

Shri Vijaysinha Yadav College, Peth Vadgaon
Department of Chemistry

Programme Specific Outcome

| Sr. No. | Programme Specific Outcome |
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| PSO 1 | Promote understanding of basic facts & concepts in chemistry while retaining the excitement of chemistry. |
| PSO 2 | Make students capable of studying chemistry in academic & industrial courses. |
| PSO 3 | Expose the students to various emerging new areas of chemistry & apprise them with their prevalent in their future studies & their applications in various spheres of chemical sciences. |
| PSO 4 | Develop problem solving skills in students. |
| PSO 5 | Develop ability & to acquire the knowledge of terms, facts, concepts, processes techniques & principles of subjects. |
| PSO 6 | Expose & develop interest in the field of chemistry. |
| PSO 7 | Develop proper aptitude towards the subjects. |
| PSO 8 | Skills in chemistry practical work, experiments, laboratory materials & proper handling of instruments |
| PSO 09 | Enhancement of scientific attitude & scientific hobbies |
| PSO 10 | Abilities to apply scientific methods, collection of scientific data, problem solving, Research Paper Writing, etc |
| PSO 11 | Appreciation of the subject, contributions of scientists, scientific methods, scientific programs, etc |

Course Outcome

| Sr. No. | Class | Paper No. | Title of the Paper | Course Outcome |
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| 1 | B.Sc. I | DSC-3A- Chemistry paper I | Inorganic Chemistry | <ol style="list-style-type: none"> 1. Acquisition of knowledge Atomic Structure and Periodicity of Elements. 2. Learning and Understanding chemical bonding and molecular structure, Ionic Bonding. 3. Learning and Understanding chemical bonding and molecular structure valencebond theory (VBT). 4. Learning and Understanding chemical bonding and molecular structure molecular orbital theory (MOT). |
| | | DSC-4A- Chemistry paper II | Organic Chemistry | <ol style="list-style-type: none"> 1. Understanding fundamentals of organic chemistry, Generation, Structure, Stability and Reactions of Reactive Intermediates such as Carbocations, Carbanions and carbon free radicals. 2. Learning and Understanding types of Stereoisomerism, Optical Isomerism, Concept of Chirality, Elements of Symmetry, nomenclature of stereoisomers. 3. Understanding Aromaticity of organic compounds and Mechanism of Electrophilic substitution reactions: Nitration, Sulphonation, Halogenation and Friedel craft reaction. 4. Learning and Understanding Cycloalkanes, cycloalkenes and alkadienes. |
| | | DSC 3B: Chemistry Paper-III | Physical Chemistry | <ol style="list-style-type: none"> 1. Inculcation of Knowledge of chemical energetics. 2. Inculcation of Knowledge of chemical equilibrium. 3. Learning and understanding kinetic theory of gases and derivation of the kinetic gas equation. 4. Able to understand order of reaction. 5. Able to understand theories of reaction rates |
| | | DSC-4B- Chemistry Paper IV | Analytical Chemistry | <ol style="list-style-type: none"> 1. Inculcation of Knowledge of Importance of analysis, Analytical processes, Methods of analysis, Sampling of solids, liquids and |

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| | | | | <p>gases, Errors, accuracy, Significant figures, mean, median, standard deviation.</p> <ol style="list-style-type: none"> 2. Understanding basic Principle of chromatography, Classification of chromatography. 3. Understanding theory of titrimetric analysis. 4. Inculcation of Knowledge of Water Analysis. 5. Understanding necessity and requirements of good fertilizers. |
| 2 | B. Sc. II | DSC-3C:Paper V | Physical Chemistry | <ol style="list-style-type: none"> 1. Learning and understanding conductivity and transport number of the aqueous solutions with 2. Knowledge and coherent understanding of basic concepts in thermodynamics and concept of Entropy will be gained by the student. 3. Learning and understanding the knowledge about basic concepts in kinetics and third order reaction with characteristics, suitable examples, and methods for determination of order of reactions and numerical problems. 4. Learning and coherent understanding of behavior of gases, ideal gas as model system and its extension to real gases. The dependence of physical state on P, V and T. 5. Learning and understanding of theoretical basis of adsorption phenomenon, dynamic nature of surface and its applications. |
| | | DSC 4C-Chemistry Paper VI | Analytical Chemistry | <ol style="list-style-type: none"> 1. Learning and understanding of basic concepts in gravimetric analysis. 2. Students will learn the different water analysis techniques. 3. Learning and understanding the knowledge about basic concepts in corrosion and electroplating, mechanism of corrosion, principle of electroplating. 4. Learning and coherent understanding of column and ion exchange chromatography. 5. Learning of working of petroleum industries, understanding of biofuels, copyrights and trademark |
| | | Paper No. DSC-D3-Chemistry paper No. VII | Inorganic Chemistry | <ol style="list-style-type: none"> 1. Learning and understanding basic concepts about coordination complexes. 2. Gain knowledge about applications of chelates in 3. Student will be capable of understanding the properties of 3d series elements. 4. Understanding the properties of 4f elements. 5. Student will learn the basic knowledge about the qualitative analysis of inorganic compounds. |

