



EVALUATION SCHEME		
Theory		
Unit-I	Physical World and Measurement	Marks
	Chapter-2: Units and Measurements	23
Unit-II	Kinematics	
	Chapter-3: Motion in a Straight Line	
	Chapter-4: Motion in a Plane	
Unit-III	Laws of Motion	
	Chapter-5: Laws of Motion	
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	Chapter-6: Work, Energy and Power	
Unit-V	Motion of System of Particles and Rigid Body	
	Chapter-7: System of Particles and Rotational Motion	
Unit-VI	Gravitation	
	Chapter-8: Gravitation	
Unit-VII	Properties of Bulk Matter	
	Chapter-9: Mechanical Properties of Solids	20
	Chapter-10: Mechanical Properties of Fluids	
	Chapter-11: Thermal Properties of Matter	
Unit-VIII	Thermodynamics	
	Chapter-12: Thermodynamics	
Unit-IX	Behavior of Perfect Gases and Kinetic Theory of Gases	
	Chapter-13: Kinetic Theory	
Unit-X	Oscillations and Waves	10
	Chapter-14: Oscillations	
	Chapter-15: Waves	
Total		70

Evaluation Scheme

Unit / Month	Chapters/ Learning Outcomes	Practical and Competency Skill Based Activities/ Experiential Learning	Skills	Assessments
Unit I (April)	<p>Chapter 2-Units and Measurements Students will be able to:</p> <ul style="list-style-type: none"> ● Discuss: Need for measurement: Units of measurement. ● Analyze: Systems of units; SI units, fundamental and derived units. Significant figures. ● Explain: Determining the uncertainty in result. Dimensions of physical quantities, dimensional analysis and its applications. 	<ul style="list-style-type: none"> ● To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Calipers and hence find its volume. ● To measure diameter of a given wire and thickness of a given sheet using screw gauge. ● To determine volume of an irregular lamina using screw gauge ● To determine radius of curvature of a given spherical surface by a spherometer ● To determine the mass of two different objects using a beam balance. 	<p>Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills</p> <p>Practical and technical skills: Experimentation, use of tools and technology, recording data</p> <p>Communication skills: Scientific communication</p> <p>Emotional and social development: Curiosity and exploration</p> <p>Academic and career readiness: Scientific literacy, interdisciplinary learning</p>	Oral Test/ Class test/ Quizzes / lab activity
Unit 2 (May)	<p>Chapter 3-Motion in a straight line Students will be able to:</p> <ul style="list-style-type: none"> ● Explain: Frame of reference, Motion in a straight line, Elementary concepts of differentiation and integration for describing motion. ● Differentiate: Uniform and non- uniform motion, average speed and velocity and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs. ● Discuss: Relations for uniformly accelerated motion (graphical and calculus treatment). <p>Chapter-4: Motion in a Plane Students will be able to:</p> <ul style="list-style-type: none"> ● Explain: Scalar and vector quantities; position and displacement vectors, general vectors and their notations. ● Discuss: Equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors, Unit vector. ● Analyze: Resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors. ● Define: Motion in a plane, cases of uniform velocity and uniform acceleration projectile motion, uniform circular motion. 	<ul style="list-style-type: none"> ● To find the weight of a given body using parallelogram law of vectors ● Using a simple pendulum, plot its L-T graph and use it to find the effective length of second's pendulum. ● 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. 	<p>Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills</p> <p>Practical and technical skills: Experimentation, use of tools</p> <p>Communication skills: Scientific communication</p> <p>Emotional and social development: Curiosity and exploration, responsibility and ethics</p> <p>Academic and career readiness: Scientific literacy</p>	Oral Test/ Class test/ Quizzes / lab activity

