KLE ENGLISH MEDIUM SCHOOL

JULE SOLAPUR

SYLLABUS SPLIT 2023 - 24

PHYSICS

SR.NO	MONTH	UNIT/SUBUNIT	VALUES	ACTIVITIES/PROJECT	EXAM
1	JULY	UNIT 1- physical world and measurements Chapter–2: 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.	The Objective of this chapter is to make the learners aware of basic fundamentals and derived quantities of Physics.	a small spherical/cylindrical body using Vernier callipers. (2)To measure internal diameter and depth of a given beaker/calorimeter using Vernier callipers and hence find its volume. (3)To measure diameter of	
2	JULY	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, and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment). Chapter–4: Motion in a Plane	The students should have scientific temper	To find the weight of a given body using parallelogram law of vectors. Field study to see different types of projectile motion.	
3	AUGUST	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. 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). Unit IV: Work, Energy and Power. Chapter–6: Work, Energy and Power Work done by a constant force and a variable force; kinetic energy, workenergy theorem, power. Notion of potential energy, potential energy of a spring, conservative forces:	The students should have scientific temper	To study the relationship between force of limiting friction and normal reaction and to find the coefficient of friction between a block and a horizontal surface	

4	**SEPTEMBER**	**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.** **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** **Unit VI: Gravitation.** **Chapter–8: 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**	**The students should have scientific temper**	**Lab activity**	**Periodic Test-2**
6	**NOVEMBER**	**Unit VII: Properties of Bulk Matter 24 Periods** **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.** **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.** **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**	**The students should have scientific temper**	**To determine Young's modulus of elasticity of the material of a given wire**	

7	DECEMBER	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: gaseous state of matter, change of condition of gaseous state -isothermal, adiabatic, reversible, irreversible, and cyclic processes. 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.	The students should have scientific temper	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.	
8	JANUARY	Unit X: Oscillations and Waves Chapter–14: 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. Chapter–15: 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.	The students should have scientific temper	Lab activity	
9	FEBRUARY	REVISION			
10	MARCH	ALL CHAPTERS ARE FOR TERM-2 EXAMINATION			