

Government General Degree College, Manbazar-II, Purulia
Affiliated to Sidho-Kanho-Birsha University, Purulia

**Program Outcomes, Program Specific Outcomes
and Course Outcomes**

Department of Chemistry
Programme Outcomes: B. Sc. Chemistry
(Program and Generic Elective Courses)

Department of Chemistry	After successful completion of three year degree program in Chemistry a student should be able to;
Programme Outcomes	<p>PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry.</p> <p>PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion.</p> <p>PO-3. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of chemical reactions.</p> <p>PO-4. Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.</p> <p>PO-5. Find out the green route for chemical reaction for sustainable development.</p> <p>PO-6. To inculcate the scientific temperament in the students and outside the scientific community.</p> <p>PO-7. Use modern techniques, various equipments and Chemical softwares.</p>
Programme Specific Outcomes	<p>PSO-1. Gain the knowledge of Chemistry through theory and practical experiments.</p> <p>PSO-2. To explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions.</p> <p>PSO-3. Identify chemical formulae and solve numerical problems.</p> <p>PSO-4. To understand the basic principles of Organic, Inorganic, Physical and Analytical Chemistry and its applications through Various laboratory experiments.</p> <p>PSO-5. Use modern chemical tools, Models, Chem-draw, Charts and Equipments.</p> <p>PSO-6. Understand good laboratory practices and safety.</p> <p>PSO-7. Develop research oriented skills.</p> <p>PSO-8. Aware and handle the sophisticated instruments/equipments.</p>

**Course Outcomes B. Sc Chemistry
Semester-I**

Course	Outcomes
	After completion of these courses students should be able to:
BCEMCCRC101 Organic Chemistry-I	CO-1. Understanding the Valence Bond Theory and MO Theory. CO-2. Understanding of the Stereochemistry of organic molecules. CO-3. Mechanistic approach of different organic reactions and reaction Intermediates.
BCEMGERC7 Atomic Structure, Chemical Periodicity, Acids And Bases, Redox Reactions, General Organic Chemistry & Aliphatic Hydrocarbons	CO-1. Gather an in-depth knowledge about atomic structure. CO-2. Understand the periodicity of the elements. CO-3. Define organic acids and bases and various theories of acid-bases. CO-4. Understand the concepts of a redox reaction. CO-5. Understand the concepts of General Organic Chemistry & Aliphatic Hydrocarbons
Semester-II	
BCEMCCRC201 Inorganic Chemistry-I	CO-1. Gather an in-depth knowledge about atomic structure CO-2. Understand the periodicity of the elements CO-3. Define organic acids and bases and various theories of acid-bases. CO-4. Understand the concepts of a redox reaction. CO-5. Explain various phenomenon of Solubility product principle.
BCEMGERC7A States of Matter & Chemical Kinetics, Chemical Bonding & Molecular Structure, P- Block Elements.	CO-1. Understand the basic principles of Kinetic Theory of Gases. CO-2. Understanding of the concepts of viscosity. CO-3. Understanding of the concepts of Surface tension and Viscosity of a liquid CO-4. Understanding of the concepts of solids, crystal systems CO-5. Basic Principles of Kinetics of a reaction, rate of a equation, Molecularity and order of a reaction, rate determining step. CO-6. Understanding the Chemical Bonding and Molecular Structure CO-7. Comparative study of p-block elements
Semester-III	
BCEMCCRC301 Physical Chemistry-I	CO-1. Understand the basic principles of Kinetic Theory of Gases. CO-2. Understand the Macroscopic Thermodynamics at equilibrium,

	<p>Zeroth Law, 1st Law of Thermodynamics.</p> <p>CO-3. Adiabatic and Isothermal processes.</p> <p>CO-4. Work Done in isothermal and adiabatic processes.</p> <p>CO-5. Specific Heat and Kirchoff's Equation.</p> <p>CO-6. Joule-Thomson's Experiment.</p> <p>CO-7. Basic Principles of Kinetics of a reaction, rate of a equation, Molecularity and order of a reaction, rate determining step.</p> <p>CO-8. Arrhenius equation and temperature dependence, Collision Theory.</p>
<p>BCEMGERC7</p> <p>Atomic Structure, Chemical Periodicity, Acids And Bases, Redox Reactions, General Organic Chemistry & Aliphatic Hydrocarbons</p>	<p>CO-1. Gather an in-depth knowledge about atomic structure.</p> <p>CO-2. Understand the periodicity of the elements.</p> <p>CO-3. Define organic acids and bases and various theories of acid-bases.</p> <p>CO-4. Understand the concepts of a redox reaction.</p> <p>CO-5. Understand the concepts of General Organic Chemistry & Aliphatic Hydrocarbons</p>
Semester-IV	
<p>BCEMCCRC401</p> <p>Inorganic Chemistry-III</p>	<p>CO-1 Understanding of the basic principles of Metallurgy.</p> <p>CO-2. Detailed knowledge of s- and p- block elements.</p> <p>CO-3. Detailed study of the Noble gases.</p> <p>CO-4. Elementary idea of Inorganic polymers.</p> <p>CO-5. Thorough understanding of Co-ordination Chemistry.</p> <p>CO-6. Isomerism of Inorganic Compounds.</p> <p>CO-7. IUPAC nomenclature of Inorganic compounds.</p>
<p>BCEMGERC7A</p> <p>States of Matter & Chemical Kinetics, Chemical Bonding & Molecular Structure, P- Block Elements.</p>	<p>CO-1. Understand the basic principles of Kinetic Theory of Gases.</p> <p>CO-2. Understanding of the concepts of viscosity.</p> <p>CO-3. Understanding of the concepts of Surface tension and Viscosity of a liquid</p> <p>CO-4. Understanding of the concepts of solids, crystal systems</p> <p>CO-5. Basic Principles of Kinetics of a reaction, rate of a equation, Molecularity and order of a reaction, rate determining step.</p> <p>CO-6. Understanding the Chemical Bonding and Molecular Structure</p> <p>CO-7. Comparative study of p-block elements</p>

Semester-V	
<p>BCEMDSHC-504 (DSE-2) Inorganic Materials of Industrial Importance</p>	<p>CO-1. Understanding of preparation of glass, ceramics and silicates. CO-2. Elementary idea of Fertilizers. CO-3. A study of batteries. CO-4. Elementary idea of alloys. CO-5. Developing the idea and concepts of catalysis. CO-6. Developing the idea of preparation of chemical explosives.</p>
Semester-VI	
<p>BCEMDSHC-604 (DSE-4) Green Chemistry</p>	<p>CO-1. Understanding of the concepts of Green Chemistry. CO-2. Understanding the basic principles of Green Synthesis. CO-3. Requirements of Green Chemistry. CO-4. Understanding the Future Trends of Green Chemistry.</p>