precipitation Titration.

CO4: Evaluate Permanganometry.

SEMESTER - III SEMESTER
COURSE: GENERAL CHEMISTRY-III   CREDIT : 3

CO1: Outline in organic analysis and its applications.

CO2: Analyze P-block elements and group study.

CO3: Apply aromaticity and substitution reactions.

CO4: Apply different types of reactions their mechanism

CO5: Evaluate second law of thermodynamics concept of entropy.

COURSE: ALLIED BIO-CHEMISTRY-III   **CREDIT : 4**

CO1: Classify the structure and functions of carbohydrates

CO2: Understand the reactions and properties of Amino Acids

CO3: Discuss about the various structures of Proteins

CO4: Outline biological functions and classification of peptides.

COURSE: WATER TREATMENT & ANALYSIS (SBS-I)   **CREDIT : 3**

CO1: Discuss about water softening methods.

CO2: Explains about desalination of brackish water.

CO3: Deals with sterilization and disinfection of water.

CO4: Discuss about water softening methods.

COURSE: HEALTH AND NUTRITION   **CREDIT : 2**

CO1: Understand food groups

CO2: Outline food processing and food preservation

CO3: Estimate food malnutrition

SEMESTER - IV

COURSE: GENERAL CHEMISTRY-IV   **CREDIT : 3**

CO1: Describe about noble gases their inertness and clatharites.

CO2: Discuss about monody carbocarboxylic acids and amities.

CO3: Concept related to alcohols phenols and properties.

CO4: Evaluate Gibbs-Helmholtz evolution Maxwell relations.

COURSE: ALLIED BIO-CHEMISTRY-II   **CREDIT : 4**

CO1: Discuss about TCA Cycle and Glucose Metabolism

CO2: Outline metabolic disorders like diabetes, jaundice.

CO3: Classify the enzymes and mechanism of enzyme action.

CO4: Understand the central dogma of Molecular biology.

CO5: Outline requirement and biological functions of VITAMINS.

COURSE: FOOD CHEMSITRY (SBS-II)   **CREDIT : 3**

CO1: Discuss about food prevention food additives packaging of foods.

CO2: Understand food colours, food processing

CO3: Estimate nutritive value of food and food preservation.

CO4: Discuss about food prevention food additives packaging of foods.

COURSE: INORGANIC QUALITATIVE ANALYSIS & PREPATATION (CORE PRACTICAL-II)   **CREDIT : 3**

CO1: Understand Inorganic qualitative analysis and preparation

CO2: Provide analysis of two cations and two anions.

CO3: Explain semimicro methods using conventional scheme to be adopted

CO4: Evaluate preparation of different inorganic compounds

COURSE: ALLIED BIOCHEMISTRY I & II (ALLIED PRACTICAL)   CREDIT : 2

CO1: Evaluate volumetric estimation

CO2: Estimate Glucose by Benedict's Method

CO3: Evaluate Glycine by Formal Titration

COURSE: NON MAJOR ELECTIVE FIRST –AID   **CREDIT : 2**

CO1: Explain the importance of giving first-aid.

CO2: Understand knowledge on basic for first-aid treatment in case of injury or accidents.

CO3: Explain the simple life saving techniques that would greatly help in case of emergency.

CO4: Understand to react to a given emergency situations correctly.

SEMESTER - V

COURSE: INORGANIC CHEMISTRY-I   **CREDIT: 4**

CO1: Describes halogens classification of halides comparative study of interhalogen compounds.

CO2: Understand about coordination compounds, nomenclature and isomerism.

CO3: Analyze knowledge of VBT and CFT, hybridization and structures of carbonyls

CO4: Explain different theories of coordination chemistry

CO5: Explain the nature of the solid state

COURSE: ORGANIC CHEMISTRY-I   CREDIT: 4

CO1: Understand the carbohydrates structure elucidation of glucose, sucrose.

CO2: Describes stereoisomerism elements of symmetry, chirality etc,

CO3: Explain conformational analysis axial and equatorial interconversions.

CO4: Outlines heterocyclic compounds, huckels rule, aromaticity

CO5: Explain electrophilic substitution reactions.

COURSE: PHYSICAL CHEMISTRY-I   CREDIT : 4

CO1: Explain about azeotropic mixtures partially miscible liquids

CO2: Outline applications of phase rule, cooling curves, and Gibb's phase rule.

CO3: Discuss about equivalent conductance, kholraush's law ionic Mobility, hittorff's method.

