

ASIAN SCHOOL OF TECHNOLOGY, KHORDHA

Lesson Plan For Applied Physics

Session-2026-27

**Discipline: Common to all
branch**

1st Year , Name of Faculty : Mr.Rajendra singh

**Subject: Applied
Physics (TH-2)**

**No. of days per
week
Class allotted: 4**

From Date: 17/08/2026 To date : 17/04/2027

Week	Class Day	Theory
1st	1st	Introduction to Subject, Syllabus and Course Outcomes
	2nd	Unit-1: Physical world, Units and Measurements Physical quantities (Fundamental & Derived), Units and systems of units
	3rd	Dimensions and dimensional formulae
	4th	Principle of homogeneity of dimensions
2nd	1st	Dimensional equations and applications
	2nd	Limitations of dimensional analysis
	3rd	Measuring instruments and least count
	4th	Types of measurements
3rd	1st	Errors in measurements, Absolute, relative and percentage errors
	2nd	Doubt clearing
	3rd	Practice Exercise and Numerical Problems
	4th	Unit-2: Force and Friction Scalar and vector quantities, Introduction , Types and representation of vectors
4th	1st	Addition and subtraction of vectors
	2nd	Triangle and parallelogram law, Scalar and vector products
	3rd	Resolution of vectors
	4th	Newton's laws of motion, Conservation of linear momentum
5th	1st	Impulse and applications
	2nd	Friction and types of friction, Laws of limiting friction
	3rd	Angle of friction and repose, Coefficient of friction
	4th	Engineering applications of friction, Doubt clearing
6th	1st	Practice Exercise and Numerical Problems
	2nd	Unit-3: Work, Power, Energy Concept of work, Unit
	3rd	Positive, negative and zero work
	4th	Energy and its units, Kinetic energy
7th	1st	Work-energy theorem, Gravitational potential energy
	2nd	Mechanical energy, Conservation of energy
	3rd	Power and its units
	4th	Power-work relationship
8th	1st	Numerical problems on power
	2nd	Doubt clearing, Practice Exercise and Numerical Problems
	3rd	Revision of Unit 1-3
	4th	Discussion of IA-I and Doubt Clearing

9th	1st	Internal Assessment-I
	2nd	Unit-4: Circular & Rotational Motion Circular motion
	3rd	Definition of Angular displacement and velocity, Angular acceleration
	4th	Frequency and time period
10th	1st	Linear and angular velocity relations
	2nd	Linear and angular acceleration relations
	3rd	Centripetal and centrifugal force, Banking of roads
	4th	Translational and rotational motion
11th	1st	Torque, Angular momentum, Numerical problems
	2nd	Conservation of angular momentum, Moment of inertia
	3rd	Radius of gyration, Radius of gyration
	4th	Parallel and perpendicular axis theorem
12th	1st	MOI of rod, ring, disc and sphere, Practice Exercise and Doubt clearing
	2nd	Unit-5: Properties of Matter Elasticity, Stress and strain
	3rd	Moduli of elasticity, Hooke's law
	4th	Pressure and atmospheric pressure
13th	1st	Gauge and absolute pressure
	2nd	Surface tension, Cohesive and adhesive forces
	3rd	Angle of contact, Applications of surface tension
	4th	Viscosity, Stoke's law and terminal velocity
14th	1st	Fluid motion and Reynolds number
	2nd	Equation of continuity, Numerical Problems
	3rd	Bernoulli's theorem, Applications of Bernoulli's theorem
	4th	Doubt clearing
15th	1st	Practice Exercise and Numerical Problems
	2nd	Unit-6: Waves and Oscillations Periodic and oscillatory motion
	3rd	Simple harmonic motion, Velocity and acceleration in SHM
	4th	Time period and frequency, Total energy in SHM
16th	1st	Forced and resonant vibrations
	2nd	Wave motion, Transverse and longitudinal waves
	3rd	Wave velocity and wavelength, Wave equation
	4th	Superposition of waves
17th	1st	Sound waves and properties, Reverberation and echo
	2nd	Ultrasonic waves and applications
	3rd	Doubt clearing
	4th	Practice Exercise and Numerical Problems
18th	1st	Revision of Unit 4-7
	2nd	Internal Assessment-II
	3rd	Discussion of IA-II and Doubt Clearing
	4th	Unit-7: Thermal Physics Heat and temperature
19th	1st	Specific heat and thermal capacity
	2nd	Latent heat, Principle of Heat with numerical
	3rd	Temperature scales, and their relationships
	4th	Expansion of solids, Linear expansion
20th	1st	Superficial and cubical expansion of solids and relation among them.
	2nd	Modes of heat transfer (conduction, convection and radiation with examples)
	3rd	Co-efficient of thermal conductivity, engineering applications
	4th	Doubt clearing

