

Lesson Plan

Physics

Name of Faculty : Umesh Kumar

Discipline : Applied Science

Semester : 1st

Subject : Applied Physics

Lesson Plan Duration : August 2024 to November 2024

Work load (Lecture) per week (in hours) : Lectures—02

Practical-02(4Hours)

Week	Theory		Practical	
	Lecture Day	Topic(Including Assignments)	Practical Day	Topic
1st	1	Unit1:- Unit and Dimensions Definition of Physics,Physical quantities:Fundamental and Derived	1	1) Familiarization of measuring instruments and their parts (e.g.,Vernier Caliper, screw gauge spherometer ,travelling microscope etc.)(Group-1)
	2	Units: Fundamental and Derived,system of units: CGS,FPS,MKS,SI	2	1) Familiarization of measuring instruments and their parts (e.g.,Vernier Caliper ,screw gauge spherometer ,travelling microscope etc.)(Group-2)
2nd	1	Dimensions,dimensional formulae and SI units of physical quantities:Distance,displacement,area,volume,density,velocity,acceleration,linear momentum,force,impulse,work,power,energy,presure,surface tension,stress,strain	1	2)To find diameter of solid cylinder using a vernier caliper(Group-1)
	2	Dimensional equation,principle of Homogeneity of dimensional equation.Application of dimensional analysis	2	2)To find diameter of solid cylinder using a vernier caliper(Group-2)
3rd	1	Checking of correctness of physical equation, conversion of system of units(Force ,work, acceleration)	1	3) To find internal diameter and depth of a beaker using a vernier caliper and hence find its volume(Group-1)
	2	UNIT2:- Force and Motion Scalar and vector quantities:Definition and examples ,representation of vector,types of vector(unit vector,position vector,cointial vector,collinear vector,coplanar vector)	2	3) To find internal diameter and depth of a beaker using a vernier caliper and hence find its volume(Group-2)
4th	1	Vector Algebra:Addition of vector,Triangle and parallelogram law(statement and formula only)	1	4) To find the diameter of a wire using a screw gauge.(Group-1)
	2	Scalar and Vector product(statement and formula only),Force and its units,Resolution of force(statement and formula only)	2	4) To find the diameter of a wire using a screw gauge.(Group-1)
5th	1	Newton's law of Motion(statement and examples)	1	Revision and Viva(Group-1)
	2	Linear momentum,Law of conservation of linear momentum(statement and example),Impulse Revision of syllabus	2	Revision and Viva(Group-2)
6th	1	First Sessional Test(Tentative)	1	First Sessional Test(Tentative)
	2	First Sessional Test(Tentative	2	First Sessional Test(Tentative

7th	1	Circular Motion: Definition of Angular Displacement, Angular velocity, Angular acceleration, Frequency, Time period, Relation between linear and angular velocity	1	5) To find the thickness of a paper using screw gauge (Group-1)
	2	Centripetal and centrifugal force (Definition and formula only), Application of centripetal force in banking of road	2	5) To find the thickness of a paper using screw gauge (Group-2)
8th	1	Rotational Motion : Definition with example, Definition of Torque angular momentum, Moment of inertia and its physical significance	1	6) To determine the thickness of a glass strip using a spherometer (Group-1)
	2	Unit3:- Work, Power and Energy Work: definition, symbol, formula and SI unit, Types of work (zero work, positive work and negative work) with example	2	6) To determine the thickness of a glass strip using a spherometer (Group-2)
9th	1	Friction: Definition and its simple daily life applications, Power: Definition formula and units, Energy: definition and its SI units, Example of transformation of energy.	1	7) To determine the radius of curvature of a given spherical surface by a spherometer (Group-1)
	2	Kinetic Energy: Definition example formula and its derivation, Potential Energy: Definition example formula and its derivation	2	7) To determine the radius of curvature of a given spherical surface by a spherometer (Group-2)
10th	1	Law of conservation of Mechanical energy for freely falling body (with derivation), simple numerical problems based on formula of power and energy	1	8) To verify parallelogram law of force. (Group-1)
	2	Revision of above topics	2	8) To verify parallelogram law of force. (Group-2)
11th	1	Second Sessional Tests (Tentative)	1	Second Sessional Tests (Tentative)
	2	Second Sessional Tests (Tentative)	2	Second Sessional Tests (Tentative)
12th	1	Unit4:- Properties of Matter Elasticity and Plasticity – definition, deforming force, restoring force, example of elastic and plastic body, Definition of stress and strain, Hook's law, Modules of elasticity	1	9) To determine the atmospheric pressure at a place using Fortin's Barometer (Group-1)
	2	Pressure- Definition, atmospheric pressure, gauge pressure, absolute pressure, Pascal's law, Surface Tension- Definition, SI unit applications of surface tension, effect of temperature on surface tension	2	9) To determine the atmospheric pressure at a place using Fortin's Barometer (Group-2)
13th	1	Viscosity: Definition, unit, examples, effect of temperature on viscosity	1	10) To determine force constant of a spring using Hook's Law (Group-1)
	2	Unit5: Heat and Temperature Definition of Heat and Temperature (on the basis of Kinetic theory), Difference between Heat and Temperature	2	10) To determine force constant of a spring using Hook's Law (Group-2)
14th	1	Principle and working of Mercury Thermometer, Modes of Transfer of heat : conduction, convection and Radiation with examples.	1	11) Measuring Room temperature with the help of a Thermometer and its conversion in different scales (Group-1)
	2	Properties of Heat Radiations, Different scales of Temperature and their relationship	2	11) Measuring Room temperature with the help of a Thermometer and its conversion in different scales (Group-2)
15th	1	Third Sessional Test (Tentative)	1	Third Sessional Test (Tentative)
	2	Third Sessional Test (Tentative)	2	Third Sessional Test (Tentative)
16th	1	Revision of syllabus	1	Revision and Viva voce (Group-1)
	2	Revision of syllabus	2	Revision and Viva voce (Group-1)