CO4: Evaluate about cooligative properties, van't haff factors.

CO5: Explain about conductometric measurements.

COURSE: ANALYTICAL CHEMISTRY-I (ELECTIVE-I)   CREDIT : 3

CO1: Deals with data analysis, types of errors, solvent extraction

CO2: Describes gravimetric analysis. Ignition of precipitate.

CO3: Discuss about microwave spectroscopy, IR spectroscopy, raman spectroscopy and their applications.

COURSE: PHARMACEUTICAL CHEMISTRY (ELECTIVE-II)   CREDIT : 3

CO1: Outline different types of drugs, various diseases and their treatment importance of Indian medicinal plants.

CO2: Discuss about organic pharmaceutical aids, narcotic drugs.

CO3: Analyze different types of drugs like analgesics, anesthetics drugs affecting CNS

COURSE: APPLIED CHEMISTRY (SBS-III)   **CREDIT : 3**

CO1: Classify petrochemicals deals with paper technology, sugar industry.

CO2: Analyze explosives, photography techniques, xerographic copying etc.

CO3: Determine the processing of milk, sterilization homogenization techniques.

VI SEMESTER

COURSE: INORGANIC CHEMISTRY-II   **CREDIT: 4**

CO1: Evaluate nuclear stability, N/P ratio and nuclear binding energy magic numbers.

CO2: Describes nuclear radio activity, half life period, thermo nuclear reactions.

CO3: Analyze metallurgical process, zone refining, deals with comparative study of Ti. V. Cr, Mn.

CO4: Able to make a study of lanthanides and actinides, extraction of thorium and uranium.

CO5: Explain organometallic compounds.

COURSE: ORGANIC CHEMISTRY-II   **CREDIT : 4**

CO1: Imparts knowledge on mechanism of rearrangement reactions differentiate inter molecular

CO2: Formulate amino acids and poly peptides, end group analysis.

CO3: Define proteins and nuclic acids, differentiates DNA and RNA

CO4: Discuss about organo synthetic reagents and natural products

CO5: Explain chemistry of natural products.

COURSE: PHYSICAL CHEMISTRY-II   **CREDIT : 4**

CO1: Outline galvanic cells, emf of a cell, standard hydrogen electrode, reference electrode

CO2: Define liquid junction potential, quinhydrone and glass electrodes

CO3: Evaluate kinetics of reaction by volumetric, polarimetric, spectrophotometric methods.

CO4: Classify adsorption, catalysis and deals with laws of photochemistry.

CO5: Explain kinetics of photochemical reactions.

COURSE: ANALYTICAL CHEMISTRY (ELECTIVE-II)   CREDIT:4

CO1: Understand principles and techniques of chromatographic techniques,

CO2: Describe principles and applications of HPLC, gas, Liquid chromatography.

CO3: Apply to ESR spectroscopy and thermo analytical techniques.

CO4: Discuss about rig rule Mc Lafferty rearrangement

CO5: Discuss various components with block diagram.

COURSE: AGRICULTURE & LEATHER CHEMISTRY (SBS-I)   CREDIT: 4

CO1: Outline soil fertility and productivity, soil chemistry

CO2: Outline classification of insecticides, environmental effects of pesticides.

CO3: Apply Dye manufacture of leather, dyeing of leather, treatment of tannery effluents

CO4: Outline effect of tannery effluents

CO5: Discuss vegetable tanning, chrome tanning and deliming.

COURSE: GRAVIMETRIC ESTIMATION (CORE PRACTICAL-IV)   CREDIT: 3

CO1: Describe with gravimetric estimation of sulphate as Barium sulphate

CO2: Evaluate gravimetric estimation of lead as lead chromate

CO3: Discuss about estimation pf calcium as calcium oxalate monohydrate

**COURSE: ORGANIC ANALYSIS & PREPARATIONS
(CORE PRACTICAL-V)   CREDIT: 3**

CO1: Analyze organic compounds containing one functional group and characterization with one derivative

CO2: Analyze of aldehyde, ketone nitro compounds, ester amines.

CO3: Outline organic preparations by acylation, halogenations, diazotization

SUBJECT NAME: PHYSICAL CHEMISTRY EXPERIMENTS (CORE PRACTICAL-VI)

CREDIT: 3

CO1: Determine order of reactions by kinetics

CO2: Determine cell constant equivalent conductivities by conductivity experiments.

CO3: Evaluate potentiometric titrations if strong acid against strong base.