CLASS 12 PHYSICS — LO's Aligned Monthly Split-up Syllabus (April 2026–March 2027) + Portion Boundaries + Exams + Weightage + Question Paper Design + Blueprint
(For CM SoE & Non-CM SoE)
Developed by:- Jharkhand Council Of Educational Research & Training (Curriculum Division)

Month	Teaching Days (Available)	NCERT Chapter Titles	Sub-topics / Portion Boundary	LOs (*LO Mapping - IDs) (NCERT Higher Secondary Stage LO - Draft)	Practicals / Activities (Minimum)	Assessment / Exams
Apr 2026	23	PHYS: Chapter 1 Electric Charges and Fields (Start/Continue); PHYS: Chapter 2 Electrostatic Potential and Capacitance (Start)	Ch 1: electric charge; conductors and insulators; basic properties of electric charge; Coulomb's law; forces between multiple charges; electric field & field lines; electric flux; electric dipole & dipole in a uniform external field; continuous charge distribution; Gauss's law and applications of Gauss's law. Ch 2 (start): electrostatic potential; potential due to point charge/dipole/system; equipotential surfaces (up to 2.6).	LO-PHY-XII-01, LO-PHY-XII-02, LO-PHY-XII-03, LO-PHY-XII-04, LO-PHY-XII-05, LO-PHY-XII-06, LO-PHY-XII-08, LO-PHY-XII-11	Activity/ICT: field lines & flux visualisation (simulation). Lab/demo: charging by induction + earthing (electroscope). Numericals: Coulomb's law + Gauss's law (basic).	Project RAIL (April portion): 05-05-2026
May 2026	14	PHYS: Chapter 2 Electrostatic Potential and Capacitance (Finish); PHYS: Chapter 3 Current Electricity (Start)	Ch 2: potential energy of a system of charges; potential energy in an external field; electrostatics of conductors; dielectrics & polarisation; capacitors and capacitance; parallel plate capacitor; effect of dielectric on capacitance; combination of capacitors; energy stored in a capacitor. Ch 3 (start): electric current; electric currents in conductors; Ohm's law; drift of electrons and origin of resistivity; limitations of Ohm's law (up to 3.6).	LO-PHY-XII-01, LO-PHY-XII-02, LO-PHY-XII-03, LO-PHY-XII-04, LO-PHY-XII-05, LO-PHY-XII-06, LO-PHY-XII-07, LO-PHY-XII-08, LO-PHY-XII-11	Lab: V–I characteristic of a resistor (Ohm's law) + graph. Activity: capacitor combinations (series/parallel) numericals + energy storage problems.	Project RAIL (May portion): 16-06-2026
Jun 2026	12	PHYS: Chapter 3 Current Electricity (Finish); PHYS: Chapter 4 Moving Charges and Magnetism (Start)	Ch 3: resistivity of various materials; temperature dependence of resistivity; electrical energy & power; cells—emf & internal resistance; cells in series and in parallel; Kirchhoff's rules; Wheatstone bridge (up to 3.13). Ch 4 (start): magnetic force; motion in a magnetic field; magnetic field due to a current element (Biot-Savart law); magnetic field on axis of circular current loop; Ampere's circuital law; solenoid (up to 4.7).	LO-PHY-XII-01, LO-PHY-XII-02, LO-PHY-XII-03, LO-PHY-XII-04, LO-PHY-XII-05, LO-PHY-XII-06, LO-PHY-XII-07, LO-PHY-XII-08, LO-PHY-XII-11	Lab/demo: Wheatstone bridge concept + numerical practice. Activity: mapping magnetic field around a straight conductor/coil using compass needles.	Project RAIL (June portion): 07-07-2026
