

LESSON PLAN (Applied Physics-1)

Name of The Faculty : Shivam Gothwal

Discipline : Common for all branches

Semester : 1st

Subject : Applied Physics – I

Lesson Plan Duration : 15 weeks

Session: August 2026 to November 2026

Work Load (Theory/Practical) per week (in Hours) : Lecture - 02 , Practical - 02

Week	Theory		Practical	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1	1	● Unit – I (Unit & Dimensions) ● Introduction ● Definition of Physics, Physical Quantities ● Fundamental and Derived Quantities	1	<u>Experiment - 1</u> ● Familiarization of measurement instruments & their parts & taking a reading. – Introduction
	2	● Units: Fundamental and Derived units ● System of units: CGS, FPS, MKS, SI ● Dimension & Dimensional formulae of physical quantities	2	● Familiarize with the parts – vernier calliper, screw gauge, spherometer, etc.
2	3	● SI units of physical quantities ● Dimensional equations, Principle of homogeneity of dimensions	3	● Take the readings & perform
	4	● Applications of dimensional equations; Checking of correctness of equation ● Conversion of system of unit	4	<u>Experiment - 2</u> ● To find diameter of solid cylinder using a vernier calliper - Introduction
3	5	● Unit – II (Force & motion) ● Introduction ● Scalar and vector quantities –(Definition and examples),	5	● Take the readings & perform the experiment
	6	● Vector Algebra - Addition of Vectors, ● Triangle & Parallelogram Law ● Scalar and Vector Product (statement and formula only)	6	● Revise the experiment
4	7	● Class Test ● ASSIGNMENT	7	<u>Experiment - 3</u> ● To find internal diameter and depth of a beaker using a vernier calliper and hence find its volume.- Introduction

	8	• Force and its units • Concept of Resolution of force • Newton's Law of motion (Statement and examples),	8	• Take the readings
5	9	• First Sessional Test	9	• Do calculation to find its volume & revise the experiment
	10	• Linear Momentum • Law of Conservation of Linear momentum • Impulse	10	Experiment - 4 • <u>To find the diameter of wire using screw gauge</u> - Introduction
6	11	• Circular motion • Definition of angular displacement, angular velocity, angular acceleration, frequency, time period	11	• Perform experiment & take the readings • Revise the experiment
	12	• Relation between linear and angular velocity • Centripetal forces (definition and formula only) • Centrifugal forces (definition and formula only)	12	Experiment - 5 • <u>To find thickness of paper using screw gauge</u> - Introduction
7	13	• Application of centripetal force in Banking of roads (derivation for angle of banking)	13	• Perform experiment & take the readings
	14	• Rotational Motion : Definition with examples • Definition of Torque • Definition of angular momentum • Moment of inertia & its physical significance	14	• Revise the experiment
8	15	• Unit – III (Work, Power and Energy) • Introduction • Work (Definition, Symbol, Formula and SI units) • Types of work with example	15	Experiment - 6 • <u>To determine the thickness of glass strip using a spherometer</u> - Introduction
	16	• Class Test • ASSIGNMENT	16	• Perform experiment & take the readings
9	17	• Friction – definition & its simple daily life applications • Energy – Definition & its SI unit • Examples of transformation of energy	17	• Revise the experiment

	18	• Kinetic Energy (Definition, formula, examples and its derivation) • Potential Energy (Definition, formula, examples and its derivation)	18	Experiment - 7 • <u>To determine radius of curvature of a given spherical surface by a spherometer.</u>- Introduction
10	19	• Law of conservation of mechanical energy for freely falling bodies (With Derivation)	19	• Perform experiment & take the readings
	20	• Simple Numerical problems based on formula of Power and Energy	20	• Revise the experiment
11	21	• Second Sessional Test	21	Experiment - 8 • <u>To verify parallelogram law of forces</u>- Introduction
	22	• Unit – IV (Properties of Matter) • Introduction • Elasticity and plasticity, Deforming force, Restoring force, • Example of Elastic and plastic body • Definition of Stress and strain	22	• Perform experiment & take the readings
12	23	• Hooke's law • Modulus of Elasticity • Pressure – definition • Atmospheric pressure • Gauge pressure • Absolute pressure	23	• Revise the experiment
	24	• ASSIGNMENT • Class Test	24	Experiment - 9 • <u>To determine the atmospheric pressure at a place using Fortin's Barometer</u>-Introduction
13	25	• Pascal's law • Surface tension: definition, its units • Applications of surface tension • Effect of temperature on Surface Tension • Viscosity: definition, units, effect of temperature on viscosity	25	• (Setting up the apparatus) • Perform experiment & take the readings
	26	• Unit – V (Heat and temperature) - Introduction • Definition of heat and temperature • Difference between heat and Temperature	26	Experiment - 10 • <u>To determine force constant of spring using Hooke's law</u>- Introduction

14	27	• Principle and working of mercury thermometer • Modes of transfer of heat (Conduction, convection and radiation with examples).	27	• (Setting up the apparatus) • Perform experiment & take the readings
	28	• Properties of heat radiation • Different scales of temperature and their relationship		<u>Experiment - 11</u> • Measuring room temperature with the help of thermometer and its conversion in different scale- Introduction
15	29	• Third Sessional Test	29	• Perform experiment & take the readings
	30	• Analysis of Test • PTM-III	30	Revision of Experiment