

## Lesson Plan

**Name** : Mohit Yadav  
**Discipline** : Common for all branches  
**Semester** : 2<sup>nd</sup>  
**Subject** : Applied Physics  
**Code** : 180013  
**Duration** : 6 month  
**Session** : 2023-24  
**Work Load** : 2 Lectures, and 2 practical per week

Theory		Practical
Lecture	Topic	Topic
1.	Waves: definition, types (mechanical and electromagnetic wave)	Familiarization with apparatus (resistor, rheostat, key, ammeter, voltmeter, telescope, microscope etc.)
2.	Wave motion- transverse and longitudinal with examples	Revision & Checked practical note book
3.	Terms used in wave motion like displacement, amplitude, time period, frequency, wavelength, wave velocity;	To find the time period of a simple pendulum.
4.	relationship among wave velocity, frequency and wave length	To study variation of time period of a simple pendulum with change in length of pendulum.
5.	Simple harmonic motion (SHM): definition, examples	Revision & Checked practical note book
6.	Cantilever: definition, formula of time period (without derivation)	To determine and verify the time period of Cantilever.
7.	Free, forced and resonant vibrations with examples	Revision & Checked practical note book
8.	Sound waves: types (infrasonic, audible, ultrasonic) on the basis of frequency, noise,	To verify Ohm's laws by plotting a graph between voltage and current.
9.	coefficient of absorption of sound, echo	Revision & Checked practical note book
10.	Reflection and refraction of light with laws, refractive index	To study colour coding scheme of resistance. Revision & Checked practical note book
11.	Lens: introduction, lens formulae (no derivation)	To verify laws of resistances in series combination.
12.	power of lens and simple numerical problems	To verify laws of resistance in parallel combination.
13.	Total internal reflection and its applications,	Revision & Checking of practical note books
14.	Definition of electric flux, Gauss law (statement and formula)	To find resistance of galvanometer by half deflection method.
15.	Capacitor and capacitance (with formula and unit)	Revision & Checking of practical note books

16.	Electric current and its SI Unit,	To verify laws of reflection of light using mirror.
17.	Direct and alternating current	Revision & Checking of practical note books
18.	Resistance, conductance (definition and unit)	
19.	Series and parallel combination of resistances	
20.	Ohm's law (statement and formula).	To verify laws of refraction using glass slab.
21.	Definition of energy level, energy bands	Revision & Checking of practical note books
22.	Types of materials (conductor, semiconductor, insulator and dielectric) with examples	To find the focal length of a concave lens, using a convex lens.
23.	Intrinsic and extrinsic semiconductors (introduction only)	Revision & Checking of practical note books
24.	Introduction to magnetism,	Revision & Checking of practical note books
25.	Type of magnetic materials: diamagnetic, paramagnetic and ferromagnetic materials with examples	
26.	Magnetic field, magnetic lines of force, magnetic flux	Revision & Checking of practical note books
27.	Electromagnetic induction (definition)	Revision & Checking of practical note books
28.	Introduction, principle, absorption, spontaneous emission	Revision & Checking of practical note books
29.	Stimulated emission, population inversion	Revision & Checking of practical note books
30.	Engineering and medical applications of laser	Revision & Checking of practical note books
31.	Fibre optics: introduction to optical fibers (definition, principle and parts), light propagation,	Revision & Checking of practical note books
32.	fiber types (mono-mode, multi-mode),	Revision & Checking of practical note books
33.	Applications in medical, telecommunication and sensors	
34.	Nanotechnology: introduction, definition of nanomaterials with examples	
35.	Properties at nanoscale,	
36.	Applications of nanotechnology (brief)	
37.	Revision of unit 1	
38.	Revision of unit 1	

39.	Revision of unit 2	
40.	Revision of unit 2	
41.	Revision of unit 3	
42.	Revision of unit 3	
43.	Revision of unit 4	
44.	Revision of unit 5	
45.	Revision of unit 5	