

LESSON PLAN

Name of the Faculty: Ms. Parul Sharma

Discipline: Civil Engg./Comp Engg./ECE/Mech. Engg.

Semester: 2nd

Subject: Applied Physics

Lesson Plan Duration: 16 weeks (From 06 March 2023 to 23 June 2023)

Work Load (Lecture/Practical) Per Week (In Hours): Lectures – 02, Practicals – 04

Week	Theory		Practical	
	Lect- ure Day	Topic (Including assignment/Test)	Pract- ical Day	Topic
1 st	1 st	UNIT-I (Wave Motion & its Applications) - Waves: definition, types (mechanical and electromagnetic wave) - Wave motion- transverse and longitudinal with examples	1 st	Experiment -1 : Familiarization with apparatus (resistor, rheostat, key, ammeter, voltmeter, telescope, microscope etc.) – Introduction (G-1)
	2 nd	- Terms used in wave motion - Relationship among wave velocity, frequency and wave length	2 nd	Experiment -1 : Familiarization with apparatus (resistor, rheostat, key, ammeter, voltmeter, telescope, microscope etc.) – Introduction (G-2)
2 nd	3 rd	- Simple harmonic motion (SHM): definition, examples - Cantilever: definition, formula of time period (without derivation)	3 rd	Perform the Experiment (G-1)
	4 th	Free, forced and resonant vibrations with examples	4 th	Perform the Experiment (G-2)
3 rd	5 th	- Sound waves: types (infrasonic, audible, ultrasonic) - noise, echo - coefficient of absorption of sound	5 th	Experiment – 2 : To find the time period of a simple pendulum – Introduction (G-1)
	6 th	UNIT - II (Optics) - Reflection and refraction of light with laws, refractive index - CLASS TEST	6 th	Experiment – 2 : To find the time period of a simple pendulum – Introduction (G-2)
4 th	7 th	Lens: introduction, lens formulae (no derivation), power of lens and simple numerical problems	7 th	Perform the Experiment & take the readings (G-1)
	8 th	- Total internal reflection and its applications, critical angle and conditions for total internal reflection - ASSIGNMENT	8 th	Perform the Experiment & take the readings (G-2)
5 th	9 th	1st Sessional Test	9 th	Experiment – 3 : To study variation of time period of a simple pendulum with change in length of pendulum - Perform the Experiment & take the readings (G-1)

	10 th	• Display of 1st Sessional Test • Analysis of Sessional Test • Discussion About Assignment	10 th	Experiment – 3 : To study variation of time period of a simple pendulum with change in length of pendulum - Perform the Experiment & take the readings (G-2)
6 th	11 th	• Superposition of waves (concept only), definition of Interference, Diffraction and Polarization of waves	11 th	Experiment – 4 : To determine and verify the time period of Cantilever - Introduction (G-1)
	12 th	• Introduction to Microscope, Telescope and their applications	12 th	Experiment – 4 : To determine and verify the time period of Cantilever - Introduction (G-2)
7 th	13 th	UNIT - III (Electrostatics and Electricity) • Electric charge, unit of charge, conservation of charge • Coulomb's law of electrostatics	13 th	Perform the Experiment & take the readings (G-1)
	14 th	• Electric field, electric lines of force (definition and properties), • Electric field intensity due to a point charge	14 th	Perform the Experiment & take the readings (G-2)
8 th	15 th	• Definition of electric flux, Gauss law (statement and formula) • Capacitor and capacitance (with formula and unit)	15 th	Experiment - 5 : To verify Ohm's laws by plotting a graph between voltage and current – Introduction & perform the experiment (G-1)
	16 th	• Electric current and its SI Unit • Direct and alternating current	16 th	Experiment - 5 : To verify Ohm's laws by plotting a graph between voltage and current – Introduction & perform the experiment (G-2)
9 th	17 th	• Resistance, conductance (definition and unit) • Series and parallel combination of resistances	17 th	Experiment – 6 : To study colour coding scheme of resistance – Introduction & perform the experiment (G-1)
	18 th	• Ohm's law (statement and formula) • CLASS TEST • ASSIGNMENT	18 th	Experiment – 6 : To study colour coding scheme of resistance – Introduction & perform the experiment (G-2)
10 th	19 th	• 2nd Sessional Test	19 th	Experiment – 7 : To verify laws of resistances in series combination - Introduction & perform the experiment (G-1)
	20 th	• Display of 2nd Sessional Test • Analysis of Sessional Test • Discussion About Assignment	20 th	Experiment – 7 : To verify laws of resistances in series combination - Introduction & perform the experiment (G-2)
11 th	21 th	UNIT – IV (Classification of Materials and their Properties) • Definition of energy level, energy bands • Types of materials (conductor, semiconductor, insulator and	21 th	Experiment – 8 : To verify laws of resistance in parallel combination- Introduction & perform the experiment (G-1)

		dielectric) with examples, intrinsic and extrinsic semiconductors (introduction only)		
	22 th	• Introduction to magnetism, • Type of magnetic materials: diamagnetic, paramagnetic and ferromagnetic materials with examples • Magnetic field, magnetic lines of force, magnetic flux, Electromagnetic induction (definition)	22 th	Experiment – 8 : To verify laws of resistance in parallel combination- Introduction & perform the experiment (G-2)
12 th	23 th	UNIT - V (Modern Physics) • Laser: introduction, principle, absorption, spontaneous emission, stimulated emission, population inversion	23 th	Experiment – 9 : To find resistance of galvanometer by half deflection method.- Introduction & perform the experiment (G-1)
	24 th	• Engineering and medical applications of laser - Fibre optics: introduction to optical fibers (definition, principle and parts), light propagation	24 th	Experiment – 9 : To find resistance of galvanometer by half deflection method.- Introduction & perform the experiment (G-2)
13 th	25 th	• Fiber types (mono-mode, multi-mode), applications in medical, telecommunication and sensors	25 th	Experiment – 10 : To verify laws of reflection of light using mirror -Introduction & perform the experiment (G-1)
	26 th	• Nanotechnology: introduction, definition of nanomaterial's with examples • Properties at nanoscale • applications of nanotechnology (brief) • CLASS TEST • ASSIGNMENT	26 th	Experiment – 10 : To verify laws of reflection of light using mirror -Introduction & perform the experiment (G-2)
14 th	27 th	• 3rd Sessional Test	27 th	Experiment – 11 : To verify laws of refraction using glass slab -Introduction & perform the experiment (G-1)
	28 th	• Display of 3rd Sessional Test • Analysis of Sessional Test	28 th	Experiment – 11 : To verify laws of refraction using glass slab -Introduction & perform the experiment (G-2)
15 th	29 th	• Discussion About Assignment	29 th	Experiment – 12 : To find the focal length of a concave lens, using a convex lens -Introduction & perform the experiment (G-1)
	30 th	• Solution of Problems	30 th	Experiment – 12 : To find the focal length of a concave lens, using a convex lens -Introduction & perform the experiment (G-2)
16 th	31 th	• Revision	31 th	Revision (G-1)
	32 th	• Revision	32 th	Revision (G-2)