

**CLASS XII
PHYSICS
COURSE STRUCTURE**

S. NO.	MONTH	DATE	DAYS	TOPIC
1.	APRIL	1-3	2	Unit I:- ELECTROSTATICS Electric charges, Conservation of charges, Coulomb's Law: Force between two points charges, forces between multiple charges, Superposition Principle.
2.		5-9	5	Continuous charge distribution. Electric field, electric field due to a point charge electric field lines, electric dipole, electric field due to dipole; torque on a dipole in uniform electric field. Electric flux, statement of Gauss Theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell(field inside and outside)
3.		12-17	6	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, Dielectric and electric polarization ,Capacitors and Capacitance, combination of capacitances in series and parallel
4.		19-24	6	Capacitance of a parallel plate capacitor with or without dielectric medium between the plates energy stored in a capacitor, Van de Graff Generator. UNIT II : CURRENT ELECTRICITY:- Electric current ;flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current. Ohm's law electrical resistance, V I characteristics(linear and non linear)
5.		26 APRIL- 1 MAY	6	Electrical energy and power, Electrical resistivity and connectivity, carbon resistors, colour code for carbon resistors; Series and parallel combinations of resistors; temperature dependence of resistance. Internal resistance of a cell, potential difference and emf of a cell. Combination of cells in series and in parallel. Kirchoff's laws and simple applications
6.	MAY	3-7	5	wheatstone bridge, metre bridge. Potentiometer principle and its applications to measure potential difference and for comparing emf of two cells, measurement of internal resistance of a cell.
7.		10 MAY TO 25 JUNE		SUMMER VACATION
8.	JUNE	26,28 JUNE 3 JULY	7	UNIT III :-MAGNETIC EFFECTS OF CURRENT AND MAGNETISM Concept of magnetic field and oersted's experiment Biot savart law and its application to current carrying circular loop. Ampere's law and its applications to infinity long straight

				wire, straight and toroidal solenoids. Force on a moving charge in uniform magnetic and electric fields. Cyclotron
9.	JULY	5-9	5	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 a uniform magnetic field. Moving coil Galvanometer – its current sensitivity. Moving Coil Galvanometer Conversion to ammeter and voltmeter,
10.		12-17	6	Current loop as a magnetic dipole and its magnetic dipole moment, Magnetic dipole moment of a revolving electron, Magnetic field Intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis.
11.		19-24	6	Torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid, Magnetic field lines Earth's Magnetic field and magnetic elements Para, dia and ferro magnetic substances with examples. Electromagnets and factors affecting their strengths, Permanent magnets.
12.		26-31	6	UNIT IV ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENTS : Electromagnetic induction; Faraday's law induced emf and current; Lenz's law, Eddy currents self and mutual inductance.
13.	AUGUST	2-7	6	Alternating currents, peak and rms value of alternating current/voltage Reactance and Impedance. LC oscillations (qualitative treatment only) LCR series circuit; Resonance; Power in AC circuits, wattless current.
14.		9-13	5	AC generator and transformer. UNIT V : ELECTROMAGNETIC WAVES :- Displacement current, electromagnetic waves and their characteristics (qualitative ideas only) Transverse nature of electromagnetic waves. Electromagnetic spectrum (radio waves, micro waves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.
15.		16-21	6	UNIT VI : OPTICS :- Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection and its applications, optical fibres, refraction through spherical surfaces, lenses thin lens formula
16.		23-28	6	Lens maker's formula. Magnification, power of a lens, Combination of thin lenses in contact, Refraction and dispersion of light through a prism, scattering of light – blue colour of the sky and reddish appearance of the sun at sunrise and sunset. Optical Instruments; Human eye, image formation and accommodation, correction of eye defects (myopia, hypermetropia,

				presbyopia and astigmatism) using lenses. Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.
17.	SEPT.	30 AUG. TO 4 SEPT.	5	Wave optics: Wave front and Huygen's principle, reflection and refraction of plane 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;
18.		6-10	4	Diffraction due to a single slit, width of central maximum. Resolving power of microscopes and astronomical telescopes
19.		8 SEPT	1	CCEP –I
20.		13-20		1 ST TERM EXAM
21.		21-25	5	DISCUSSION OF 1 ST TERM PAPER Plane polarized light, Brewster's law, uses of plane polarized light and polaroids.
22.		27-30	4	DUAL NATURE OF MATTER AND RADIATION :- Dual nature of radiation, Photoelectric effect Hertz and Lenard's observations ;Einstein's photoelectrical equation, Particle nature of light. Matter waves wave nature of particles, de Broglie relation Davisson Germer experiment.
23.	OCT.	1-17		CLOSURE OF SCHOOL DUE TO COMMON WEALTH GAMES (1-10-10 TO 16-10-10 AUTUMN BREAK)
24.		18-23	5	UNIT VIII :ATOMS & NUCLEI :- Alpha particles scattering experiment ,Rutherford's model of atom, Bohr Model,energy levels, Hydrogen spectrum. Composition and size of Nucleus , atomic masses, isotopes, isobars ; isotones, Radioactivity alpha, beta and gamma particles/rays and their properties; radioactive decay law.
25.		25-30	6	Mass energy relation, mass defect ; binding energy per nucleon and its variation with mass number nuclear fission and fusion. UNIT IX : ELECTRONIC DEVICES :- Semiconductors Semi conductor diode I V characteristics in forward and reverse bias, diode as rectifier.
26.	NOV.	1-6	5	I V characteristics of LED, Photodiodes, solar cell and Zener diode as a voltage regulator, Junction transistor, transistor action, characteristics of a transistor.
27.		8-12	5	Transistor as an amplifier (common emitter configuration) Oscillator Transistor as a switch Logic gates (OR,AND,NOT,NAND and NOR)
28.		15-20	5	UNIT X : COMMUNICATION SYSTEMS :- Elements of communication system (block diagram) only,Band width signals(speech ,TV and digital data) band width of transmission medium. Propagation of electromagnetic waves in the atmosphere,sky and space wave propagation,
29.		22-27	6	Need for modulation,production and

				detection of an amplitude modulated wave.
30.		29NOV- 4 DEC	6	REVISION
31.	DEC.	6-10	4	REVISION 10 DEC. 2 ND CCEP
32.		13-22		SECOND TERM
33.		23-24	2	DISCUSSION OF 2 ND TERM PAPER
34.		27 DEC. TO 7 JAN.		WINTER BREAK
35.	JAN.	10-15	6	REVISION FROM QUESTION BANK
36.		17-22	6	PRE-BOARDS
37.		24-29	5	DISCUSSION OF PRE-BOARD QUESTION PAPER
38.		31-5 FEB	6	CBSE ANNUAL PRACTICAL EXAM
39.	FEB.	7-11	5	REVISION & CBSE ANNUAL PRACTICAL EXAM
40.		14-19	6	MOCK TESTS
41.		21-28		REVISION
42.	MARCH	1-31		BOARD EXAM

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