

## **Bachelor of Science (BSC)**

**Course Overview Institution: St. Anne's First Grade College for Women**

**Program Duration: 3 Years (6 Semesters)**

---

### **Semester 4**

#### **Inorganic Chemistry**

Inorganic Chemistry is the branch of chemistry that deals with inorganic compounds, primarily those that do not contain carbon-hydrogen bonds. It encompasses the study of minerals, metals, coordination compounds, and nonmetals. Key topics include the structure and properties of elements, transition metals, crystal field theory, and coordination chemistry. Inorganic chemistry plays a crucial role in catalysis, material science, and industrial processes, offering insights into both natural and synthetic materials.

#### **Electromagnetic Theory**

Electromagnetic Theory is the study of electric and magnetic fields and their interactions. It is based on Maxwell's equations, which describe how electric charges and currents create electric and magnetic fields. Topics include electromagnetic waves, induction, and the propagation of light. This theory underpins modern technologies like wireless communication, power generation, and electromagnetic radiation analysis, making it fundamental in physics and engineering.

#### **Linear Algebra**

Linear Algebra is a branch of mathematics that focuses on vector spaces, linear transformations, matrices, and systems of linear equations. It provides tools for solving complex mathematical problems involving multi-dimensional data. Applications include computer graphics, machine learning, quantum mechanics, and optimization. Mastery of linear algebra is essential for understanding geometric transformations and analyzing data structures in both theoretical and applied contexts.

## **Environment**

The environment encompasses all living and non-living elements that surround and affect life on Earth. Environmental science studies the interactions between humans and the natural world, focusing on issues like pollution, climate change, biodiversity loss, and sustainable resource management. Understanding environmental dynamics is crucial for creating strategies to protect ecosystems and promote sustainability.

## **Biotechnology**

Biotechnology involves the use of living organisms, cells, and biological systems to develop products and technologies that improve human life. It integrates biology with technology to create advancements in medicine, agriculture, environmental management, and industrial processes. Key areas include genetic engineering, bioinformatics, and the production of biopharmaceuticals. Biotechnology is a rapidly evolving field, offering solutions to global challenges like food security and health care.