

**Shri Pandurang Gramin Pratishthan Sanchlit**  
**Dilip Walse Patil Arts, Commerce & Science College**  
**Nimgaon Sawa**

**DEPARTMENT OF CHEMISTRY**

**Program object and program specific outcome**

<b>Program</b>	<b>Program object</b>	<b>Program Specific Outcomes</b>
B.Sc. Chemistry	1.To inculcate scientific thinking, strength to work independently and draw rational conclusion.	1) Students get introduced with the basic principles of all branches of chemistry. Knowledge of chemical principles and make them independent for the effective application of it.  2. They are provided thorough knowledge of laboratory skills so that students can prepare for the experimental setup, actual working of equipment, obtain experimental data.
	2.To create the awareness About environmental among the students	They are also made aware importance of energy and water, food, fuels, general hygiene and cleanliness. Students are made aware of pollution problems waste water management, water treatment etc.
	3.To Develop the Ethical values in students	Students are made alerts regarding misuse of food adulteration, chemical technology, poisons, fungicides, pesticides and chemical.

Sr.No.	Class	Course	Course Outcomes
1	F.Y.B.Sc Chemistry (Credit pattern 2019)	CH-101 Physical Chemistry	<p>1) Students are able to apply thermodynamic principles to physical and chemical process.</p> <p>2) After studying the ionic equilibrium, students are able to understand the concept to ionization process occurred in acids, bases and pH scale, Related concepts such as Common ion effect hydrolysis constant, ionic product, solubility product.</p> <p>3. Exergonic and endergonic reaction</p> <p>4. Students performs the calculations of enthalpy, Bond energy. Bond dissociation energy, resonance energy. Variation of enthalpy with temperature -Kirchoff's equation, Third law of thermodynamic and its applications</p> <p>5. Student understands relation between Free energy and equilibrium and factors affecting on equilibrium constant.</p>
		CH-102 Organic chemistry	<p>1. Students are familiarized with current and recent developments in Chemistry.</p> <p>2. The students understand the fundamentals, principles, and recent developments in the subject area.</p> <p>3. Students are motivated towards chemistry as the main subject.</p> <p>4. Students get foundation for research and development in Chemistry.</p>
		CH-103 Chemistry practical course	<p>1. Students are able to perform various experiments with proper</p> <p>2. Students understands the use chromatographic techniques skills for separation of constituents of mixtures</p> <p>3. Students understand the importance of chemical safety and Lab safety while performing experiments in laboratory</p> <p>4. Students are able to Determination of thermochemical parameters and related concepts.</p>

			5. Students understand the concept and techniques of pH measurements.
		CH-201 Inorganic chemistry	<p>1. Students understand various theories and principles applied to reveal atomic structure, Origin of quantum mechanics and its need to understand structure of hydrogen atom, rules for filling electrons in various orbitals- Aufbau's principle, Pauli exclusion principle, Hund's rule of maximum multiplicity.</p> <p>2. Students are able to write electronic configuration of atom and anomalous electronic configurations.</p> <p>3. Students are able to describe stability of half-filled and completely filled orbitals.</p> <p>4. They understand the concept of mole, millimole, molar concentration, molar equilibrium concentration and Percent Concentration.</p>

		CH-202 Organic chemistry	1. After completing the course Students learned the functional group approach for the various reactions (preparations & reactions) in context to their structure
		CH-203 Chemistry practical	<p>1. Students are able to perform the experiments in Inorganic Estimations using volumetric analysis.</p> <p>2. Purification of organic compounds</p> <p>3. Preparations and mechanism of reactions involved</p> <p>4. Synthesis of Inorganic compounds</p> <p>5. Analysis of commercial products.</p>
2	F.Y.B.Sc Chemistry (2013 pattern)	Paper -I physical and Inorganic Chemistry	<p>1. After completing the course Students are able to-</p> <p>1. understand behavior of gases, ideal gas as a model system and its extension to real gases.</p> <p>2. The existence of liquid state, comparison of its properties with other states is to be perceived.</p> <p>3. Student should be able to solve problems regarding van der Waal's and Critical constant and regarding P-V-T relations</p>

			<p>4. Theoretical basis of adsorption phenomena is integrated.</p> <p>5. strengthens Mathematical background required for derivations, depictions and problem solving.</p> <p>6. understand the atom being most important micro particle in construction of matter, the quantization of energy and duality of matter. Schrodinger equation is the basis of quantum chemistry</p> <p>7. Basic principle of overlapping of atomic orbital with specific shapes and sizes.</p> <p>8. Concept of hybridization and differentiation with overlap</p> <p>9. Concept of different types valence shell electron pairs and contribution in bonding</p> <p>10. Application of non-bonded lone pairs in shape of molecule</p> <p>11. Basic understanding of geometry and effect of lone pairs with examples</p>
		Paper -II Organic and inorganic chemistry	<p>1. Shells, sub-shells, types of orbital and their shapes</p> <p>2. Aufbau, Paulin's exclusion principle and Hund's rule</p> <p>3. Block, group, periodic law and periodicity</p> <p>4. Name, symbol, electronic configuration, trends and properties</p> <p>7. Crown ether and cryptans</p> <p>5. Separation of s-block elements with crown ethers</p> <p>9. Compounds of s-block elements; oxides, hydroxides, peroxides and superoxides</p> <p>6. Application of s-block elements: Industrial, biological and agricultural field Structure, nomenclature, preparation and reactions of organic compounds.</p> <p>7. The characteristic reactions of each functional group which can be used to identify and distinguish that compound from other compounds. 3. Predict the conversion of one functional group into other functional</p>

			<p>group involving one or more number of steps.</p> <p>8. Conversion of the given compound into other compound containing more or less number of carbon atoms.</p> <p>9. Prediction of possible products when reactants are given. In case there are more than one possible products, identify the major and minor products .</p> <p>10. Suggest the possible reagents to bring about the given conversion Concept of isomerism, types of isomers and representation of organic molecules.</p>
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