

EXPECTED LEARNING OUTCOMES

B.Sc. (Subject - Chemistry)

PROGRAM OUTCOMES

- Students will have a basic knowledge of fundamentals and application of current chemical and scientific theories.
- Students will be able to record and analyze the results of experiments.
- Students will be skilled in problem solving, critical thinking and analytical.
- Students will understand the central role of chemistry in our society.
- Students will become aware of the ethical behaviour in issues facing chemists.

PROGRAM SPECIFIC OUTCOME

The purpose of the B.Sc. program at Govt. Dr. Babasaheb Bhimrao Ambedkar PG Dongargaon college is to provide the key knowledge, base and laboratory resources to prepare students for achieving their career goals as professionals in the field of chemistry, biological chemistry and related fields. They will be able to work as chemists and technicians in different laboratories.

COURSE OUTCOMES

B.Sc. I year (Subject - CHEMISTRY)

PAPER - 1 (Inorganic Chemistry)

Unit 1- Students will develop an understanding about the atomic structures and their rules.

Unit 2 - Students will have an insight look about V.B.T. and types of hybridization .

Unit 3 - Students will be able to understand about different characteristics of ionic solids , semiconductors and band theories.

Unit 4 - Students will have an insight comparative study of s-block elements.

Unit 5 - Students will understand about different properties & structures of p-block elements & inorganic chemical radicals.

PAPER - 2 (Organic Chemistry)

Unit 1- Students will be able to develop an understanding about electronic structure bonding & mechanism.

Unit 2 - They will be able to learn about stereochemistry of organic compounds.

Unit 3 - Students will have an idea about aliphatic and aromatic ring compounds.

Unit 4 - Students will be able to perform chemical reactions , structures , substitution reactions of alkenes ,dienes and alkynes.

Unit 5 - Students will develop an understanding about the mechanism & substitution reactions of alkyl and aryl halides.

PAPER - 3 (Physical Chemistry)

Unit 1 - Students will be able to perform mathematical concept for chemist & computers.

Unit 2 - Students will be able to understand the concept of Maxwell's law & J-T effect.

Unit 3 - Students will have a basic idea about Roults law & Van't Hoff factor of liquids.

Unit 4 - Students will have an insight view about classification , structures and applications of liquid crystals, colloidal & solid state.

Unit 5 - Students will study the about chemical kinetics & catalysis.

LABORATORY COURSE

Student will learn calibration , determination of physical properties of compound and qualitative analysis.

B.Sc. II year (Subject - CHEMISTRY)

PAPER - 1 (Inorganic Chemistry)

Unit 1- Deals with basic property like complexation,colour transition and various in oxidation state of elements of 3d series.

Unit 2- student will learn about the similarities of between 4d and 5d series in to various aspect like magnetic property la/Ac contraction and spectral phenomenome.

Unit 3- In this unit various theories like VBT, MOT, LFT has been elaborated which is to co-ordination complexes and their spectral charactertics.

Unit 4- this unit deal with various isolation processes for the separation of La and Ac also complex formation and variation in oxidation state has been studied in detail.

Unit 5- various proposed method for acid and bases has been studied in detail which is useful in various chemical reaction as well as basics of organic and inorganic chemistry.

PAPER - 2 (Organic Chemistry)

Unit 1- method of preparation, physical and chemical properties of alcohols, phenols, ethers and epoxides has been studied in detail.

Unit 2 - Important synthesis methods and chemical reactions and oxidising nature of aliphatic and aromatic aldehyde and ketones has been studied.

Unit 3 - Acidic property, effect of substituents of carboxylic acid and chemical and physical properties of their derivatives explain in detail

Unit 4 - Chemical reaction, effect of substituents on aliphatic and aromatic nitrogen containing compound has been studied

Unit 5 - important reaction, mechanism and synthesis of heterocyclic compounds and their role in drugs synthesis. Role of Amino acids in biological process and end group analysis of amino acids has been explained.

PAPER - 3 (Physical Chemistry)

Unit 1 - This unit states with first law of thermodynamics and calculation of various mathematical expression related to ideal gases.

Unit 2- Second and third law of thermodynamics studied in detail with the basic concepts of entropy, pressure and temperature

Unit 3 - Various theories including nernst equation, lee chateliers equation and principle and gibbs phase rule and explain their importance;explain in detail.

Unit 4 - Principles and theories which explain the electrolytic solution and their conductivity has been explained

Unit 5 - Redox, EMF, electrode reaction and concentration cells and their importance explain in brief.

LABORATORY COURSE

Students will learn calibration, volumetric analysis, chromatography, qualitative analysis and thermo chemistry.

B.Sc. III year (Subject - CHEMISTRY)

PAPER - 1 (Inorganic Chemistry)

Unit 1 - This unit give important information about metal-ligand bonding in transition metal complexes and types of ligand.

Unit 2 - Student gains important information about ionic bond also this unit explains crystal field theory and its applications.

Unit 3 - Students gains the knowledge of organometallic compounds and their chemical reactions.

Unit 4 - Important elements and their important role in chemistry discussed in this unit.

Unit 5 - In this unit concept of acid and base are discussed and the forms in which compounds occur in nature is explained.

PAPER - 2 (Organic Chemistry)

Unit 1 - Units give the knowledge of different organometallic compounds and organic synthesis via enolates.

Unit 2 - Students the knowledge of biomolecules and their important roles in chemistry and daily life.

Unit 3 - Students gains the knowledge of polymers, types of biopolymers, formation, their properties and uses.

Unit 4 - This unit gives information about mass, infrared and UV/Visible spectroscopy. Students gains knowledge of basic principles of these spectroscopy.

Unit 5 - Students gains knowledge about NMR and ^{13}C Spectroscopy their principle and applications.

PAPER - 3 (Physical Chemistry)

Unit 1 - Students will know about the structure of atom, orbitals and importance of quantum mechanics in chemistry.

Unit 2 - From this unit students gain the knowledge about applications of quantum mechanics.

Unit 3 - Spectroscopy plays a very important role in determination of molecular and atomic structure. This unit gives basic knowledge about spectroscopy subject.

Unit 4 - Students gains the knowledge about orientation of magnetic properties in substances.

Unit 5 - This unit gives knowledge of third law thermodynamics.

LABORATORY COURSE

Students will understand preparation of complex, synthesis and analysis of organic compound, qualitative analysis and handling of instruments.