Lesson Plan

Name:Shallu (Guest Faculty) (Theory & Practical)

Discipline: Applied Science

Semester: 1st

Subject: Applied Physics

Code: 220013

Duration: 16 Weeks (04 Aug 2025 – 26 Nov 2025)

Work load (per week): Lectures- 2& Practical - 1

Week	Theory			Practical
1st	Lect. day	Topic		Topic
	1st	Introduction: Definition of Physics, physical quantities- fundamental and derived		Familiarization of measurement instruments and their parts (for example – Vernier calliper, screw gauge, sphere meter, travelling microscope etc.), and taking a reading.
	2nd	Units: fundamental and derived, System of units: CGS, FPS, MKS, SI		
2nd	1st	Dimension, dimensional formulae and SI units of physical quantities- distance, displacement, area, volume, density, velocity, acceleration, linear momentum		To find diameter of solid cylinder using a Vernier caliper
	2nd	Dimension, dimensional formulae and SI units of physical quantities- force, impulse, work, power, energy, pressure, surface tension, stress, strain		
3rd	1st	Dimensional equations, principle of homogeneity of dimensional equation, examples Application of dimensional analysis: checking the correctness of physical equation		To find internal diameter and depth of a beaker using a Vernier caliper and hence find its volume.
	2nd	Application of dimensional analysis: conversion of system of unit (force, work , acceleration)		
4th	1st	Revision of unit 1 (complete) & Assignment 1		To find the diameter of wire using screw gauge

	2nd	Scalar and vector quantities– definition and examples, representation of vector, Types of vector (unit vector, position vector, co-initial vector, collinear vector, co-planar vector) with examples		
5th	1st	Vector algebra- addition of vectors, Triangle &Parallelogram law of vector addition (statement and formula) Scalar and vector product (statement and formula)		To find thickness of paper using screw gauge.
	2nd	Force and its units, resolution of force (statement and formula)		
6th	1st	Newton's laws of motion (statement and examples)		File checking & Revision
	2nd	Linear momentum, Law of conservation of linear momentum (statement and examples), Impulse		
7th	1st	Sessional 1		To determine the thickness of glass strip using a spherometer File checking & Revision
	2nd	Circular motion: definition of angular displacement, angular velocity, angular acceleration, frequency, time period; Relation between linear and angular velocity, Frequency, time period, centripetal and centrifugal forces (definition and formula)		
8th	1st	Application of centripetal force in banking of road, Rotational motion: definition with examples		To determine radius of curvature of a given spherical surface by a spherometer. File checking & Revision
	2nd	Rotational motion: definition with example Definition of torque, angular momentum, moment of inertia and its physical significance		
9th	1st	Revision, doubt solving of 2nd unit (complete) & Assignment 2		To verify parallelogram law of force

	2nd	Work- definition, symbol, formula and SI unit, types of work (zero work, positive work and negative work) with example		
10th	1st	Friction– definition and its simple daily life applications, Power- definition, formula and units		Measuring room temperature with the help of thermometer and its conversion in different scale.
	2nd	Sessional 2		
11th	1st	Energy- definition and its SI unit, examples of transformation of energy. Kinetic energy- definition, examples, formula and its derivation. Potential energy- definition, examples, formula and its derivation		Introduction about Force constant, Hooke's law
	2nd	Law of conservation of mechanical energy for freely falling bodies (with derivation)		
12th	1st	Simple numerical problems based on formula of Power and Energy		To determine force constant of spring using Hooke's law
	2nd	Elasticity and plasticity- definition, deforming force, restoring force, example of elastic and plastic body. Definition of stress and strain, Hooke's law, modulus of elasticity		
13th	1st	Pressure- definition, atmospheric pressure, gauge pressure, absolute pressure, Pascal's Law. Surface tension- definition, SI unit		Introduction about thermometer & observations
	2nd	Definition of heat and temperature (on the basis of kinetic theory). Difference between heat and temperature.		

14th	1st	Applications of surface tension, effect of temperature on surface tension. Viscosity: definition, unit, examples, effect of temperature on viscosity		Introduction about different scales of temperature
15th	2nd	Principle and working of mercury thermometer Modes of transfer of heat- conduction, convection and radiation with examples. Properties of heat radiation		File checking & Revision
16th	1st	Different scales of temperature and their relationship		Revision
	2nd	Revision & doubts solving.		
	1st	Sessional 3		Revision
	2nd	Revision		