Unit 3 (May-June)	Chapter 5- Laws of Motion Students will be able to: <ul style="list-style-type: none"> ● Explain: Intuitive concept of force, Inertia, Newton's first law of motion; momentum. ● Discuss: Newton's second law of motion; impulse; Newton's third law of motion. ● Analyze: Law of conservation of linear momentum and its applications. Equilibrium of concurrent forces, static and kinetic friction. Laws of friction, rolling friction, lubrication. ● Define: Dynamics of uniform circular motion: Centripetal force, Examples of circular motion(vehicle on a level circular road, vehicle on a banked road). 	<ul style="list-style-type: none"> ● To find the downward force, along an inclined plane, acting on a roller due to the gravitational pull of the earth and study its relationship with the angle of inclination θ by plotting a graph between force and $\text{Sin}\theta$. 	Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills Practical and technical skills: Experimentation Communication skills: Scientific communication Emotional and social development: Curiosity and exploration Academic and career readiness: Scientific literacy	Oral Test/ Class test/ Quizzes / Lab Activity
Unit 4 (June-July)	Chapter 6-Work, Energy and Power Students will be able to: <ul style="list-style-type: none"> ● Explain: Work done by a constant force and a variable force; kinetic energy. ● Discuss: Work energy theorem, power. Notion of potential energy, potential energy of a spring, conservative forces: non- conservative forces, motion in a vertical circle. ● Differentiate: Elastic and inelastic collisions in one and two dimensions. 		Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills Communication skills: Scientific communication, listening and interpretation Emotional and social development: Curiosity and exploration Academic and career readiness: Scientific literacy	Oral Test/ Class test/ Quizzes / lab activity
Unit 5 (July-August)	Chapter 7-System of Particles and Rotational Motion Students will be able to: <ul style="list-style-type: none"> ● Explain: Centre of mass of a two-particle system, momentum conservation and Centre of mass motion. ● Discuss: Centre of mass of a rigid body; centre of mass of a uniform rod. Moment of a force, torque, angular momentum. ● Define: 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. ● Differentiate: Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (no derivation). 		Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills Communication skills: Scientific communication Emotional and social development: Curiosity and exploration Academic and career readiness: Scientific literacy	Oral Test/ Class test/ Quizzes / lab activity

<p>Unit 6 (August)</p>	<p>Chapter 8- Gravitation Students will be able to:</p> <ul style="list-style-type: none"> ● Explain: Kepler's laws of planetary motion, universal law of gravitation. ● Discuss: Acceleration due to gravity and its variation with altitude and depth. ● Differentiate: Gravitational potential energy and gravitational potential, escape speed, orbital velocity of a satellite, energy of an orbiting satellite. 		<p>Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills</p> <p>Communication skills: Scientific communication</p> <p>Emotional and social development: Curiosity and exploration</p> <p>Academic and career readiness: Scientific literacy, interdisciplinary learning</p>	<p>Oral Test/ Class test/ Quizzes / lab activity</p>
<p>Unit 7 (Sep)</p>	<p>Chapter 9 -Mechanical Properties of Solids Students will be able to:</p> <ul style="list-style-type: none"> ● Explain: Elasticity, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus. ● Discuss: shear modulus of rigidity (qualitative idea only), Poisson's ratio; elastic energy, application of elastic behaviour of materials (qualitative idea only) <p>Chapter 10:Mechanical Properties of Fluids Students will be able to:</p> <ul style="list-style-type: none"> ● Explain: 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. ● Differentiate: Streamline and turbulent flow, critical velocity, Bernoulli's theorem and its simple applications(Torricelli's law and dynamic lift) ● Discuss: 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. <p>Chapter 11:Thermal Properties of Matter Students will be able to:</p> <ul style="list-style-type: none"> ● Explain: Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gasses, anomalous expansion of water; specific heat capacity; Cp, Cv - calorimetry. ● Discuss: Change of state - latent heat capacity. Heat transfer-conduction, convection and radiation. ● Analyze: thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law. 	<ul style="list-style-type: none"> ● To determine Young's modulus of elasticity of the material of a given wire. ● To find the force constant of a helical spring by plotting a graph between load and extension. ● To study the variation in volume with pressure for a sample of air at constant temperature by plotting graphs between P and V, and between P and 1/V. ● To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given spherical body. 	<p>Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills</p> <p>Practical and technical skills: Experimentation, use tools, recording data</p> <p>Communication skills: Scientific communication</p> <p>Emotional and social development: Curiosity and exploration</p> <p>Academic and career readiness: Scientific literacy</p>	<p>Oral Test/ Class test/ Quizzes / lab activity</p> <p>Oral Test/ Class test/ Quizzes / lab activity</p>

