

Curriculum Subject: Physics (042) Session: 2022-23 Class - XI

	EVALUATION SCHEME	
	Theory	
Unit–I	Physical World and Measurement	Marks
	Chapter–2: Units and Measurements	
Unit-II	Kinematics	
	Chapter–3: Motion in a Straight Line	
	Chapter–4: Motion in a Plane	23
Unit–III	Laws of Motion	
	Chapter–5: Laws of Motion	
Unit-IV	Work, Energy and Power	
	Chapter–6: Work, Energy and Power	
Unit–V	Motion of System of Particles and Rigid Body	
	Chapter–7: System of Particles and Rotational Motion	17
Unit-VI	Gravitation	
	Chapter–8: Gravitation	
Unit-VII	Properties of Bulk Matter	
	Chapter–9: Mechanical Properties of Solids	
	Chapter–10: Mechanical Properties of Fluids	
	Chapter–11: Thermal Properties of Matter	
Unit-VIII	Thermodynamics	20
	Chapter–12: Thermodynamics	
Unit-IX	Behaviour of Perfect Gases and Kinetic Theory of Gases	
	Chapter–13: Kinetic Theory	
Unit–X	Oscillations and Waves	
	Chapter–14: Oscillations	10
	Chapter–15: Waves	10
	Total	70

Unit / Month	Chapter Number and Name	Practical and Competency Skill Based Activities/ Experiential Learning	Skills	Assessments
Unit I (May-June)	 Chapter 2-Units and Measurements Students will be able to: Understand: Need for measurement: Units of measurement. Analyze: systems of units; SI units, fundamental and derived units. significant figures. Explain: Dimensions of physical quantities, dimensional analysis and its applications. 	 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. 	Knowledge, Understanding, Application, Analysis and Evaluation	Oral Test/ Class test/ Quizzes / lab activity
Unit 2 (June)	 Chapter 3-Motion in a straight line Students will be able to: Explain: Frame of reference, Motion in a straight line, Elementary concepts of differentiation and integration for describing motion. Differentiate: uniform and non- uniform motion, and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs. Understand: Relations for uniformly accelerated motion (graphical treatment). Chapter-4: Motion in a Plane Students will be able to: Explain:Scalar and vector quantities; position and displacement vectors, general vectors and their notations. Understand: 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. 	6. To find the weight of a given body using parallelogram law of vectors 7. Using a simple pendulum, plot its L-T2 graph and use it to find the effective length of second's pendulum. 8. 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.	Knowledge, Understanding, Application, Analysis and Evaluation	Oral Test/ Class test/ Quizzes / lab activity
Unit 3 (July)	Chapter 5- Laws of Motion Students will be able to: Explain: Intuitive concept of force, Inertia, Newton's first law of motion; momentum. Understand: Newton's second law of motion; impulse; Newton's third law of motion. Analyze: Law of conservation of linear momentum and its applications.	 9.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. 10.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 Sinθ. 	Knowledge, Understanding,A pplication, Analysis and Evaluation	Oral Test/ Class test/ Quizzes / Lab Activity
Unit 4 (July-August)	 Chapter 6-Work, Energy and Power Students will be able to: Explain: Work done by a constant force and a variable force; kinetic energy. Understand: 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. 		Knowledge, Understanding,A pplication, Analysis and Evaluation	Oral Test/ Class test/ Quizzes / lab activity

Unit 5 (August) Chapter 7-System of Particles and Rotational Motion students will be able to: Explain: Centre of mass of a two-particle system, momentum conservation and Centre of mass of a uniform rod. Moment of a force, torque, angular momentum. Define: law of conservation of angular momentum and its spipications. 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). Unit 6 (September) Unit 7 (Sep-Oct) Explain: Elasticity, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus. Understand: Stear modulus of rigidity (qualitative idea only), Poisson's ratio; elastic energy. Chapter 10:Mechanical Properties of Fluids Students will be able to: Explain: Pressure due to a fluid column; Pascal's law and its applications, swill be able to: Explain: Pressure due to a fluid column; Pascal's law and its applications (hydraulic ifft and hydraulic brakes), effect of gravity on fluid pressure. Viscosity, Stokes law, terminal velocity. Differentiate: streamline and turbulent flow, critical explains and the paplications. Understand: Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, and so drops wis contact, excess of pressure across a curved surface, application of surface tension ideas to drops, and so drops wis contact, excess of pressure across a curved surface, application of surface tension ideas to drops, and so drops wis contact, excess of pressure across a curved surface, application of surface tension ideas to drops, and so drops wis contact temperature by plotting graph between P and 1/V. 10. To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given viscous liquid by
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bubbles and capillary rise.
Chapter 11:Thermal Properties of Matter Knowledge,
Students will be able to: Understanding Oral Test/
• Explain: Heat, temperature, thermal expansion; Application. Class test/
thermal expansion of solids, liquids and gasses, Analysis and Quizzes /
anomalous expansion of water; specific heat Evaluation lab activity
capacity; Cp, Cv - calorimetry.
Understand: ; change of state - latent heat capacity.
Heat transfer-conduction, convection and radiation.
Analyze: thermal conductivity, qualitative ideas of Plealth advers disting. Moister distinguished assessment Lawy.
Blackbody radiation, Wein's displacement Law,
Stefan's law. Unit 8 Chapter 12-Thermodynamics 15.To study the relationship between Knowledge, Oral Test/
Unit 8 Chapter 12-Thermodynamics 15.To study the relationship between (November) Students will be able to: 15.To study the relationship between the temperature of a hot body and Understanding, Class test/
• Define:Thermal equilibrium and definition of time by plotting a cooling curve. Application, Quizzes /
temperature zeroth law of. 16.To determine specific heat capacity Analysis and lab activity
• Explain: tThermodynamics, heat, work and internal of a given solid by method of Evaluation
energy. First law of thermodynamics.
• Understand: Second law of thermodynamics: gaseous
state of matter, change of condition of gaseous state
-isothermal, adiabatic, reversible, irreversible, and
cyclic processes.

Unit 9 (November)	Chapter 13-Kinetic Theory Students will be able to: 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; Understand: 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.		Knowledge, Understanding, Application, Analysis and Evaluation	Oral Test/ Class test/ Quizzes / lab activity
Unit 10 (November)	Chapter 14: Oscillations Students will be able to: Understand:Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their application. Explain:Simple harmonic motion (S.H.M) 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.	17.To study the relation between frequency and length of a given wire under constant tension using sonometer 18.To study the relation between the length of a given wire and tension for constant frequency using sonometer 19.To find the speed of sound in air at room temperature using a resonance tube by two resonance positions.	Knowledge, Understanding, Application, Analysis and Evaluation	Oral Test/ Class test/ Quizzes / lab activity
	 Chapter–15: Waves Students will be able to: Explain: Wave motion: Transverse and longitudinal waves. Understand: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. 		Knowledge, Understanding, Application, Analysis and Evaluation	Oral Test/ Class test/ Quizzes / lab activity

Evaluation Scheme

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			