LLESSON PLAN

Semester : 2nd Sem

Subject : Applied Physics-II

Lession Plan Duration : --16 weeks (from 15 Feb,2024 to June, 2024)

Work Load (Lecture/Practical) per week (in hours) : Lecture – 02 , Practicals -02

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Week** | **Theory** | | **Practical** | |
|  | **Lecture day** | **Topic**  **(including assignment/test)** | **Practi**  **-cal day** | **Topic** |
| 1 | 1 | * Wave motion - Introduction | 1 | Familiarization with apparatus (resistor, rheostat, key, ammeter, volt meter, telescope, microscope etc ) |
|  | 2 | * Terms - displacement, amplitude, time   period,frequency,wavelength,wave velocity, |
|  | 3 | * Transverse wave motion |
|  | 4 | * longitudinal wave motion |
| 2 | 5 | * Difference b/w Transverse & longitudinal wave motion |
|  | 6 | * relationship among wave velocity, frequency and wave length . * Simple Harmonic Motion (SHM): definition,examples |
|  | 7 | * Cantilever * Vibrations & its types | 2 | To find the time period of simple pendulum |
|  | 8 | * Acoustics of buildings – reverberation * reverberation time |
| 3 | 9 | * Echo, noise, coefficient of absorption of sound |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 10 | * methods to control reverberation time. |  |  |
|  | 11 | * Ultrasonics | 3 | To study variation of time period of a simple pendulum with change in length of pendulum |
|  | 12 | * Engineering applications of Ultrasonics |
| 4 | 13 | * Optics – Introduction |
|  | 14 | * Reflection of Light * Refraction of Light |
|  | 15 | * refractive index * Total internal reflection * Critical angle | 4 | To find and verify the time period of cantilever |
|  | 16 | * Applications of TIR * conditions for TIR |
| 5 | 17 | * Super Position of Waves, Definition of Interference, Diffraction and Polarization of Waves * Microscope, telescope& their uses |
|  | 18 | * Introduction of Lens, lens Formula (no derivation), Power of Lens * Based numerical |
|  | 19 | * Assignment – Ultrasonics | 5 | To find Ohm’s laws by plotting a graph between voltage and current |
|  | 20 | * Test |
| 6 | 21 | * Electrostatics and Electricity –   Introduction |
|  | 22 | * Coulombs law * Unit charge |
| 7 | 23 | * Electric field * Electric lines of force,its properties | 6 | To study colour coding scheme of resistance |
|  | 24 | * Electric Intensity * Electric Flux |
| 8 | 25 | * Electric potential * Electric field intensity due to a point charge. |
|  | 26 | * Gauss law(Statement and derivation) |
|  | 27 | * Capacitor * Capacitance | 7 | To verify laws of resistance in series combination |
| 9 | 28 | * Series combination of capacitors |
|  | 29 | * parallel combination of capacitors * Ohm’s Laws |
| 10 | 30 | * Numerical based on Grouping of   capacitors |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 31 | * Classification of Materials and their Properties | 8 | To verify laws of resistance in parallel combination |
| 11 | 32 | * Types of materials * Conductor, Semi-Conductor, Insulator and Dielectric with examples |
|  | 33 | * intrinsic and extrinsic semiconductors ( Introduction only) | 9 | To find resistance of galvanometer by half deflection method |
| 12 | 34 | * Introduction to Magnetism * Types of magnetic materials * Dia materials with example |
|  | 35 | * para and ferromagnetic materials with examples | 10 | To verify laws of reflection of light using mirror |
|  | 36 | * Magnetic field * magnetic Flux |
| 13 | 37 | * Magnetic lines of force | 11 | To verify laws of refraction using glass slab |
|  | 38 | * Electromagnetic induction (Definition) |
|  | 39 | Test | 12 | To find the focal length of a concave lens using a convex  lens |
| 14 | 40 | Modern Physics - Introduction |
|  | 41 | * Lasers: full form, Principle, absorption, spontaneous emission, stimulated emission, population inversion * Engineering and applications of laser | 13 | revision |
| 15 | 42 | * Fibre optics – Definition, principle, parts, light propagation, fiber types (mono- mode, multi-mode) * Applications in medical, tele-   communication and sensors |
|  | 43 | * Introduction to nanotechnology-   Definition of nano materials with examples, properties at nano scale | 14 | revision |
|  | 44 | * Applications of nanotechnology( brief) |
| 16 |  | * Revision and test | 15 | revision |