NEET Syllabus PDF - Physics

Complete NEET Physics Syllabus – Class 11 and Class 12

Physics syllabus for Class 11th	Physics syllabus for Class 12th
1. Physical-world and measurement	1. Electrostatics
2. Kinematics	2. Current Electricity
3. Laws of Motion	3. Magnetic Effects of Current and Magnetism
4. Work, Energy and Power	4. Electromagnetic Induction and Alternating Currents
5. Motion of System of Particles and Rigid Body	5. Electromagnetic Waves
6. Gravitation	6. Optics
7. Properties of Bulk Matter	7. Dual Nature of Matter and Radiation
8. Thermodynamics	8. Atoms and Nuclei
9. Behaviour of Perfect Gas and Kinetic Theory	9. Electronic Devices
10. Oscillations and Waves	

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NEET PHYSICS SYLLABUS

Class 11th Syllabus	Class 12th Syllabus
Physical world and measurement	Electro statistics
Kinematics	Current Electricity
Laws of Motion	Magnetic effects of Current and Magnetism
Work, Energy, and Power	Electromagnetic induction and alternating currents
Motion of systems of particles and rigid body	Electromagnetic waves
Gravitation	Optics
Properties of Bulk Matter	Dual Nature of Matter and Radiation
Thermodynamics	Atoms and Nuclei
Behavior of Perfect Gas and Kinetic theory	Electronic Devices
Oscillations and wave	

Class 11 Detailed NEET syllabus for Physics

Given Below is the list of all the topics included in class 11th NEET Physics syllabus chapterwise.

Class 11 Physics Syllabus for NEET
Physical world and measurement
Kinematics
Laws of motion
Work, Energy and Power
Motion of systems of particles and rigid body
Gravitation
Properties of bulk matter
Thermodynamics
Behaviour of Perfect gas and Kinetic theory
Oscillations and Waves

Unit 1 – Physical world and measurement	Physics: scope and excitement; nature of physical laws; Physics, technology and society Need for measurement – units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures Dimensions of physical quantities, dimensional analysis and its applications
Unit 2 – Kinematics	Frame of reference, motion in a straight line; position-time graph, speed and velocity. Uniform and non-uniform motion, average speed and instantaneous velocity. Uniformly accelerated motion, velocity-time and position-time graphs for uniformly accelerated motion (graphical treatment) Elementary concepts of differentiation and integration for describing motion. Scalar and vector quantities: Position and displacement vectors, general vectors, general vectors and notation, equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors. Relative velocity Unit vectors. Resolution of a vector in a plane-rectangular components

	Scalar and vector products of vectors. Motion in a plane. Cases of uniform velocity and uniform acceleration – projectile motion. Uniform circular motion.
Unit 3 – 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 level circular road, vehicle on banked road)
Unit 4 – Work, Energy and Power	Word done by a constant force and variable force; kinetic energy, work-energy theorem, power. Notion of potential energy, potential energy of a spring, conservative forces; conservation of mechanical energy (kinetic and potential energies); non-conservative forces; motion in a vertical circle, elastic and inelastic collisions in one and two dimensions.
Unit 5 – Motion of systems of particles and rigid body	Centre of mass of a two-particle system, momentum conservation and centre of mass motion. Centre of mass of a rigid; Centre of mass of uniform rod Momentum of a force – torque, angular momentum, conservation of angular momentum with some examples Equillibrium of rigid bodies, rigid body rotation and equation of rotational motion, comparision of linear and rotational motions; moment of inertia, radius of gyration. Values of M.I. for simple geometrical objects (no derivation). Statement of parallel and perpendicular axes theorems and their applications
Unit 6 – Gravitation	Kepler's law of planetary motion. The universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth Gravitational potential energy; gravitational potential. Escape velocity, orbital velocity of a satellite. Geostationary satellites
Unit 7 – Properties of Bulk matter	Elastic behaviour, stress-strain relationship. Hooke's law, Young's modulus, bulk modulus, shear, modulus of rigidity, poisson's ratio; elastic energy Viscosity, Stoke's law, terminal velocity, Reynold's number, streamline and turbulent flow. Critical velocity, Bernoulli's theorem and its applications. Surface energy and surface tension, angle of contact, excess of pressure, application of surface tension ideas to drops, bubbles and capillary rise

	Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases. Anomalous expansion. Specific heat of capacity:Cp, Cv-calorimetry; change of state-latent heat
	Heat transfer – conduction and thermal conductivity, convection and radiation. Qualitative ideas of Black body radiation. Wein's displacement law, and green house effect.
	Newton's law of cooling and Stefan's law
Unit 8 – Thermodynamics	Thermal equilibrium and definition of temperature (zeroth law of thermodynamics). Heat, work and internal energy. First law of thermodynamics. Isothermal and adiabatic processes. Second law of the thermodynamics: Reversible and irreversible processes. Heat engines and refrigerators
Unit 9 – Behaviour of perfect gas and kinetic theory	Equation of state of a perfect gas, work done on compressing a gas Kinetic theory of gases: Assumptions, concept of pressure. Kinetic energy and temperature; degrees of freedom, law of equipartition of energy (Statement only) and application to specific heat capacities of gases; concept of mean free path
Unit 10 – Oscillations and waves	Periodic motion-period, frequency, displacement as a function of time. Periodic functions. Simple harmonic motion(SHM) and its equation; phase; oscillations of a spring-restoring force and force constant; energy in SHM – Kinetic and potential energies; simple pendulum – derivation of expression for its time period; free and forced and damped oscillations (qualitative ideas only), resonance Wave motion. Longitudinal and transverse waves, speed of wave motion. 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. Doppler effect.

Class 12 Detailed NEET syllabus for Physics

Given below is the list of all the topics included in class 12th NEET Physics syllabus chapterwise.

NEET Physics Syllabus for Class 12
Electro statistics
Current Electricity
Magnetic Effects of Current and Magnetism

Electromagnetic Induction and Alternating Currents
Electromagnetic waves
Optics
Dual Nature of Matter and Radiation
Atoms and Nuclei
Electronic devices

| **Unit 1 – Electrostatics** | Electric charges and their conservation. Coulomb's law-force between two point 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 a uniform electric field

Electric flux, statement of Gauss's 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)

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 dipoles 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, Van de Graaff generator |
| **Unit 2 – Current electricity** | Electric current, flow of electric charges in a metallic conductor, drift velocity and mobility, and their relation with electric current; Ohm's law, electrical resistance, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity

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. Wheatstone bridge, metre bridge
	Potentiometer-principle and applications to measure potential difference and for comparing emf of two cells; measurement of internal resistance of a cell
Unit 3 – Magnetic effects of current 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 and toroidal solenoids. Force on a moving charge in uniform magnetic and electric fields. Cyclotron
	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 magnetic field; moving coil galvanometer – its current sensitivity and conversion to ammeter and voltmeter
	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. Torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent soilenoid, magnetic field lines; Earth's 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.
	Electromagnetic and factors affecting their strengths. Permanent magnets
Unit 4 – Electromagnetic induction and alternating current	Electromagnetic induction; Faraday's law, induced emf and current; Lenz's law, eddy currents. Self and mutual inductance
	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, wattles current
	AC generator and transformer
Unit 5 – Electromagnetic waves	Need for 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.
Unit 6 – Optics	Reflection of light, spherical mirrors, mirror formula. Refraction of light, total

	internal reflection and its applications 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 combination of a lens and a mirror. Refraction and dispersion of light through a prism
	Scattering of light – blue color 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 and hyper myopia) using lenses
	Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.
	Wave optics: Wavefront and Huygen's principle, reflection and refraction of plane wave at a plane surface using wavefronts
	Proof of laws of reflection and refraction using Huygen's principle
	Interference, Young's double hole experiment and expression for fringe width, coherent sources and sustained interference of light
	Diffraction due to a single slit, width of central maximum
	Resolving power of microscopes and astronomical telescopes. Polarisation, plane polarized light; Brewster's law, uses of plane polarized light and polaroids
Unit 7 – Dual nature of matter and radiation	Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation – particle nature of light Matter waves – wave nature of particles, deBrogile relation. Davisson-Germer experiment (experimental details should be omitted; only conclusion should be explained)
Unit 8 – Atoms and nuclei	Alpha – particle scattering experiments; Rutherford's model fo 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 decay law. Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number, nuclear fission and fusion
Unit 9 – Electronic devices	Energy bands in soilds (qualitative ideas only), conductors, insulators and semiconductors; semiconductor diode- I-V characteristics in forward and reverse bias, diode as a rectifier; I-V characteristics of LED, photodiode, solar cell, and Zener diode; Zener diode as a voltage regulator. Junction transistor, transistor action, characteristics of a transistor; transistor as an amplifier (Common emitter configuration) and oscillator. Logic gates (OR, AND, NOT, NAND and NOR). Transistor as a switch.