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| | | Paper No. DSC- D4 - Chemistry paper No. VIII | Organic Chemistry | <ol style="list-style-type: none"> 1. To impart knowledge about the synthesis, reactivity and applications of carboxylic acids. 2. Knowledge about classification, preparation and applications of amines and diazonium salts. 3. Understanding the classification, configuration and structure of carbohydrates. 4. Student will be capable of understanding the nomenclature and reactivity of aldehydes and ketones. 5. Student will learn the basic knowledge of conformational analysis of some organic compounds. |
| 3 | B.Sc. III | Paper No. DSE-E5, Chemistry Paper No. -IX | Inorganic Chemistry | <ol style="list-style-type: none"> 1. Useful for the study of role of acids and bases in Chemistry. 2. The study of non -aqueous solvents is important to learn all chemical properties of solutes and from the research point of view. 3. Useful to understand geometry, stability and nature of bonding between metal ion and ligand in complexes. 4. The topic deals with the synthesis and the applications of the semiconductors and Superconductors in electrical and electronic devices. 5. The structure, method of preparation and the applications of organo metallic compound in various fields are explained. 6. The classification, types, mechanism and applications of catalyst in industrial fields is explained. |
| | | Paper No. DSE-E6 Chemistry Paper No. X | Organic Chemistry | <ol style="list-style-type: none"> 1. Understanding of energy associated with electromagnetic radiation and its use in analytical technique. 2. Knowledge of chromophore, auxochrome and calculation of λ_{max}. 3. Knowledge of vibrational transitions, |

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| | | | | <p>regions of IR spectrum, functional group recognition.</p> <ol style="list-style-type: none"> Understanding of magnetic-non magnetic nuclei, shielding-desielding, chemical shift, splitting pattern. Knowledge of molecular ion, fragmentation pattern and different types of ions produced. Student will predict the structure of organic compound with the help of provided spectral data. |
| | | <p>Paper No. DSE- E7 Chemistry Paper No. XI</p> | Physical Chemistry | <ol style="list-style-type: none"> Learning and understanding quantum Chemistry. Knowledge about spectroscopy, Electromagnetic spectrum, Energy level diagram, Study of rotational spectra of diatomic molecules Learning and understanding photochemical laws, reactions and various photochemical phenomena. Learning the various types of solutions, relations vapour pressure, temperature relations. Learning and understanding the knowledge of emf measurements, types of electrodes, different types of cells, various applications of emf measurements. |
| | | <p>Paper No. DSE-E8 Chemistry paper No. XII</p> | Analytical Chemistry | <ol style="list-style-type: none"> Learning and understanding the techniques of gravimetric analysis. Knowledge of instrumental analysis of alkali and alkaline earth elements. Understanding, working and applications of optical methods as an analytical tool. Understanding theory and applications of potentiometric titrations. Understanding the basics of ion exchange and column adsorption chromatography, Quality control practices in analytical industries / laboratories. |
| | | <p>Paper No. DSE-F5, Chemistry Paper No. -XIII</p> | Inorganic Chemistry | <ol style="list-style-type: none"> Understand the thermodynamic and kinetic aspects of metal complexes. Understand role of radio isotopes in medicinal, industrial and Archaeology fields Learning and understanding the characteristics, properties and separation |

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| | | | | <p>of lanthanides and Actinides.</p> <ol style="list-style-type: none"> Understanding techniques involve in ore dressing and extraction of cast iron from its ore. Knowledge about role of various metals and non metals in our health |
| | | <p>Paper No. DSE-F6 Chemistry Paper No. XIV</p> | Organic Chemistry | <ol style="list-style-type: none"> Knowledge of reagents used in organic transformations and various reactions used in organic synthesis. Knowing basic terms used in retrosynthetic analysis, retrosynthesis of some organic compounds. Student will learn addition reaction across $>C=C<$ and $-C\equiv C-$ bond Knowledge of terpenoids and alkaloids w.r.t. occurrence, isolation, characteristics and classification. Understanding classification of drugs, Qualities of ideal drug. Synthesis and uses of some representative drugs and Drug action of sulphha drugs. |
| | | <p>Paper No. DSE-F 7 Chemistry Paper No. XV</p> | Physical Chemistry | <ol style="list-style-type: none"> Learning and understanding of phase rule, learning of One component, Two component and Three component systems phase diagrams with suitable examples. Knowledge about basic concept of Thermodyanamics, free energy, Gibbs-Helmholtz equation and its applications, problem related with it. Learning and understanding Space lattice, lattice sites, Lattice planes, Unit cell. Learning of kinetics, Simultaneous reactions such as i)opposing reaction ii)side reaction iii)consecutive reactions: iv) chain reaction v) explosive reaction Learning and understanding the knowledge of distribution law, its modifications, applications of distribution laws. |
| | | <p>Paper No. DSE-F8 Chemistry Paper No. XVI</p> | Industrial Chemistry | <ol style="list-style-type: none"> Learning and understanding the whole process of manufacture of sugar and byproducts of sugar industry. Learning and understanding of physicochemical principles of production of ammonia, sulfuric acid, nitric acid and sodium carbonate along with its |

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| | | | | <p>manufacturing plant.</p> <ol style="list-style-type: none">3. Understanding and learning the classification, synthesis and applications of various polymers.4. Understanding the petroleum Industry, fuels and need of use of ecofriendly fuels.5. Understanding and learning of nanotechnology. |
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