



# 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 Secondary Stage LO-2017)	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).	LO3, LO4, LO5, LO6, LO8, LO9, LO10, LO13	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).	LO3, LO5, LO6, LO7, LO8, LO9, LO10, LO13	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).	LO3, LO4, LO5, LO6, LO7, LO8, LO9, LO10, LO13	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).	LO3, LO4, LO5, LO6, LO7, LO8, LO9, LO10, LO13, LO18	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).	LO3, LO4, LO5, LO6, LO7, LO8, LO9, LO10, LO13	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).	LO3, LO4, LO5, LO6, LO7, LO8, LO9, LO10, LO13, LO18	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



# 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 Secondary Stage LO-2017)	Practicals / Activities (Minimum)	Assessment / Exams
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).	LO3, LO4, LO5, LO6, LO7, LO8, LO9, LO10, LO13, LO15, LO18	Lab/Activity: diffraction/interference demo/ICT (where feasible). Numerical drill: photoelectric equation + Bohr model (energy levels).	Project RAIL (October portion): 03-11-2026
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).	LO3, LO4, LO5, LO6, LO7, LO8, LO9, LO10, LO13, LO15, LO18	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.	LO7, LO8, LO9, LO10, LO13, LO18	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 Secondary Stage LO-2017)

LO ID	NCERT Learning Outcome
LO1	differentiates materials, objects, organisms, phenomena, and processes, based on, properties and characteristics, such as, autotrophic and heterotrophic nutrition, biodegradable and non-biodegradable substances, various types of reactions, strong and weak acids and bases, acidic, basic, and neutral salts using different indicators, real and virtual images, etc.
LO2	classifies materials, objects, organisms, phenomena, and processes, based on properties and characteristics, such as, metals and non-metals, acid and bases on the basis of their physical and chemical properties.
LO3	plans and conducts investigations and experiments to arrive at and verify the facts, principles, phenomena, or to seek answers to queries on their own, such as, investigates conditions necessary for rusting, tests the conductivity of various solutions, compares the foaming capacity of different types of soap samples, verifies laws of reflection and refraction of light, Ohm's law, etc.
LO4	relates processes and phenomena with causes and effects, such as, hormones with their functions, tooth decay with pH of saliva, growth of plants with pH of the soil, survival of aquatic life with pH of water, blue colour of sky with scattering of light, deflection of compass needle due to magnetic effect of electric current, etc.



**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 Secondary Stage LO-2017)	Practicals / Activities (Minimum)	Assessment / Exams
LO5			explains processes and phenomena, such as, nutrition in human beings and plants, transportation in plants and animals, extraction of metals from ores, placement of elements in modern periodic table, displacement of metals from their salt solutions on the basis of reactivity series, working of electric motor and generator, twinkling of stars, advanced sunrise and delayed sunset, formation of rainbow, etc.			
LO6			draws labelled diagrams, flow charts, concept maps, and graphs, such as, digestive, respiratory, circulatory, excretory, and reproductive systems, electrolysis of water, electron dot structure of atoms and molecules, flow chart for extraction of metals from ores, ray diagrams, magnetic field lines, etc.			
LO7			analyses and interprets data, graphs, and figures, such as, melting and boiling points of substances to differentiate between covalent and ionic compounds, pH of solutions to predict the nature of substances, V-I graphs, ray diagrams, etc.			
LO8			calculates using the data given, such as, number of atoms in reactants and products to balance a chemical equation, resistance of a system of resistors, power of a lens, electric power, etc.			
LO9			uses scientific conventions to represent units of various quantities, symbols, formulae, and equations, such as, balanced chemical equation by using symbols and physical states of substances, sign convention in optics, SI units, etc.			
LO10			handles tools and laboratory apparatus properly; measures physical quantities using appropriate apparatus, instruments, and devices, such as, pH of substances using pH paper, electric current and potential difference using ammeter and voltmeter, etc.			
LO11			applies learning to hypothetical situations, such as, what will happen if all herbivores are removed from an ecosystem? What will happen if all non-renewable sources of energy are exhausted?			
LO12			applies scientific concepts in daily life and solving problems, such as, suggest precautions to prevent sexually transmitted infections, uses appropriate electrical plugs (5/15A) for different electrical devices, uses vegetative propagation to develop saplings in gardens, performs exercise to keep in good health, avoids using appliances responsible for ozone layer depletion, applies concept of decomposition reaction of baking soda to make spongy cakes, etc.			
LO13			derives formulae, equations, and laws, such as, equivalent resistance of resistors in series and parallel, etc.			
LO14			draws conclusion, such as, traits or features are inherited through genes present on chromosomes, a new species originates through evolutionary processes, water is made up of hydrogen and oxygen, properties of elements vary periodically along the groups and periods in periodic table, potential difference across a metal conductor is proportional to the electric current flowing through it, etc.			
LO15			takes initiative to know about scientific discoveries and inventions, such as, Mendel's contribution in understanding the concept of inheritance, Dobereiner for discovering triads of elements, Mendeleev for the development of the periodic table of elements, Oersted's discovery that electricity and magnetism are related, discovery of relation between potential difference across a metal conductor and the electric current flowing through it by Ohm, etc.			



# 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 Secondary Stage LO-2017)	Practicals / Activities (Minimum)	Assessment / Exams
LO16			exhibits creativity in designing models using eco-friendly resources, such as, working model of respiratory, digestive, and excretory systems, soda acid fire extinguisher, periodic table, micelles formation, formation of diamond, graphite, and Buckminsterfullerene, human eye, electric motor and generator, etc.			
LO17			exhibits values of honesty, objectivity, rational thinking, and freedom from myth and superstitious beliefs while taking decisions, respect for life, etc., such as, reports and records experimental data accurately, says no to consumption of alcohol and drugs, sensitises others about its effect on physical and mental health, sensitises for blood and organ donations, understands the consequences of pre-natal sex determination, etc.			
LO18			communicates the findings and conclusions effectively, such as, those derived from experiments, activities, and projects orally and in written form using appropriate figures, tables, graphs, and digital forms, etc.			
LO19			makes efforts to conserve environment realising the inter-dependency and inter-relationship in the biotic and abiotic factors of environment, such as, appreciates and promotes segregation of biodegradable and non-biodegradable wastes, minimises the use of plastics, takes appropriate steps to promote sustainable management of resources in day-to-day life, advocates use of fuels which produce less pollutants, uses energy efficient electric devices, uses fossil fuels judiciously, etc.			

## 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



# 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 Secondary Stage LO-2017)	Practicals / Activities (Minimum)	Assessment / Exams
<b>Competency / Domain</b>					<b>Marks</b>	<b>Weightage</b>
Remembering and Understanding					27	38%
Applying					22	32%
Analysing, Evaluating and Creating					21	30%
TOTAL					70	100%

## C. TYPOLOGY OF QUESTIONS

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	