21st	1st	Practice Exercise and Numerical Problems
	2nd	Unit-8: Optics Laws of reflection and refraction
	3rd	Spherical mirrors, Image formation by spherical mirrors
	4th	Mirror formula and Numerical's
22nd	1st	Lens formula, Refractive index
	2nd	Power and magnification of lens
	3rd	Critical angle and TIR, applications of total internal reflection
	4th	Optical fibre applications
23rd	1st	Simple Microscope and its magnifying Power
	2nd	Doubt clearing
	3rd	Practice Exercise and Numerical Problems
	4th	Unit-9: Electrostatics Coulomb's law, unit of charge
24th	1st	Electric field and electric lines of force, and their properties
	2nd	Electric flux, Electric potential and potential difference
	3rd	Gauss law
	4th	Application of Gauss law to find electric field intensity of straight charged conductor, plane charged sheet.
25th	1st	Capacitance and units, (related numerical).
	2nd	Spherical and parallel plate capacitors
	3rd	Dielectric effect, Series and parallel combination of capacitors
	4th	Doubt clearing
26th	1st	Practice Exercise and Numerical Problems
	2nd	Unit-10: Current Electricity Electric current and drift velocity
	3rd	Resistance and conductance, Series and parallel combination of resistances
	4th	Ohm's law, and its verification, Concept of terminal potential difference
27th	1st	Electromotive force (EMF) & Internal Resistance of Cell
	2nd	EMF, & Internal Resistance of Cell.
	3rd	Kirchhoff's laws, Wheatstone bridge (Balanced Condition)
	4th	Joule's law, Electric power, Electric energy and its units (related numerical problems).
28th	1st	Doubt clearing, Practice Exercise and Numerical Problems
	2nd	Unit-11: Magnetic Effect of Current & Electromagnetism Coulomb's Law in Magnetism, Magnetic field and its units
	3rd	magnetic intensity, lines of force and its properties, magnetic flux and units, Intensity of magnetization
	4th	Types of magnetic materials with their properties, Biot-Savart's Law
29th	1st	Magnetic Field due to Infinite straight conductor and at the Centre of a circular coil carrying current (Formula Only)
	2nd	Force on moving charge in magnetic field, Force on current carrying conductor placed in a magnetic Field
	3rd	Concept of electromagnetic induction, Faraday's Laws of Electromagnetic Induction
	4th	Lenz's Law (Statement only), Moving coil galvanometer (principle only),
30th	1st	Conversion of a galvanometer into ammeter and voltmeter.
		Unit-12: Semiconductor & Modern Physics

	2nd	Energy bands in solids- Distinguish between conductor, semi-conductor & insulator on the basis of Band Theory
	3rd	Intrinsic and extrinsic semiconductors
	4th	Effect of Temperature on resistivity of a Semiconductor (Concept only)
31st	1st	p-n junction, junction diode and V-I characteristics
	2nd	Diode as rectifier – half wave and full wave rectifier
	3rd	LASER and its Properties, spontaneous and stimulated emission,
	4th	population inversion, optical pumping, engineering and medical applications of lasers.
32nd	1st	Doubt clearing, Practice Exercise and Numerical Problems
	2nd	Revision
	3rd	Internal Assessment-III
	4th	Final Revision and Doubt Clearing

BOOK REFERENCE:

- 1 Applied Physics-II by Prof. Hussain Jeevakhan
- 2 Text Book of Physics for Class XII(Part-I, Part-II); N.C.E.R.T., Delhi
- 3 Concepts in Physics by HC Verma, Vol. I & II, Bharti Bhawan Ltd. New Delhi

Signature of faculty