SYLLABUS BREAK -UP [PHYSICS]
CLASS: XI [SESSION 2026-27]
BOOK: PHYSICS [NCERT]

S.N	CHAPTER	SUB TOPICS	PERIODS
		20th April 2026 to 26th May 2026	
	Unit I **Chapter–1: Units and Measurements**	Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. significant figures.	**6**
		Dimensions of physical quantities, dimensional analysis and its applications	**6**
		1st July 2026 to 08th Sep 2026	
	Unit II: Kinematics **Chapter–3: 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, average speed and average velocity and instantaneous velocity,	**4**
		Uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical and calculus treatment)	**4**
		Scalar and vector quantities: Position and displacement vectors, general vectors and their notations; equality of vectors	**4**
		Multiplication of vectors by a real number; addition and subtraction of vectors,	**4**
		Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors.	**4**
	Chapter–4: Motion in a Plane	**Motion in a plane**: cases of uniform velocity and uniform acceleration	**4**
		Projectile motion, uniform circular motion.	**4**
	CYCLE TEST I **Unit II: Units and Dimensions** **Unit II: Kinematics (Till Parallelogram law of vector addition)**		
	Unit III: Laws of Motion **Chapter–5: 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.	**3**
		Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication.	**7**
		Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road).	**7**
	Unit IV: Work, Energy and Power Chapter–6: Work, Energy and Power	Work done by a constant force and a variable force; kinetic energy, work- energy theorem, power.	**3**
		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.	**7**

HALF YEARLY EXAMINATION **Unit–1: Units and Measurements** **Unit II: Kinematics** **Unit III: Laws of Motion** **Unit IV: Work, Energy and Power**			
1st Oct 2026 to 15th Dec 2026			
	Unit VI: Gravitation **Chapter–8: Gravitation**	Kepler's laws of planetary motion, universal law of gravitation.	**2**
		Acceleration due to gravity and its variation with altitude and depth.	**3**
		Gravitational potential energy and gravitational potential, escape velocity,	**3**
		orbital velocity of a satellite, energy of an orbiting satellite.	**2**
	Unit V: Motion of System of Particles and Rigid Body **Chapter–7: 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.	**3**
		Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications	**4**
		Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions.	**3**
		Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (no derivation).	**3**
CYCLE TEST I TERM II **Unit V: Motion of System of Particles and Rigid Body** **Unit VI: Gravitation**			
15th Dec 2026 to 31st Jan 2027			
	Unit VII: Properties of Bulk Matter Chapter–9: 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. Application of elastic behavior of materials (qualitative idea only).	**3**
	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.	**4**
		Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity,	**5**
		Bernoulli's theorem and its simple applications. (Torricelli's law and Dynamic lift)	**4**
		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.	**5**
	Chapter–11: 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	**5**

		radiation, Wein's displacement Law, Stefan's law	
	Unit VIII: Thermodynamics **Chapter–12: Thermodynamics**	Thermal equilibrium and definition of temperature, zeroth law of thermodynamics, heat, work and internal energy. First law of thermodynamics, Second law of thermodynamics: Thermodynamic state variable and equation of state. Change of condition of gaseous state - isothermal, adiabatic, reversible, irreversible, and cyclic processes.	**7**
	Unit IX: Behavior of Perfect Gases and Kinetic Theory of Gases **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.	**5**
	Unit X: Oscillations and Waves **Chapter–14: Oscillations**	Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their application.	**4**
		Simple harmonic motion (S.H.M) and its equations of motion; phase; oscillations of a loaded spring-restoring force and force constant;	**4**
		Energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period.	**4**
	Chapter–15: Waves	Wave motion: Transverse and longitudinal waves, speed of travelling wave, displacement relation for a progressive wave	**2**
		Principle of superposition of waves, reflection of waves	**3**
		Standing waves in strings and organ pipes fundamental mode and harmonics	**3**
		Beats.	**1**
EXTRA CLASSES MAY BE CONDUCTED AS PER REQUIREMENT.			

LIST OF EXPERIMENTS

1. **To measure internal diameter and depth of a given beaker/calorimeter using Vernier Callipers and hence find its volume.**
2. **To measure diameter of a given wire using screw gauge and hence find its volume.**
3. **To find the weight of a given body using parallelogram law of vectors.**
4. **To find the acceleration due to gravity, using a simple pendulum.**
5. **To find the force constant of a helical spring by plotting a graph between load and extension.**
6. **To determine the frequency of given tuning fork using a sonometer.**
7. **To determine mass of a given body using a metre scale by principle of moments.**
8. **To determine the atmospheric pressure using Fortin's Barometer.**