BLOOM PUBLIC SCHOOL
C-8 Vasant Kunj, New Delhi
Syllabus for the Session 2023-24

Class: XI
Subject: Physics

MONTH	CHAPTERS (NCERT TEXT BOOK)	CONTENT
April	**Chapter–1: Units and Measurements**	Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. significant figures. Dimensions of physical quantities, dimensional analysis and its applications.
	Chapter–2: Motion in a Straight Line	Frame of reference, Motion in a straight line, Elementary concepts of differentiation and integration for describing motion, uniform and non- uniform motion, and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment).
May	**Chapter–3: Motion in a Plane**	Scalar and vector quantities; position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors, Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors. Motion in a plane, cases of uniform velocity and uniform acceleration, projectile motion, uniform circular motion.
	Chapter–4: Laws of Motion	Intuitive concept of force, Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications.1 Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication.

		Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road).
July	**Chapter–4: Laws of Motion (cont'd)**	Intuitive concept of force, Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications.1 Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road).
	Chapter–5: Work, Energy and Power	Work done by a constant force and a variable force; kinetic energy, work energy theorem, power. Notion of potential energy, potential energy of a spring, conservative forces: non- conservative forces, motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.
August	**Chapter–6: System of Particles and Rotational Motion**	Centre of mass of a two-particle system, momentum conservation and Centre of mass motion. Centre of mass of a rigid body; centre of mass of a uniform rod. Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications. Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions. Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (no derivation).
September	**Chapter–7: Gravitation**	Kepler's laws of planetary motion, universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential, escape velocity, orbital velocity of a satellite.
October	**Chapter–8: Mechanical Properties of Solids**	Elasticity, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity (qualitative idea only), Poisson's ratio; elastic energy.
	Chapter–9: Mechanical Properties	Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes), effect

	of Fluids	of gravity on fluid pressure. Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its simple 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.
November	**Chapter–10: Thermal Properties of Matter**	Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; Cp, Cv - calorimetry; change of state - latent heat capacity. Heat transfer, conduction, convection and radiation, thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law.
	Chapter–11: Thermodynamics	Thermal equilibrium and definition of temperature zeroth law of thermodynamics, heat, work and internal energy. First law of thermodynamics, second law of thermodynamics: gaseous state of matter, change of condition of gaseous state -isothermal, adiabatic, reversible, irreversible, and cyclic processes.
December	**Chapter–12: 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.
	Chapter–13: Oscillations	Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their application. Simple harmonic motion (S.H.M) and its equations of motion; 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.
January	**Chapter–13: Oscillations (cont'd)**	Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their application. Simple harmonic motion (S.H.M) and its equations of motion; phase; oscillations of a loaded spring- restoring force and force constant; energy in

	Chapter–14: Waves	S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period. 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, fundamental mode and harmonics, Beats.
February	**Revision**	
March	**Annual Exams**	

ASSESSMENT SYLLABUS	
PERIODIC ASSESSMENT -1	Chapter–1: Units and Measurements Chapter–2: Motion in a Straight Line Chapter–3: Motion in a Plane
TERM -1 EXAM	Chapter–1: Units and Measurements Chapter–2: Motion in a Straight Line Chapter–3: Motion in a Plane Chapter–4: Laws of Motion Chapter–5: Work, Energy and Power Chapter–6: System of Particles and Rotational Motion
PERIODIC ASSESSMENT -2	Chapter–7: Gravitation Chapter–8: Mechanical Properties of Solids Chapter–9: Mechanical Properties of Fluids
TERM -2 EXAM	Chapter–1: Units and Measurements Chapter–2: Motion in a Straight Line Chapter–3: Motion in a Plane Chapter–4: Laws of Motion Chapter–5: Work, Energy and Power Chapter–6: System of Particles and Rotational Motion Chapter–7: Gravitation Chapter–8: Mechanical Properties of Solids Chapter–9: Mechanical Properties of Fluids Chapter–10: Thermal Properties of Matter Chapter–11: Thermodynamics Chapter–12: Oscillations Chapter–13: Kinetic Theory Chapter–14: Waves