

**DIGAMBARAO BINDU ARTS, COMMERCE AND SCIENCE COLLEGE BHOKAR,
DIST. NANDED**

DEPARTMENT OF CHEMISTRY

Course outcome in chemistry

B. Sc. First Year (Sem- I)

Paper No.-I Organic + inorganic chemistry

Outcomes: After completion of syllabus students will be able to understand following outcomes.

- CO1. Student should learn basic concept of organic chemistry, Nomenclature.
- CO2. Student get well acquainted with functional group in organic chemistry.
- CO3. To understand the basic concepts and differences aliphatic hydrocarbons.
- CO4. To know about term cycloalkane , cycloalkene and diene.
- CO5. Learn and practice about organic compounds with their names.
- CO6. Students learn some exceptional electronic configuration, trends and Periodicity in the following properties like atomic size, ionization energy, electron affinity & electronegativity.
- CO7. To understand the inert gases forms compounds, different fluoride compounds of xenon.

Paper No.-II Physical + inorganic chemistry

Outcomes: After completion of syllabus students will be able to understand following outcomes.

- CO1. Learning and understanding rules of logarithm, Rules of drawing graph, Derivatives, Integration , different mathematical concept and SI units, and their use in solving numerical.
- CO2. Learning surface phenomena at heterogeneous surfaces.
- CO3. Student will learn the basic knowledge of gas phase, Kinetic molecular theory, critical phenomenon , liquefaction and molecular velocities.
- CO4. To impart knowledge about solid phase, crystallography and some crystal

structure.

CO5. General characteristics of s-block elements, oxides, hydroxide, carbonate & its complexes

CO6. Study the oxidation and reduction by different methods.

B. Sc. First Year (Sem- II)

Paper No.-III Organic + inorganic chemistry

Outcomes: After completion of syllabus students will be able to understand following outcomes.

CO 1. Student should learn the concept of aromatic hydrocarbons, Aromaticity and antiaromaticity.

CO 2. Student should understand the phenols and synthesis of phenols

CO 3. Student knows about the haloalkene and haloarenes compounds.

CO 4. To know the concepts of carboxylic acids and their derivatives.

CO 5. To know about the types of alcohols and reaction of epoxide.

CO 6. To study the different properties of P- block elements.

CO 7. To know the acids & Bases by different concepts.

Paper No.-IV Physical + inorganic chemistry

Outcomes: After completion of syllabus students will be able to understand following outcomes.

CO 1. To impart knowledge of atomic structure, different theories of atomic structure, rules of electronic configuration and quantum numbers.

CO 2. Learning of properties of liquid phase as surface tension, Viscosity and parachor.

CO 3. Student will learn the basic knowledge of colloidal state, types, preparation, properties and applications of colloidal state.

CO 4. Learning and understanding of catalysis, types of catalysis and characteristics of catalyzed reactions.

CO 5. To understanding the chemical bond and its different types of bonds.

CO 6. Learning the Concept of hybridization and study of VSEPR & Molecular Orbital theory.

B. Sc. Second Year (Sem- III)

Paper No.-VI Organic + inorganic chemistry

Outcomes: After completion of syllabus students will be able to understand following outcomes.

- CO1. Student should learn conduction reaction of aldehyde and ketone with mechanism also reduction and oxidation reaction .
- CO2. Student should know about Aromatic Carboxylic acid and Sulphonic acids how to prepare and their chemical properties .
- CO3. To understand the organometallic compounds.
- CO4. To know about chemical nature and physical properties of Oils,Fats and Detergents.
- CO5. Learn about theory of Qualitative analysis, acidic and basic radicals .
- CO6. Students learn use of organic reagent in qualitative analysis.
- CO7. To understand non aqueous solvent ,classification of solvent and physical properties of solvent.

Paper No.-VII Physical+ inorganic chemistry

Outcomes: After completion of syllabus students will be able to understand following outcomes.

- CO 1. To impart knowledge of atomic structure and wave mechanics , different theories of atomic structure Wave.
- CO 2. Learning of First and second law of thermodynamics and concept of Carnot cycle.
- CO 3. Student will learn the concept of entropy ,entropy change physical transformation and physical significance of entropy.
- CO 4. Learning and understanding Phase rule ,phase equilibria of one and two component system and partially miscible liquids.
- CO 5. To understanding basic knowledge of Nuclear chemistry, Nuclear fusion and fission reactions and application of radioisotopes in medicine,agriculture,industry and carbon dating .
- CO 6. Learning the Concept of theory of Gravimetric analysis.

B. Sc. Second Year (Sem- IV)

Paper No.-VIII Organic + inorganic chemistry

Outcomes: After completion of syllabus students will be able to understand following outcomes.

CO1. Student should learn about basic knowledge of stereochemistry ,types of isomerism,concept of asymmetric carbon atom,concept of symmetry and relative and absolute configuration.

CO2. Student should learn about classification and nomenclature of carbohydrates reaction of monosaccharides,structure of glucose, interconversion .