Jul 2026	23	PHYS: Chapter 4 Moving Charges and Magnetism (Finish); PHYS: Chapter 5 Magnetism and Matter (Complete); PHYS: Chapter 6 Electromagnetic Induction (Start)	Ch 4: force between two parallel currents; torque on current loop (magnetic dipole); moving coil galvanometer (up to 4.10). Ch 5: bar magnet; magnetism and Gauss's law; magnetisation and magnetic intensity; magnetic properties of materials (dia/para/ferro) (up to 5.5). Ch 6 (start): experiments of Faraday and Henry; magnetic flux; Faraday's law of induction; Lenz's law and conservation of energy (up to 6.5).	LO-PHY-XII-01, LO-PHY-XII-02, LO-PHY-XII-03, LO-PHY-XII-04, LO-PHY-XII-05, LO-PHY-XII-06, LO-PHY-XII-07, LO-PHY-XII-08, LO-PHY-XII-10, LO-PHY-XII-11, LO-PHY-XII-13	Lab/demo: magnetic field mapping for bar magnet/coil (compass). Galvanometer demo + sensitivity discussion. Numericals: force between currents + torque on loop (basic).	Project RAIL (July portion): 04-08-2026
Aug 2026	22	PHYS: Chapter 6 Electromagnetic Induction (Finish); PHYS: Chapter 7 Alternating Current (Complete); PHYS: Chapter 8 Electromagnetic Waves (Complete)	Ch 6: motional electromotive force; inductance; AC generator (up to 6.8). Ch 7: AC voltage applied to R, L, C; phasors; series LCR circuit; power factor; transformers (up to 7.8). Ch 8: displacement current; electromagnetic waves; electromagnetic spectrum (up to 8.4).	LO-PHY-XII-01, LO-PHY-XII-03, LO-PHY-XII-04, LO-PHY-XII-05, LO-PHY-XII-06, LO-PHY-XII-08, LO-PHY-XII-10, LO-PHY-XII-11, LO-PHY-XII-12, LO-PHY-XII-13	Activity: transformer working model/demo + numerical practice. Numericals: LCR circuit + power factor + transformer. EM spectrum chart + applications presentation.	Half Yearly Examination: 07-09-2026 to 12-09-2026 (covers Apr–Aug taught portion: Ch 1–8)
Sep 2026	14	PHYS: Chapter 9 Ray Optics and Optical Instruments (Complete); PHYS: Chapter 10 Wave Optics (Start)	Ch 9: reflection of light by spherical mirrors; refraction; total internal reflection; refraction at spherical surfaces & by lenses; refraction through a prism; optical instruments (microscope & telescope) (up to 9.7). Ch 10 (start): Huygens principle; refraction and reflection of plane waves using Huygens principle (up to 10.3).	LO-PHY-XII-01, LO-PHY-XII-02, LO-PHY-XII-03, LO-PHY-XII-04, LO-PHY-XII-05, LO-PHY-XII-06, LO-PHY-XII-07, LO-PHY-XII-08, LO-PHY-XII-09, LO-PHY-XII-11, LO-PHY-XII-14	Lab: focal length of convex lens / concave mirror (u–v method) + ray diagrams. Activity: prism dispersion + deviation (demo) + numericals.	Project RAIL (September portion): 06-10-2026
Oct 2026	21	PHYS: Chapter 10 Wave Optics (Finish); PHYS: Chapter 11 Dual Nature of Radiation and Matter (Complete); PHYS: Chapter 12 Atoms (Complete)	Ch 10: coherent and incoherent addition of waves; interference of light waves & Young's experiment; diffraction; polarisation (up to 10.7). Ch 11: electron emission; photoelectric effect (observations + experimental study); photoelectric effect & wave theory; Einstein's photoelectric equation; photon; wave nature of matter (up to 11.8). Ch 12: alpha-particle scattering & Rutherford's model; atomic spectra; Bohr model of hydrogen atom; line spectra; de Broglie's explanation of Bohr's postulate (up to 12.6).	LO-PHY-XII-01, LO-PHY-XII-02, LO-PHY-XII-03, LO-PHY-XII-04, LO-PHY-XII-05, LO-PHY-XII-06, LO-PHY-XII-08, LO-PHY-XII-10, LO-PHY-XII-11, LO-PHY-XII-12, LO-PHY-XII-14, LO-PHY-XII-15	Lab/Activity: diffraction/interference demo/ICT (where feasible). Numerical drill: photoelectric equation + Bohr model (energy levels).	Project RAIL (October portion): 03-11-2026

