KLE ENGLISH MEDIUM SCHOOL
JULE SOLAPUR
GRADE- XII SYLLABUS SPLIT 2023-24

SUBJECT: PHYSICS

Sr.No	Month	Unit/Subunit	Values	Activities	Examination
1	APRIL/JUNE	Unit I: Electrostatics Chapter–1: Electric Charges and Fields Electric charges, Conservation of charge, Coulomb's law-force between twopoint charges, forces between multiple charges; superposition principle and continuous charge distribution.Electric field, electric field due to a point charge, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field. Electric flux, statement of Gauss's theorem and its applications to find fielddue to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside). Chapter–2: Electrostatic Potential and Capacitance Electric potential, potential difference, electric potential due to a point charge,a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two-point charges and of electric dipole in an electrostatic field.Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance,combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor	The students should have scientific temper	Lab activity	
2	JULY	**Chapter–3: Current Electricity** Electric current, flow of electric charges in a metallic conductor, drift velocity,mobility and their relation with electric current; Ohm's law, V-I characteristics electrical energy and power, electrical resistivity and conductivity, temperature dependence of resistance, Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel, Kirchhoff's rules, Wheatstone bridge. **Chapter–4: Moving Charges and Magnetism** Concept of magnetic field, Oersted's experiment.Biot - Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long straight wire. Straight solenoid (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields.Force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors-definition of ampere, torque experienced by a current loop in uniform magnetic field; Current loop as a magnetic dipole and its magnetic dipole moment, moving coil galvanometerits current sensitivity and conversion to ammeter and voltmeter	The students should have scientific temper	Lab activity	
3	AUGUST	**Chapter–5: Magnetism and Matter** Bar magnet, bar magnet as an equivalent solenoid , magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitativetreatment only), magnetic field lines. **Chapter–6: Electromagnetic Induction** Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Self and mutual induction	The students should have scientific temper	LAB ACTIVITY	
		Chapter–7: Alternating Current Alternating currents, peak and RMS value of alternating current/voltage;reactance and impedance; LCR series circuit (phasors only), resonance power in AC circuits, power factor, wattless current AC generator			

4	**SEPTEMBER**	series circuit (phasors only), resonance,power in AC circuits, power factor, wattless current.AC generator, Transformer. **Chapter–8: Electromagnetic Waves** Basic idea of displacement current, Electromagnetic waves, their characteristics, their transverse natureElectromagnetic spectrum including elementary facts about their uses. **Chapter–9: Ray Optics and Optical Instruments** Ray Optics: Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism.Optical instruments: Microscopes and astronomical telescopes (reflecting and	The students should have scientific temper	LAB ACTIVITY	**Periodic test-2**	
5	**OCTOBER 10 P**	**Optixcal instrunments: Telescope and astronimical telescope**	The students sh	LAB ACTIVIT	**Periodic test-2**	
6	**NOVEMBER**	**Chapter–10: Wave Optics** Wave optics: Wave front and Huygen's principle, reflection and refraction ofplane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference, Young's double slit experiment and expression for fringe width coherent sources and sustained interference of light. **Chapter–11: Dual Nature of Radiation and Matter** Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light. Experimental study of photoelectric effect Matter waves-wave nature of particles, de-Broglie relation.	The students should have scientific temper	LAB TY		
7	**DECEMBER**	**Chapter–12: Atoms** Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of nth possible orbit, velocity and energy of electron in his orbit, of hydrogen line spectra. **Chapter–13: Nuclei** Composition and size of nucleus, nuclear force Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion. **Chapter–14: Semiconductor Electronics:** Materials, Devices and Simple Circuits Energy bands in conductors, semiconductors and insulators Intrinsic and extrinsic semiconductors- p and n type, p-n junction Semiconductor diode - I-V characteristics in forward and reverse bias	The students should have scientific temper	LAB ACTIVITY		
		CHAPTER 1-14 FOR CBSE BOARD EXAMINATION				