

A.V.Education Society's  
**DEGLOOR COLLEGE, DEGLOOR**

➤ **Programme Specific Outcomes – (Chemistry)**

• **After completing this specific programme B.Sc. – (Chemistry)**

1. National and Global level opportunities to pursue M.Sc. and Ph. D. program.
2. Enormous job opportunities at all level of chemical, pharmaceutical, food products, life oriented material industries.
3. Specific placements in R & D and synthetic division of polymer industries as well as in allied division.
4. To impart the chemistry knowledge of national and global standard.
5. Discipline specific competitive examinations conducted by different organization.
6. Improvement in the quality of higher education
7. To acquire skills, training and knowledge to enhance their thinking.
8. Upgrading academic resources and learning environments.
9. Science programme should make students centric, interactive and outcome oriented.
10. To motivate and inspire the students to create deep interest in science.

**After completing this specific programme - BSC) – (Chemistry)**

1. **Disciplinary knowledge and skills** : Good knowledge and understanding major concepts of theoretical principle and experimental findings in Chemistry.
2. **Ability**: Ability to use modern instruments, laboratory techniques and design.
3. **Skilled communicator**: Ability to transmit complex technical information in Chemistry.
4. **Critical thinker**: Ability to employ critical thinking.
5. **Problem solver**: Ability to develop efficient problem solving skill.
6. **Ethical awareness**: Capable of demonstrating ability to think and analyze rationally with modern and scientific look.

## ➤ Course Outcomes – ( Chemistry - )

Under Graduate (Course Outcomes)

### **B.Sc. First Year**

#### **Semester – I (Paper-wise)**

##### **1. Name of the Paper – I Organic and Inorganic Chemistry.**

- a. Student should learn basic concept of organic chemistry, Nomenclature.
- b. Student should understand functional group in organic chemistry.
- c. To understand the basic concepts and differences aliphatic hydrocarbons.
- d. To learn terms cycloalkane , cycloalkene and diene.
- e. To understand and practice about organic compounds with their names.
- f. Students should learn some exceptional electronic configuration, trends and Periodicity in the properties like atomic size, ionization energy, electron affinity & electronegativity.
- g. To understand the inert gases, their compounds, different fluoride compounds of xenon.

##### **2. Name of the Paper – II Physical and Inorganic Chemistry:**

- a. To learn and understand rules of logarithm, Rules of drawing graph, Derivatives, Integration , different mathematical concept and SI units, and their use in solving numerical.
- b. To understand surface phenomena of heterogeneous phases.
- c. Student should learn the basic knowledge of gas phase, Kinetic theory of gases, critical phenomenon , liquefaction and molecular velocities.
- d. To understand knowledge of solid phase, crystallography and some crystal structure.
- e. To know General characteristics of s-block elements, oxides, hydroxide, carbonate & its complexes
- f. To Study the oxidation and reduction by different methods.

#### **Semester – II**

##### **1. Name of the Paper – III Organic and Inorganic Chemistry.**

- a. Student should understand the concept of aromatic hydrocarbons, Aromaticity and antiaromaticity.
- b. Student should learn the types, synthesis and properties of phenols

- c. Student should know about the haloalkene and haloarenes compounds.
- d. To know the concepts of carboxylic acids and their derivatives.
- e. To know about the types, synthesis and properties of alcohols and reactions of epoxide.
- f. Students should study and learn the different properties of P- block elements.
- g. To know the concepts of acids & Bases.

## 2. Name of the Paper – IV **Physical and Inorganic Chemistry:**

- a. To understand the knowledge of structure, different theories and electronic configuration of atom, rules of quantum numbers.
- b. To Learn the properties of liquid phase such as surface tension, Viscosity and parachor.
- c. Student should learn the basic knowledge, types, preparation, properties and applications of colloidal state.
- d. To Learn and understand catalysis, reactions and its types.
- e. To understand the chemical bond and its types.
- f. To Learn the Concept of hybridization and its theories.

## 3. Name of the Paper – V **Practical course in Chemistry (Annual)**

- a. To Identify acidic and basic radicals by Semi-micro qualitative analysis technique.
- b. Students should learn to determine Physical constant of organic liquids.
- c. To learn the skills for synthesis of different organic compounds.
- d. To learn and understand different instrumental techniques.
- e. Knowledge through experiments
- f. Handling of experimental arrangements.

## **B.Sc. Second Year**

### Semester – III

## 1. Name of the Paper – VI **Organic and Inorganic Chemistry.**

- a. To learn the mechanism of name reactions.
- b. To Know the Synthesis and Reactions of Aromatic Carboxylic and Sulphonic acids.
- c. To understand the synthesis, and reactions of Organometallic compounds.
- d. Students should learn the synthesis, mechanism, applications of active methylene compounds.
- e. To understand the basic knowledge of Oils, Fats, Soaps and Detergents.
- f. To know the basic principle and application of Qualitative Analysis.

