Syllabus

CBSE Term II Class XI

Time: 2hrs   **Max Marks: 35**

UNITS		Periods	Marks
VII	**Properties of Bulk Matter**		
	Chapter–9: Mechanical Properties of Solids		
	Chapter–10: Mechanical Properties of Fluids	22	
	Chapter–11: Thermal Properties of Matter		23
VIII	**Thermodynamics**		
	Chapter–12: Thermodynamics	10	
IX	**Behaviour of Perfect Gases and Kinetic Theory of Gases**		
	Chapter–13: Kinetic Theory	08	
X	**Oscillations and Waves**		
	Chapter–14: Oscillations	23	12
	Chapter–15: Waves		
	Total	**63**	**35**

UNIT-VII   **Properties of Bulk Matter**   **22 Periods**

Chapter–9   **Mechanical Properties of Solids**

Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus

Chapter–10   **Mechanical Properties of Fluids**

Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes), effect of gravity on fluid pressure.

Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its applications.

Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise.

Chapter–11   **Thermal Properties of Matter**

Heat, temperature, (recapitulation only) thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; C_P, C_V - calorimetry; change of state - latent heat capacity.

Heat transfer-conduction, convection and radiation (recapitulation only), thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law, Greenhouse effect.

UNIT-VIII Thermodynamics   10 Periods
Chapter-12 Thermodynamics

Thermal equilibrium and definition of temperature (zeroth law of thermodynamics), heat, work and internal energy. First law of thermodynamics, isothermal and adiabatic processes.

Second law of thermodynamics: reversible and irreversible processes

UNIT-IX Behaviour of Perfect Gases and Kinetic Theory of Gases   08 Periods
Chapter-13 Kinetic Theory

Equation of state of a perfect gas, work done in compressing a gas.

Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.

UNIT-X Oscillations and Waves   23 Periods
Chapter-14 Oscillations

Periodic motion - time period, frequency, displacement as a function of time, periodic functions.

Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a loaded spring- restoring force and force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period. Free, forced and damped oscillations (qualitative ideas only), resonance.

Chapter-15 Waves

Wave motion: Transverse and longitudinal waves, speed of travelling wave, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, Beats