**Lesson Plan (Ist Semester) (2025-26)**

**Physics- 1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Week** | **Theory** | | **Practical** | |
| **Lecture Day** | **Topic(Including Assignments)** | **Practical Day** | **Topic** |
| **Ist** | **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, pressure, 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) |