

ACADEMIC PLANNER ,CLASS XI; Physics.(2025-2026)

DAY/DATE	chapter/contents	Learning outcome	Mode of assessment	No. of Assignments /H.W	Teaching pedagogy	INTERDISCIPLINARY	21st CENTURY	Activities/practicals
April	Bridge course program							
1--15 (10 days)								
April 16--30 (12 days)	Chapter–1: Units and Measurements Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. significant figures, Determining the uncertainty in result. Dimensions of physical quantities, dimensional analysis and its applications.	uses International system of units (SI Units), symbols, nomenclature of physical quantities and formulations,	Test (based on conceptual question and numericals)	T numericals(examples and conceptual questions) Hw: Assignment of electrostatics	Visualization & Demonstration	Physics & Mathematics: The Language of Measurement	Critical Thinking & Problem-Solving	To measure diameter of a small spherical/cylindrical body and to measure internal diameter
May (1-15) (11 days)	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, average speed and average velocity and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical and calculus treatment)	differentiates between certain physical quantities; such as, between distance and displacement; speed and velocity; rectilinear and curvilinear motions;	Class test -ii, test of (Derivation & numerical based)	Cw:N.C.E.R.T. examples & questions will be done	Conceptual Clarity & Active Learning	Physics & Mathematics: The Language of Motion Concepts Integrated: Differentiation & Integration →	Ethical & Environmental Awareness	To measure diameter of a given wire and thickness of a given sheet using screw gauge.

May (16-25) (08 days)	RECAPITULATION							
July (1-15) (12 days)	Chapter–3: Motion in a Plane Scalar and vector quantities; position and displacement vectors, general vectors and their notations; equality of vectors, 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.	explains processes, phenomena and laws with the understanding of the relationship between nature and matter on scientific basis;	M.C.Q.based on numericals related	Hw:N.C.E.R.	Problem-Solving Techniques	Physics & Biology: Biomechanics & Locomotion and Projectile	Critical Thinking & Problem-Solving	To find the weight of a given body using parallelogram law of vectors.
July (16-31) (14 days)	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. 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).	explains processes, phenomena and laws with the understanding of the relationship between nature and matter on scientific basis; such as, various laws such as laws of motion, friction, lubrication,	Test of law of motion.	Cw:NCERT questions will be done Assignment will be given at the end of chapter	Mathematical Rigor & Concept Application	. Physics & Chemistry: Molecular Forces and Motion	Creativity and Collaboration	To measure the force of limiting friction for rolling of a roller on a horizontal plane

August (1--15) (11 days)	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.	derives formulae and equations, such as, potential energy of a spring, proof of work-energy theorem for a variable force,	quiz will be	Cw: Conceptual questions & numericals	Lab Experiments & Hands-On Learning	Physics & Chemistry: Energy Transformations in Reactions	Productivity & Time Management	To make a paper scale of given least count, e.g., 0.2cm, 0.5 cm.
August (16--31) (12 days)	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)	exhibits creativity and out-of-the-box thinking in solving challenging physics problems; such as, minimum speed required by motorcyclist at the uppermost position to perform a vertical loop in a death well .	test on N.P.	Cw: NCERT & extra questions will be done	Visualization & Demonstration	Physics & Engineering: Machine Dynamics & Structural Analysis	Research & Analytical Skills	To study the conservation of energy of a ball rolling down on an inclined plane (using a double inclined plane).
Sept. (1--15) (11 days)	Revision							

Sept. (16--30) (12days)								
	HALF YEARLY EXAM.							
Oct. (1--15) (08days)	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 speed, orbital velocity of a satellite, energy of an orbiting satellite.	takes initiative to learn about the newer researches, discoveries and inventions in physics; such as, about space programme of India and other countries.	Test of gravitation .	Hw:Assignme	Motivation & Career Awareness	Physics & Biology: Gravity's Influence on Life & Evolution	Research & Analytical Skills	To study variation of time period of a simple pendulum of a given length by taking bobs of same size but different masses and interpret the result.
Oct. (16--31) (10days)	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. Application of elastic behavior of materials (qualitative idea only).	recognises different processes applications; such as, knowledge of strength of materials used for structural design of columns, beams	Class test based on modulus of elasticity.	Hw:assignm end of chapter	story telling	Physics & Economics : Cost vs. Performance in Material Selection	Flexibility & Adaptability	To study the effect of load on depression of a suitably clamped metre scale loaded at (i) its end (ii) in the middle.

Nov. (1--15) (11days)	Chapter–9: 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 simple applications (Torricelli's law and Dynamic lift)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.	applies concepts of physics in daily life with reasoning while decision-making and solving problemsduring blood transfusion the height at which the blood container be placed so that blood may just enter the vein through the needle inserted in vein;	Class test based on derivation.	Hw:assignment of chapter	Assessment & Feedback	Physics & Biology: Fluid Mechanics in Living Systems	Innovation & Creativity	To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given spherical body.
Nov. (16--31) (12days)	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.	analyses and interprets data, graphs, and figures, and draws conclusion; such as, isothermal and adiabatic processes from P-V curves;	quiz will be conducted	Hw:Assignment of chapter	Relating Physics with Other Disciplines	Physics & Chemistry: Molecular Interactions in Heat Transfer	Innovation & Creativity	To observe and explain the effect of heating on a bi-metallic strip

Dec (1--15) (12days)	Chapter–13: Oscillations Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their applications. Simple harmonic motion (S.H.M), uniform circular motion 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.	derives formulae and equations, such as, energy of a particle executing SHM.	class test will be conducted.	Topics will be taught through class projects, experiments, examples, etc. Activities will be conducted through multisensory modes before explaining	Visualization & Demonstration	Physics & Mathematics: The Analytical Framework	Research & Analytical Skills	To study the effect of detergent on surface tension of water by observing capillary rise.
Dec (16--31) (13days)	Chapter–14: 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, fundamental mode and harmonics, Beats	recognises the concepts of Physics related to various natural phenomena; such as, simple harmonic motion, greenhouse effect, variation in speed of sound in different media.	assessment based on peer group learning.	Hw:assignment end of chapter	Visualization & Demonstration	Physics & Chemistry: Molecular Behavior and Wave Phenomena	Critical Thinking & Problem-Solving	To study the relation between the length of a given wire and tension for constant frequency using sonometer.

Jan (16--31) (13days)	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: Thermodynamic state variable and equation of state. Change of condition of gaseous state - isothermal, adiabatic, reversible, irreversible, and cyclic processes. 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	realises and appreciates the interface of Physics with other disciplines; such as, mechanism of conversion of heat into work for different heat engines; develops positive scientific attitude, and appreciates the role and impact of Physics and technology towards the improvement of quality of life and human welfare,	quiz will be conducted	Hw:assignment end of chapter	Relating Physics with Other Disciplines	Physics & Engineering: Energy Efficiency & Technology Applications	Innovation & Creativity	To study the relationship between the temperature of a hot body and time by plotting a cooling curve
			REVISION					
	Unit test I	Chapter 1-2						
	Half Yearly Exam.	Chapter 1-5						
	Unit test II	Chapter 6,7,8						
	Annual Examination	Complete Syllabus.						