

**DEPARTMENT OF CHEMISTRY  
POLBA MAHAVIDYALAYA**

**Course Outcome: B.Sc. Chemistry (General) Programme (CBCS)**

<b>CORE COURSES (CC)</b>	
<b>Course Name</b>	<b>Course Outcome</b>
<b>CC1A:</b> General Inorganic and Organic chemistry	This course includes a theory as well as a practical paper. Theory deals with the basic ideas of inorganic and organic chemistry. Origin and fundamental ideas about atomic structure will help to understand the electronic configuration of one and many electron atom. Chemical periodicity will help to understand general characteristics and different periodic properties of s, p, d and f block elements. Different Acids and Bases concepts will help the acidity or basicity nature of the elements. Redox reactions will help to do balance the different chemical reactions by oxidation no or ion-electron methods. Organic chemistry begins with the knowledge of resonance, hyperconjugation, electrophile, nucleophile, Stereochemistry of the compounds etc which will be helpful in understanding the reaction mechanism.
<b>CC1B:</b> Physical and Inorganic Chemistry	This course includes a theory as well as a practical paper. Physical parts include Vanderwaals equation and its application for explaining real gas behavior which is one of the most important topic of this part. Idea about critical state is needed for deriving the critical constants of real gases. Experimental determination of surface tension and viscosity by stalagmometer and viscometer will create more interest to the students about this course. Inorganic parts will provide comparative studies of different kinds of P-Block elements, bonding nature and Molecular Structure of different homonuclear and heteronuclear Molecules including VSEPR and LCAO approaches.
<b>CC1C:</b> Physical and Organic Chemistry	This course includes a theory as well as a practical paper. After completion of this course, students would be able to explain the concept of enthalpy, entropy, state functions, Carnot engine which will enrich students. They will learn how this parameters change with surrounding pressure, temperature and many more. Functional group app roach for Aromatic hydrocarbons, Organometallic compounds, Aryl halides, Alcohols; Phenols & ethers and Carbonyl compounds (preparations & reactions) to be studied in context to their structures.
<b>CC1D:</b> Physical and Analytical and Environmental Chemistry	This course includes a theory as well as a practical paper. Theory paper include phase diagram, conductance, electromotive forces and different properties of physical existence of an entity. Student will learn chemical analysis, chromatographic technique in analytical part as well as in practical portion.
<b>DISCIPLINE SPECIFIC ELECTIVE COURSES (DSE)</b>	
<b>Course Name</b>	<b>Course Outcome</b>
<b>DSE 1A:</b> Analytical and Industrial Chemistry	This course includes a theory as well as a practical paper. After successfully completing this course, students would gain knowledge about various industrial methods, error analysis, computer applications, Transition Metal including Lanthanoids and actinoids & Coordination Chemistry with Crystal field theory etc.
<b>DSE 1B:</b>	This course includes a theory as well as a practical paper. After

Organic and Industrial Chemistry	successfully completing this course, students would have a clear idea about large scale industrial preparation of organic compounds, Amino acids & Carbohydrates, polymers, manufacture of paints, dyes, drugs, pesticides, soaps & detergents, fats and other food additives etc.
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<b>SKILL ENHANCEMENT COURSES(SEC)</b>	
<b>SEC1:</b> Analytical clinical biochemistry	This course includes a theory paper. After completion of the course students would be able to understand the chemistry behind carbohydrates, proteins, structure & biological actions of DNA and RNA, transcription, replication, translocation, nomenclature & classification of Enzymes, effect of pH and temperature, enzyme inhibition, biocatalysis etc. A keen interest on Gene therapy and Genetic coding grows a new desire among the students. The Students also learn a diagnostic approach using Blood & Urine sample to analyze the biochemistry of a disease.
<b>SEC2:</b> Pharmaceutical Chemistry	This course includes a theory paper. After completion of the course students would be able to understand the chemistry behind drugs and pharmaceuticals and their preparation, identification and applications etc.
<b>SEC3:</b> Computer application in Chemistry	This course includes a theory paper. After completion of the course students would be able to use computer for their study work. Writing chemical equations, drawing structures using various software will enrich their knowledge.
<b>SEC4:</b> Polymer Chemistry	This course includes a theory paper. After completion of the course students would gain knowledge about the various polymeric materials that we use in our daily life. Then synthesis of polymer, uses and applications part are also covered here which will be very interesting to the students.

## **Programme Outcome: B.Sc. Chemistry (General) CBCS**

- The B.Sc. Programme develops scientific spirit among the science graduates.
- This programme enhances observation, precision, analytical mind, logical thinking, clarity of thought and expression among the students.
- This programme teaches the students to formulate and solve problems in a logical manner.
- The laboratory based practical work in this programme enable the students to have hand on experience on various equipment which will enhance their scientific knowledge and employability.
- The field work and project work in this programme make the students compatible to the needs of modern industry and research field.
- The programme also enables the students to appear for various competitive examinations as well as start their own business.
- After completion of this programme, students can engage themselves in diverse fields including medical, engineering, industries education, banking, business public service, self-business etc. proficiently.
- The programme is designed for holistic development of the students so that they become socially responsible, ethically correct and knowledgeable and contribute to the development and progression of the nation.

## **Programme Specific Outcome: B.Sc. Chemistry (General) Programme (CBCS)**

After graduating with a degree in Chemistry, the students have a wide scope in different fields. Apart from opting for higher studies, the students can also build their carrier in a variety of related branches of science:

- Industrial Field
- Laboratory Technician
- Medical Representative and Marketing Field
- Health Science
- Analytical Field
- Instrument Operator
- Material Supplier