CO3. To understand the nitrogen containing organic compound include nitrobenzene,aniline diazomethane and urea.

CO4. To know about general chararestic of d block elements, electronic configuration and comparision first,second and third configuration series.

CO5. Learn about f block elment series lanthanide contraction ,properties of lanthanide series .

CO6. Students learn f block element actinide in which electronic configuration ,properties

Paper No.-IX Physical+ inorganic chemistry

Outcomes: After completion of syllabus students will be able to understand following outcomes.

CO 1. To impart knowledge of chemical kinetics,first,second and zero order reaction,determination of order of reaction.

CO 2. Learning of electrochemistry conduction theory,conductivity cell and strong & weak electrolyte.

CO 3. Student will learn the concept of Kohlrausch law degree of dissociation and conductometric titration.

CO 4. Learning and understanding photochemistry Lambert-Beer law,laws of photochemistry and quantum yield determination .

CO 5. To understanding basic knowledge of chemistry of non transition elements includes silicates,zeolites,carbides,fullerene .

CO 6. Learning the Concept of chemistry of halogen compounds.

B. Sc. Third Year (Sem- V)
Paper No.-XII Organic+ inorganic chemistry

Objective(s) To acquire basic knowledge about Heterocyclic Compounds, Synthetic Drugs and Dyes, Alkaloids, Vitamins, Pesticides, Co-ordination Chemistry and the chemistry of elements in Medicine.

Course Outcome(s)

CO1 Learn the mechanism of Electrophilic Substitution reaction of Heterocyclic Compounds

CO2 Know the characteristics, Classification and synthesis of Drugs and Dyes

CO3 Explaining theories of Color and chemical constitution of Dyes

CO4 Gathering basic knowledge of Alkaloids, Vitamins and Pesticides

CO5 Understand the basic principle and application of coordination complexes

CO6 Know the application of elements in Medicine.

Paper No.-XIII Physical + inorganic chemistry

Objective(s) To enable the students to acquire basic knowledge in Spectroscopy, Chemical Kinetics, Distribution law, Organometallic Compounds and Metal Carbonyls.

Course Outcome(s)

CO1 Understand the concepts of molecular Spectroscopy and its applications

CO2 Analyze Rotational, Vibrational and Raman, Spectra

CO3 Interpret the theoretical and experimental methods of chemical kinetics

CO4 Know the theory and application of Distribution law

CO5 Explain the Nomenclature, classification and application of Organometallic Compounds

CO6 Illustrate the classification and application of Metal Carbonyls.

B. Sc. Third Year (Sem- V)

SEC-III (A)

Objective(s): To train the students for the use of Software, Excel ,analysis of Soil and Fuel

Course Outcome(s):

CO1 Able to know the use of software and Excel in Chemistry

CO2 Grasp the concept of Quality Assurance and Quality Control

CO3 Illustrate the Physical and Chemical analysis of Soil and fuel

CO4 Be able to evaluate Biological activity and toxicity of organic compounds using softwares

B. Sc. Third Year (Sem-VI)

Paper No.-XIV Organic + inorganic chemistry

Objective(s) To familiarize the students with the concept and principle of Spectroscopy, Amino Acids ,Peptides, Molecular Rearrangements, Co-ordination theory and Electronic Spectra of transition Metal Complexes

Course Outcome(s)

CO1 To learn the basic principle and terms used in UV, IR & NMR Spectroscopy

CO2 Acquire the fundamental knowledge of classification and Synthesis of Amino Acid and Peptides

CO3 Describe the types of Rearrangement

CO4 Postulates and limitations of VBT and CFT

CO5 Calculation of CFSE for Tetrahedral and Octahedral Complexes

CO6 Explain the types of electronic transition and selection rule

CO7 Apply spectroscopic techniques in analyzing the structure of simple organic Molecules

Paper No.-XV Physical + inorganic chemistry

Objective(s) To familiarize the students with the concept and principle Electrochemistry, Thermodynamics, Magnetochemistry, Bioinorganic Chemistry and Metal Clusters

Course Outcome(s)

CO1 Basic concepts of electrochemistry and its applications

CO2 Understanding the Nernst heat theorem and the Thermodynamics open system

- CO3 Know the Vant-Hoff's Reaction Osochore and numerical on it
- CO4 Explain the types of magnetic substances and effect of temperature on it
- CO5 Biological role of alkali and alkaline earth metal ions
- CO6 Describe the structures and functions of Metal Cluster

B. Sc. Third Year (Sem-VI)

SEC-IV (B)

Objective(s) This course aims to give clear understanding of the basic concept of Spectroscopic Technique, cosmetics preparation and basic analytical chemistry

Course Outcome(s)

- CO1 Be able to determine the structure by using Spectra
- CO2 To train the students for the preparation of various cosmetics
- CO3 Know the classification and Fatty acid composition of Oils and Fats
- CO4 Analysis of Oils and Fats by physical and chemical method