<p>Unit 8 (Sep-Oct)</p>	<p>Chapter 12-Thermodynamics Students will be able to:</p> <ul style="list-style-type: none"> ● Define: Thermal equilibrium and definition of temperature, zeroth law of thermodynamics. ● Explain: heat, work and internal energy. First law of thermodynamics. ● Discuss: Second law of thermodynamics: gaseous state of matter, thermodynamic state variable and equation of state, change of condition of gaseous state -isothermal, adiabatic, reversible, irreversible, and cyclic processes. 	<ul style="list-style-type: none"> ● To study the relationship between the temperature of a hot body and time by plotting a cooling curve. ● To determine specific heat capacity of a given solid by method of mixtures. 	<p>Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills</p> <p>Practical and technical skills: Experimentation, use of tools and technology</p> <p>Communication skills: Scientific communication</p> <p>Emotional and social development: Curiosity and exploration</p> <p>Academic and career readiness: Scientific literacy, interdisciplinary learning</p>	<p>Oral Test/ Class test/ Quizzes / lab activity</p>
<p>Unit 9 (Oct-Nov)</p>	<p>Chapter 13-Kinetic Theory Students will be able to:</p> <ul style="list-style-type: none"> ● Describe: Equation of state of a perfect gas, work done in compressing a gas. Kinetic theory of gases - assumptions. ● Explain: concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; ● Discuss: Degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases. ● Define: Concept of mean free path, Avogadro's number. 		<p>Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills</p> <p>Communication skills: Scientific communication</p> <p>Emotional and social development: Curiosity and exploration</p> <p>Academic and career readiness: Scientific literacy</p>	<p>Oral Test/ Class test/ Quizzes / lab activity</p>
<p>Unit 10 (Nov--Dec)</p>	<p>Chapter 14: Oscillations Students will be able to:</p> <ul style="list-style-type: none"> ● Discuss: Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their application. ● Explain: Simple harmonic motion (S.H.M), uniform circular motion and its equations of motion; phase. ● Analyze: Oscillations of a loaded spring-restoring force and force constant; energy in S.H.M. Kinetic and potential energies. ● Define: Simple pendulum derivation of expression for its time period. <p>Chapter-15: Waves Students will be able to:</p> <ul style="list-style-type: none"> ● Explain: Wave motion: Transverse and longitudinal waves. ● Discuss: Speed of traveling wave, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves. ● Define: Standing waves in strings and organ pipes, fundamental mode and harmonics, Beats. 	<ul style="list-style-type: none"> ● To study the relation between frequency and length of a given wire under constant tension using sonometer ● To study the relation between the length of a given wire and tension for constant frequency using sonometer. ● To find the speed of sound in air at room temperature using a resonance tube by two resonance positions. 	<p>Cognitive skills: Critical thinking, problem solving, observation and analysis, research skills</p> <p>Practical and technical skills: Experimentation, use of tools</p> <p>Communication skills: Scientific communication</p> <p>Emotional and social development: Curiosity and exploration</p> <p>Academic and career readiness: Scientific literacy</p>	<p>Oral Test/ Class test/ Quizzes / lab activity</p> <p>Oral Test/ Class test/ Quizzes / lab activity</p>

Practical Evaluation Scheme

Two experiments one from each section	7 +7 marks
Practical record [experiments and activities]	5 marks
One activity from any section	3 marks
Investigatory Project	3 marks
Viva on experiments, and activities	5 marks
Total	30 marks