B.Sc CHEMISRY COURSE OUTCOMES

Single Major (2023-24)

COURSE 1: ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL MAND CHEMICAL SCIENCES

CO-1: Apply critical thinking skills to solve complex problems involving complex numbers, trigonometric ratios, vectors, and statistical measures.

CO-2: To Explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations

CO-3: To Explain the basic principles and concepts underlying a broad range of Fundamental areas of chemistry and to Connect their knowledge of chemistry to daily life.

CO-4: Understand the interplay and connections between mathematics, physics, and chemistry in Various applications. Recognize how mathematical models and physical and chemical

Principles can be used to explain and predict phenomena in different contexts.

CO-5: To explore the history and evolution of the Internet and to gain an understanding of network security concepts, including threats, vulnerabilities, and countermeasures

COURSE 2: ADVANCES IN MATHEMATICAL, PHYSICALAND CHEMICAL SCIENCES

CO-1: Explore the applications of mathematics in various fields of physics and chemistry, to understand how mathematical concepts are used to model and solve real-world problems.

CO-2: To Explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations.

CO-3: Understand the different sources of renewable energy and their generation processes and advances in nanomaterials and their properties, with a focus on quantum dots. To study the emerging field of quantum communication and its potential applications. To gain an understanding of the principles of biophysics in studying biological systems. Explore the properties and applications of shape memory materials.

CO-4: Understand the principles and techniques used in computer-aided drug design and drug delivery systems, to understand the fabrication techniques and working principles of nanosensors. Explore the effects of chemical pollutants on ecosystems and human health.

CO-5: Understand the interplay and connections between mathematics, physics, and chemistry in various advanced applications. Recognize how mathematical models and physical and chemical principles can be used to explain and predict phenomena in different contexts.

CO-6: Understand and convert between different number systems, such as binary, octal, decimal, and hexadecimal. Differentiate between analog and digital signals and understand their characteristics. Gain knowledge of different types of transmission media, such as wired (e.g., copper cables, fiber optics) and wireless (e.g., radio waves, microwave, satellite).

COURSE 3: GENERAL AND INORGANIC CHEMISTRY

CO-1: Understand the structure of atom and the arrangement of elements in the periodic table.

CO-2: Understand the nature and properties of ionic compounds.

CO-3: Identify the structure of a given inorganic compound.

CO-4: Explain the existence of special types of compounds through weak chemical forces.

CO-5 Define acids and bases and predict the nature of salts.

COURSE 4: INORGANIC CHEMISTRY- I

CO-1. Understand the basic concepts of inorganic preparations.

CO-2. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory

CO-3.. Apply the properties of various elements for the preparation of inorganic compounds.

MINOR (2023-24)

COURSE 1: MECHANICS AND PROPERTIES OF MATTER

CO-1. Students will be able to understand and apply the concepts of scalar and vector fields, calculate the gradient of a scalar field, determine the divergence and curl of a vector field.

CO-2. Students will be able to apply the laws of motion, solve equations of motion for variable mass systems

CO-3. Students will be able to define a rigid body and comprehend rotational kinematic relations, derive equations of motion for rotating bodies, analyze the precession of a top and gyroscope, understand the precession of the equinoxes

CO-4. Students will be able to define central forces and provide examples, understand the characteristics and conservative nature of central forces, derive equations of motion under central forces.

CO-5. Students will be able to differentiate between Galilean relativity and the concept of absolute frames, comprehend the postulates of the special theory of relativity, apply Lorentz transformations, understand and solve problems