

**Department of Chemistry**  
**S. K. Porwal College of Arts, Science and Commerce,**  
**Kamptee-441001**

**Programme Specific Outcome of B.Sc. in Chemistry**

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**PSO1:** The B.Sc. programme enabled the students to enhance their critical thinking, during the three years period of study and the curriculum motivates the mental thoughts and suppositions of the students. This helps the students to take up practical work and compare the results with their assumptions, there by leading to accuracy and validity of the practical knowledge. This Analysis leads to take decisions at intellectual, directorial and personal from different perspectives of life.

**PSO2:** Understand the basic principles and concepts underlying the inorganic, organic and physical chemistry.

**PSO3:** Comprehend the applications of chemistry in various walks of life.

**PSO4:** Students gained functional knowledges of the fundamental theoretical concepts and experimental methods of Chemistry.

**PSO5:** The students will be benefited to equip themselves to job requirements in the quality control, analytical laboratory or production wing of any Chemical or Pharmaceutical industry.

**PSO6:** Able to use instrumental methods of chemical analyses.

**Course Outcome of Semester-I**

<b>Course</b>	<b>After completion of this course students will able to:</b>
<b>CH – 101:</b> Paper- I (Inorganic Chemistry)	<p><b>CO1:</b> Basic knowledge of atomic structure, inorganic fundamental and periodic properties.</p> <p><b>CO2:</b> Conceptualization of Valence bond theory (VBT) and Molecular Orbital theory (MOT), and VSPER theory.</p> <p><b>CO3:</b> Differentiation in ionic and metallic bond, and S-block elements.</p> <p><b>CO4:</b> A study of P-block elements, oxyacids of Sulphur, hydride of Phosphorus, and noble gases.</p>
<b>CH-102:</b> Paper- II (Physical Chemistry)	<p><b>CO1:</b> Basic knowledge of thermodynamics and calculations of problems related to Thermo-chemistry.</p> <p><b>CO2:</b> Difference between Ideal gas and Real gas and their related equation.</p> <p><b>CO3:</b> Understanding of Liquid State with emphasis on properties of liquid.</p> <p><b>CO4:</b> Concept of adsorption isotherm and principles of catalysis.</p>

### **Course Outcome of Semester-II**

<b>Course</b>	<b>After completion of this course students will able to:</b>
<b>CH – 201:</b> Paper- I (Organic Chemistry)	<p><b>CO1:</b> Understand the concept structure, bonding in organic compounds and different types of reaction mechanisms.</p> <p><b>CO2:</b> Understand the concept of stereochemistry in detail.</p> <p><b>CO3:</b> Understand the nomenclature, synthesis, chemical and physical properties of alkanes, cycloalkanes and alkenes</p> <p><b>CO4:</b> Understand the nomenclature, synthesis, chemical and physical properties of dienes, alkynes and also the concept of aromaticity of organic compounds.</p>
<b>CH-202:</b> Paper- II (Physical Chemistry)	<p><b>CO1:</b> Second law of thermodynamics and free energy work functions.</p> <p><b>CO2:</b> Understanding of Phase rule and liquid-liquid mixture.</p> <p><b>CO3:</b> Insight into Nuclear Chemistry and Molecular Structure.</p> <p><b>CO4:</b> laws of Chemical kinetics.</p>

### **Course Outcome of Semester-III**

<b>Course</b>	<b>After completion of this course students will able to:</b>
<b>CH – 301:</b> Paper- I (Inorganic Chemistry)	<p><b>CO1:</b> Diagrammatic representation of molecules according to MOT, and properties of interhalogen compounds</p> <p><b>CO2:</b> Chemistry of first transition elements and non-aqueous solvents</p> <p><b>CO3:</b> Comparative study of the second and third transition series and error in chemical analysis</p> <p><b>CO4:</b> Chemistry of lanthanides and actinides, and lanthanide contraction</p>
<b>CH-302:</b> Paper- II (Organic Chemistry)	<p><b>CO1:</b> Understand nomenclature, synthesis, chemical properties of alkanes in aryl, alkyl halides.</p> <p><b>CO2:</b> Understand nomenclature, synthesis, chemical properties of dihydric, trihydric alcohols and phenols in detail</p> <p><b>CO3:</b> Understand nomenclature, synthesis, chemical properties of aldehydes and ketones and mechanisms of nucleophilic addition</p> <p><b>CO4:</b> Understand nomenclature, synthesis, chemical properties of carboxylic acids and their derivatives along with reactive mechanisms.</p>

### **Course Outcome of Semester-IV**

<b>Course</b>	<b>After completion of this course students will able to:</b>
<b>CH – 401:</b> Paper- I (Inorganic Chemistry)	<p><b>CO1:</b> A detail study of coordination compounds and its applications.</p> <p><b>CO2:</b> Isomerism and redox process in inorganic compounds.</p> <p><b>CO3:</b> The concept organometallic and metal carbonyl compounds.</p> <p><b>CO4:</b> Applications of inorganic macromolecules in the biological concept, and acid-bases principles.</p>
<b>CH – 402:</b> Paper- II (Physical Chemistry)	<p><b>CO1:</b> Insight into laws of crystallography and Bravais lattices</p> <p><b>CO2:</b> Debye-Huckel theory and concepts related to electrochemistry</p> <p><b>CO3:</b> Introduction to Rotational and Vibration Spectroscopy.</p> <p><b>CO4:</b> Basics of Quantum Chemistry, Operators and Schrodinger wave function.</p>

### Course Outcome of Semester-V

Course	After completion of this course students will able to:
CH- 501: Paper- I (Organic Chemistry)	<p><b>CO1:</b> Know organic compounds of nitrogen in detail especially amines.</p> <p><b>CO2:</b> Understand heterocyclic chemistry.</p> <p><b>CO3:</b> Understand the theory behind the organic qualitative analysis and further details about organometallic compounds</p> <p><b>CO4:</b> Know the concepts of electromagnetic spectrum and further Infrared absorption spectroscopy in detail.</p>
CH- 502: Paper- II (Physical Chemistry)	<p><b>CO1:</b> Introduction to cells, applications of Nernst equation.</p> <p><b>CO2:</b> Quantum Chemistry and Molecular orbital theory application on Hydrogen atom.</p> <p><b>CO3:</b> Concepts of Photochemical reactions and Raman spectroscopy.</p> <p><b>CO4:</b> Detail discussion on colligative properties and ideas of macromolecules.</p>


### Course Outcome of Semester -VI

Course	After completion of this course students will able to:
CH - 601: Paper- I (Inorganic Chemistry)	<p><b>CO1:</b> Conceptualization of metal-ligand bonding in transition metal complexes, CFT and electronic spectra of metal complexes</p> <p><b>CO2:</b> Magnetic and kinetics properties of transition metal complexes</p> <p><b>CO3:</b> Principles of colorimetry, spectrophotometry and chromatography</p> <p><b>CO4:</b> A study of inorganic polymers and its applications</p>
CH- 602: Paper- II (Organic Chemistry)	<p><b>CO1:</b> Understand the Nuclear magnetic resonance spectroscopy.</p> <p><b>CO2:</b> Understand organic synthesis through enolates and carbohydrates in details.</p> <p><b>CO3:</b> Understand structure and properties of biomolecules.</p> <p><b>CO4:</b> Understand the importance of synthetic dyes, synthetic drugs and synthetic polymers</p>

  
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