

# Chemistry

Curriculum for Grade XII

## Class 12 Chemistry Curriculum Overview

The Class 12 Chemistry curriculum is designed to provide a thorough understanding of the advanced concepts in chemistry, preparing students for higher studies in science, engineering, medicine, and other fields. The syllabus is divided into two textbooks: Chemistry Part I and Chemistry Part II. Both textbooks together cover a wide range of topics from solutions, electrochemistry, and chemical kinetics to organic chemistry, biomolecules, and coordination compounds.

### Textbook 1: Chemistry Part I

#### Unit 1: Solutions

This unit covers the fundamental concepts related to different types of solutions and how their concentration can be expressed. It also explores concepts like solubility, vapour pressure, and the differences between ideal and non-ideal solutions. Key focus areas include colligative properties, abnormal molar masses, and their practical applications in determining molar masses.

#### Unit 2: Electrochemistry

Electrochemistry is introduced through the study of electrochemical cells, Galvanic cells, and the Nernst equation. This unit also delves into the conductance of electrolytic solutions and processes like electrolysis, as well as their industrial applications in batteries, fuel cells, and corrosion prevention.

#### Unit 3: Chemical Kinetics

This unit explains the factors that influence the rate of chemical reactions, rate laws, and integrated rate equations. It also covers how temperature affects reaction rates, providing a foundation for understanding the collision theory and the energy dynamics of chemical reactions.

#### Unit 4: The d- and f-Block Elements

The properties and behaviors of the d- and f-block elements are explored in this unit, highlighting their position in the periodic table and electronic configurations. Students will learn about the transition elements, their compounds, and the important applications of these elements in industries. The unit also introduces the lanthanoids and actinoids.



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### **Unit 5: Coordination Compounds**

Werner's theory of coordination compounds is introduced here, followed by discussions on their nomenclature, isomerism, and bonding. The unit also explores the importance and applications of coordination compounds, particularly in biological systems and industrial processes.

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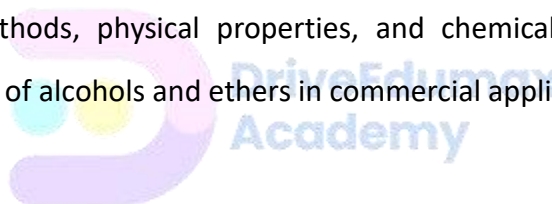
## **Textbook 2: Chemistry Part II**

### **Unit 6: Haloalkanes and Haloarenes**

This unit focuses on the classification, nomenclature, and structure of haloalkanes and haloarenes. It also covers their methods of preparation, physical properties, and chemical reactions. The study of polyhalogen compounds highlights their environmental significance and industrial applications.

### **Unit 7: Alcohols, Phenols, and Ethers**

The unit explores the classification, nomenclature, and structure of alcohols, phenols, and ethers. It also covers the preparation methods, physical properties, and chemical reactions of these compounds, emphasizing the importance of alcohols and ethers in commercial applications.



### **Unit 8: Aldehydes, Ketones, and Carboxylic Acids**

Students will learn about the structure and nomenclature of aldehydes, ketones, and carboxylic acids. This unit covers their methods of preparation, physical properties, and chemical reactions, along with the commercial importance and uses of these organic compounds.

### **Unit 9: Amines**

This unit introduces amines, their classification, and nomenclature. Students will study the preparation and chemical properties of amines, as well as the synthesis and importance of diazonium salts in the creation of aromatic compounds.

### **Unit 10: Biomolecules**

The final unit covers biomolecules essential to life, such as carbohydrates, proteins, enzymes, and nucleic acids. It also explores vitamins, hormones, and their biological functions, offering insights into the chemistry that underpins biological processes.

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The Class 12 Chemistry curriculum offers a deep dive into both physical and organic chemistry, providing students with the knowledge they need to understand the principles of chemistry and their applications in real-world scenarios. Through the study of advanced topics such as electrochemistry, chemical kinetics, coordination compounds, and biomolecules, students are equipped with the foundational knowledge needed for pursuing higher education in chemistry and related fields.