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Nov 2026	16	PHYS: Chapter 13 Nuclei (Complete); PHYS: Chapter 14 Semiconductor Electronics: Materials, Devices and Simple Circuits (Complete) + Quick Revision	Ch 13: atomic masses and composition of nucleus; size of nucleus; mass–energy and nuclear binding energy; nuclear force; radioactivity; nuclear energy (up to 13.7). Ch 14: classification of metals, conductors and semiconductors; intrinsic semiconductor; extrinsic semiconductor; p–n junction; semiconductor diode; application of junction diode as a rectifier (up to 14.7). Portion boundary: Full syllabus completed (Ch 1–14).	LO-PHY-XII-01, LO-PHY-XII-02, LO-PHY-XII-03, LO-PHY-XII-04, LO-PHY-XII-05, LO-PHY-XII-06, LO-PHY-XII-07, LO-PHY-XII-08, LO-PHY-XII-10, LO-PHY-XII-11, LO-PHY-XII-12, LO-PHY-XII-13, LO-PHY-XII-14, LO-PHY-XII-15	Lab: I–V characteristics of p–n junction diode + rectifier output (where feasible). Revision: derivations list + formula sheet + PYQs.	Syllabus completion target for Class 12: Nov 2026
Dec 2026	15	Full Syllabus Practice & Remedial (Pre-Board Block) + Practical/Viva Revision	Full syllabus mixed practice: board-pattern numericals + derivations + diagrams + competency/case-based items; targeted remediation based on gaps.	LO-PHY-XII-07, LO-PHY-XII-08, LO-PHY-XII-09, LO-PHY-XII-10, LO-PHY-XII-11, LO-PHY-XII-15, LO-PHY-XII-16	Minimum: 2 full mock papers + item-wise analysis; practical file completion + viva drill; remedial groups: (a) Electrostatics/Current (b) Magnetism/EMI/AC (c) Optics (d) Modern Physics & Electronics.	Pre-Board + Remedial + Practice: 07-12-2026 to 12-12-2026 (Full syllabus)
Jan 2027	17	Remedial classes + Practice until board exams (School level) Board Practical / Theory Exams: Feb–Mar 2027 (as per Board schedule)				
Feb 2027	18					
Mar 2027	20					

LOs (*LO Mapping - IDs) (NCERT Higher Secondary Stage LO - Draft)

LO ID	LOs (*LO Mapping - IDs) (NCERT Higher Secondary Stage LO - Draft)
LO-PHY-XII-01	recognises the concepts of Physics related to various natural phenomena, such as electrostatic force, electric and magnetic fields and flux, electrostatic potential, drift of electrons, current, resistance, magnetic properties, electromagnetic induction, reflection, refraction, interference, diffraction, polarization, radioactivity, nuclear fusion and nuclear fission.
LO-PHY-XII-02	differentiates between physical quantities, such as electric field and electric potential, electrical resistance and resistivity, potential difference and emf, interference and diffraction, wave and particle nature of light, half-life and average life, nuclear fusion and fission, conductors and dielectrics.
LO-PHY-XII-03	uses International System of Units (SI units), symbols, nomenclature of physical quantities and formulations/conventions, such as coulomb, farad, ampere, ohm, tesla, degree and becquerel.
LO-PHY-XII-04	explains processes, phenomena and laws with understanding of the relationship between nature and matter, such as forces between charges, electric field and potential, force on moving charges in magnetic field, torque on current loop, eddy currents, rainbow formation, Doppler shift, nuclear energy and generation of emf by solar radiation.
LO-PHY-XII-05	derives formulae and equations, such as electrostatic forces/fields due to charge distributions, potential energy of charges, torque on a dipole, capacitor combinations, energy in capacitor, magnetic field on axis of current loop, resonant frequency in LCR circuit, thin lens formula, de Broglie wavelength and nuclear equations.
LO-PHY-XII-06	analyses and interprets data, graphs and figures and draws conclusions, such as field inside a charged shell, hysteresis loop, direction of induced current, image position in ray diagrams, diffraction fringe pattern, V-I characteristics of p-n junction diode, photoelectric effect graphs, binding energy per nucleon and logic gates.
LO-PHY-XII-07	handles tools and laboratory apparatus properly and measures physical quantities using appropriate apparatus, instruments and devices such as electroscope, power supply, voltmeter, ammeter, multimeter, rheostat, galvanometer, meter bridge, potentiometer, sonometer, travelling microscope, lenses, prism and glass slab.
LO-PHY-XII-08	plans and conducts investigations and experiments to arrive at and verify facts, principles, phenomena and relationships between physical quantities, such as Ohm's law, specific resistance, ac mains frequency, traffic-signal logic gates, image formation by lenses, zener regulator and refractive index determination.
LO-PHY-XII-09	communicates findings and conclusions in oral/written/ICT form that shows critical thinking, such as conveying critical angle in internal reflection by drawing ray diagrams.
LO-PHY-XII-10	exhibits creativity and out-of-the-box thinking in solving challenging physics problems, such as radio tuning range using variable capacitor, depth of pond using refractive index and energy released in fission/fusion processes.
LO-PHY-XII-11	applies concepts of physics in daily life with reasoning while decision-making and solving problems, such as capacitor arrangements, household wiring, polarized spectacles, LEDs and solar cells.
LO-PHY-XII-12	takes initiative to learn about newer research, discoveries and inventions in Physics, such as accelerators, thermistors, electrical properties of materials, atomic energy programme, static electricity charging, fusion plasma control, optics research and reactor designs.