- g. To understand the Classification and Properties of Non- aqueous solvents
2. Name of the Paper – VII      **Physical and Inorganic Chemistry:**
- a. To understand the principles, hypothesis, derivations, expressions and laws of atomic structure and wave mechanics.
  - b. To understand the laws of thermodynamics and concept of entropy.
  - c. To know the terms of phase, component and degree of freedom.
  - d. To study the one component and two component system
  - e. To know the nuclear structure & different energies.
  - f. To understand the different steps & procedure in the gravimetric separation method

3. SEC I (Water Pollution)

- a. To aware the Sources, effect & control of water pollution.
- b. To analyse water pollution by different physical parameters.

Semester – IV

1. Name of the Paper – VIII      **Organic and Inorganic Chemistry:**

- a. To learn the stereoisomerism of chiral compounds.
- b. To understand the classification and reactions of carbohydrates.
- c. To know the synthesis and reactions of nitrogen compounds.
- d. To understand the applications of Reagents in Organic Synthesis.
- e. To understand the characteristics of d-Block Elements.
- f. To study the characteristics of f-Block Elements.

2. Name of the Paper – IX      **Physical and Inorganic Chemistry:**

- a. To know the rate constant and factors affecting rate of reactions.
- b. To study rate constant of first order, second order reaction.
- c. To learn the terms cell constant, specific conductivity, equivalent conductivity and molar conductivity.
- d. To Know the applications of Kohlrausch's law.
- e. Students should learn to thermal and photochemical reactions.
- f. To know the preparation, properties, structure & application of non transition elements.

- g. To learn the preparation, properties, structure and uses of different inter halogen compounds.

### 3. SEC II (ANALYTICAL METHODS AND CHROMATOGRAPHY)

- a. Student should learn types and methods of analysis.
- b. To conduct potentiometric, conductimetric, pH metric and colorimetric titrations.
- c. To learn applications of chromatography.

### 4. Name of the Paper – X Laboratory Course (Organic and Inorganic)

- a. To understand the thin layer chromatography and distillation techniques.
- b. To learn skill for qualitative analysis of organic compounds.
- c. To study the quantitative analysis by estimations of organic molecules.
- d. To understand the practical knowledge for volumetric analysis.

### 5. Name of the Paper – XI Laboratory Course (Physical and Inorganic)

- a. To study the potentiometric, conductometric, pH metric and colorimetric titrations
- b. To study the determination of energy of activation, heat of solution. enthalpy of ionization and partition coefficient.
- c. To learn the separations of elements & analysis by volumetric method

## **B. Sc.Third Year**

### Semester – V

#### 1. Name of the Paper – XII **Organic and Inorganic Chemistry:**

- a. To understand five and six membered heterocyclic compounds.
- b. To learn structure, synthesis and properties of five and six membered heterocyclic compounds.
- c. To know structure, synthesis and properties of synthetic drugs and dyes.
- d. To learn about alkaloids, vitamins and pesticides.
- e. To understand coordination chemistry.
- f. To study the applications of elements in medicines

## 2. Name of the Paper – XIII      **Physical and Inorganic Chemistry:**

- a. To learn the basic principles of rotational, vibrational, electronic and Raman spectroscopy.
- b. To study rate constant of third order, complex and photochemical reactions.
- c. To know the theory and application of Distribution law.
- d. To understand the Nomenclature, classification and applications of organometallic Compounds
- e. To learn the classification and applications of Metal Carbonyls.

## 3. SEC – III (**Computer Application in Chemistry**)

- a. To train the students for the use of Software, Excel.
- b. To know the use of software and Excel in Chemistry

## Semester – VI

## 1. Name of the Paper – XIV      **Organic and Inorganic Chemistry:**

- a. Students should learn the basic principle and terms used in UV, IR & NMR Spectroscopy.
- b. Students should understand the spectroscopic techniques in analyzing the structure of simple organic molecules
- c. To acquire the fundamental knowledge, classification and synthesis of Amino Acid and peptides
- d. To understand the types of Rearrangement
- e. To know the postulates and limitations of VBT and CFT
- f. To understand CFSE for Tetrahedral and Octahedral Complexes

## 2. Name of the Paper – XV      **Physical and Inorganic Chemistry:**

- a. To learn the basic concepts of electrochemistry and its applications.
- b. To understand the Nernst heat theorem and the thermodynamics of open system
- c. To know the types of magnetic substances and effect of temperature on it
- d. Students should learn the biological role of alkali and alkaline earth metal ions
- e. To study the structures and functions of metal cluster

## 3. SEC – IV (Spectroscopic techniques and cosmetic preparation)

- a. Students should learn the basic principle and terms used in UV, IR & NMR

Spectroscopy.

- b. Students should understand the spectroscopic techniques in analyzing the structure of simple organic molecules
- c. To learn the skills for synthesis of different cosmetics.

#### 4. Name of the Paper – XVI **Laboratory Course**

- a. To learn separation and qualitative analysis of binary mixture.
- b. To learn the skills for synthesis of different organic compounds.
- c. To learn gravimetric estimation.

#### 5. Name of the Paper - XVII **Laboratory Course**

- a. To study the potentiometric, conductometric, pH metric and colorimetric titrations.
- b. To learn separation and estimation of metal ion.
- c. To learn and understand different instrumental techniques.
- d. Knowledge through experiments
- e. Handling of experimental arrangements.

**Head of the Department**

**Principal**