

## Class 12 – PCM

### Course Syllabus

#### Physics

##### Module 1: Electric Charges, Fields and Potential

**Topics:** Coulomb's law, electric field, capacitors

##### Module 2: Current Electricity

**Topics:** Ohm's law, circuits, Kirchhoff's rules

##### Module 3: Magnetism and Moving Charges

**Topics:** magnetic fields, force on current, magnetic materials

##### Module 4: Electromagnetic Induction and AC

**Topics:** Faraday's law, inductance, alternating current

##### Module 5: Electromagnetic Waves

**Topics:** types of waves and their uses

##### Module 6: Optics

**Topics:** reflection, refraction, lenses, interference, diffraction

##### Module 7: Dual Nature of Matter

**Topics:** photoelectric effect, matter waves

##### Module 8: Atoms and Nuclei

**Topics:** atomic models, radioactivity, nuclear energy

##### Module 9: Semiconductor Electronics

**Topics:** diodes, transistors, logic gates

#### Chemistry

##### Module 10: Solutions

**Topics:** concentration, colligative properties

##### Module 11: Electrochemistry

**Topics:** cells, Nernst equation, electrolysis

##### Module 12: Chemical Kinetics

**Topics:** rate of reaction, order of reaction

##### Module 13: d- and f-Block Elements

**Topics:** properties and uses of transition metals

##### Module 14: Coordination Compounds

**Topics:** ligands, naming, bonding theory

##### Module 15: Haloalkanes and Haloarenes

**Topics:** reactions and mechanisms

## Module 16: Alcohols, Phenols and Ethers

**Topics:** preparation, properties and uses

## Module 17: Aldehydes, Ketones and Carboxylic Acids

**Topics:** reactions and tests

## Module 18: Amines and Biomolecules

**Topics:** amines, carbohydrates, proteins, vitamins

## Mathematics

## Module 19: Relations, Functions and Inverse Trigonometry

**Topics:** types of relations and functions, inverse trigonometric functions

## Module 20: Matrices and Determinants

**Topics:** matrix operations, determinants, inverse, solving equations

## Module 21: Continuity and Differentiability

**Topics:** continuous functions, rules of differentiation

## Module 22: Applications of Derivatives

**Topics:** rate of change, maxima and minima, tangents

## Module 23: Integrals

**Topics:** methods of integration, definite integrals

## Module 24: Applications of Integrals and Differential Equations

**Topics:** area under curves, forming and solving equations

## Module 25: Vectors

**Topics:** vector operations, dot product and cross product

## Module 26: Three-Dimensional Geometry

**Topics:** lines and planes in space, angles and distances

## Module 27: Linear Programming and Probability

**Topics:** optimisation, conditional probability, distributions