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LO-PHY-XII-13	recognises different processes used in Physics-related industrial and technological applications, such as electrostatic shielding, superconducting magnets for maglev trains, optical fibres and controlled chain reaction in nuclear systems.
LO-PHY-XII-14	realises and appreciates the interface of Physics with other disciplines, such as materials in electric fields, photoelectric cells, atomic/nuclear physics in medicine, electromagnetic radiation in communication and optical phenomena in entertainment.
LO-PHY-XII-15	develops positive scientific attitude and appreciates the role and impact of Physics and technology towards improvement of quality of life and human welfare.
LO-PHY-XII-16	exhibits values of honesty, objectivity, respect for life, rational thinking and freedom from myth and superstitious beliefs while taking decisions.

A. THEORY BLUEPRINT

S.No.	Unit / Block	Marks	Details / Scope
1	Units I–II — Electrostatics and Current Electricity	16	Chapter 1 Electric Charges and Fields; Chapter 2 Electrostatic Potential and Capacitance; Chapter 3 Current Electricity
2	Units III–IV — Magnetic Effects of Current and Magnetism; Electromagnetic Induction and Alternating Current	17	Chapter 4 Moving Charges and Magnetism; Chapter 5 Magnetism and Matter; Chapter 6 Electromagnetic Induction; Chapter 7 Alternating Current
3	Units V–VI — Electromagnetic Waves and Optics	18	Chapter 8 Electromagnetic Waves; Chapter 9 Ray Optics and Optical Instruments; Chapter 10 Wave Optics
4	Units VII–VIII — Dual Nature, Atoms and Nuclei	12	Chapter 11 Dual Nature of Radiation and Matter; Chapter 12 Atoms; Chapter 13 Nuclei
5	Unit IX — Electronic Devices	7	Chapter 14 Semiconductor Electronics: Materials, Devices and Simple Circuits
	TOTAL	70	Theory Paper: 3 Hours

B. QUESTION PAPER DESIGN / BLUEPRINT

Competency / Domain	Marks	Weightage
Remembering and Understanding	27	38%
Applying	22	32%
Analysing, Evaluating and Creating	21	30%
TOTAL	70	100%

C. TYPOLOGY OF QUESTIONS

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Item	Details
Paper Design	Competency-wise theory paper design as prescribed in the official syllabus.
Design Note	Suitable internal variations may be made for generating similar templates keeping the overall weightage to different forms of questions and typology same.

D. PRACTICAL BLUEPRINT — 30 MARKS

S.No.	Component	Marks	Details
1	Two experiments (one from each section)	14	
2	Practical record (experiments and activities)	5	
3	One activity from any section	3	
4	Investigatory Project	3	
5	Viva on experiments, activities and project	5	
	TOTAL	30	