Lesson Plan (2025-2026)

Name : **Laxmi**
Discipline : **Common for all branches**
Semester : **2nd**
Subject : **Applied Physics**
Code : **250023**
Duration : **15/01/2026 to 30/04/2026**
Work Load : **2 Lectures, and 2 Practicals per week**

Theory	
Lecture	**Topic**
1.	Waves: definition, types (mechanical and electromagnetic wave)
2.	Wave motion- transverse and longitudinal with examples
3.	Terms used in wave motion like displacement, amplitude, time period, frequency, wavelength, wave velocity; Relationship among wave velocity, frequency and wave length
4.	Simple harmonic motion (SHM): definition, examples ,Cantilever: definition, formula of time period (without derivation)
5.	Free, forced and resonant vibrations with examples
6.	Sound waves: types (infrasonic, audible, ultrasonic) on the basis of frequency, noise coefficient of absorption of sound, echo
7.	Reflection and refraction of light with laws, refractive index
8.	Lens: introduction, lens formulae (no derivation), power of lens and simple numerical problems
9.	Total internal reflection and its applications,critical angle and conditions for total internal reflection
10.	Superposition of waves (concept only), definition of Interference, Diffraction and Polarization of waves,Introduction to Microscope, Telescope and their applications
11.	Electric charge, unit of charge,conservation of charge Coulomb's law of electrostatics
12.	Electric field, electric lines of force (definition and properties),electric field intensity due to a point charge
13.	Definition of electric flux, Gauss law (statement and formula),Capacitor and capacitance (with formula and unit)
14.	Electric current and its SI Unit, direct and alternating current, Resistance, conductance (definition and unit) Series and parallel combination of resistances
15.	Ohm's law (statement and formula).Definition of energy level, energy bands
16.	Types of materials (conductor, semiconductor, insulator and dielectric) with examples Intrinsic and extrinsic semiconductors (introduction only
17.	Introduction to magnetism, type of magnetic materials: diamagnetic, paramagnetic and ferromagnetic materials with examples
18.	Magnetic field, magnetic lines of force, magnetic flux,Electromagnetic induction (definition)
19.	Introduction, principle, absorption, spontaneous emission,stimulated emission, population inversion
20.	Engineering and medical applications of laser Fibre optics: introduction to optical fibers (definition, principle and parts), light propagation,
21.	fiber types (mono-mode, multi-mode),applications in medical, telecommunication and sensors

22.	Nanotechnology: introduction, definition of nanomaterials with examples properties at nanoscale, applications of nanotechnology (brief)
23.	Revision
24.	Revision

Practical

Lab	Topic
1.	Familiarization with apparatus (resistor, rheostat, key, ammeter, voltmeter, telescope, microscope etc.)
2.	To find the time period of a simple pendulum.
3.	To study variation of time period of a simple pendulum with change in length of pendulum.
4.	To determine and verify the time period of Cantilever.
5.	To verify Ohm's laws by plotting a graph between voltage and current.
6.	To study color coding scheme of resistance.
7.	To verify laws of resistances in series combination.
8.	To verify laws of resistance in parallel combination.
9.	To find resistance of galvanometer by half deflection method.
10.	To verify laws of reflection of light using mirror.
11.	To verify laws of refraction using glass slab.
12.	To find the focal length of a concave lens, using a convex lens.

Note: There will be Class Test, Assignment work and Sessional Exam , Quizzes etc will be given as per Academic Calendar.

Laxmi /14/01/26
Laxmi
Lecturer in Physics

14/01/26
PAC Member 1
(Sh. Narender Kumar)

14/01/26
PAC Member 2
(Smt. Sonia)

Jyoti
PAC Member 3
(Dr. Jyoti Gupta)