

Government Polytechnic Panchkula, Sector 26

Lesson Plan

Name- Sudesh Sharma

Discipline- Applied Science

Semester – 1st Year

Subject – Applied Physics

Duration – 33 weeks (2020-21)

Work load (per week):- lectures-02, Tutorial 01 and practicals-02

Week	Theory		Practical	
	Lect. day	Topic	Practical day	Topic
1 st	1 st	Introduction about physics Physical quantities Units - fundamental and derived units	1 st	Introduction about lab
	2 nd	Physical quantities Units - fundamental and derived unitsFPS, CGS and SI units		
	3 rd	Dimensions and dimensional formulae of physical quantities	2 nd	To find the diameter of solid cylinder using vernier calliper
	4 th	Tutorial: Doubt session and problem solving		
2 nd	1 st	Dimensional formulae Distance, area, volume, velocity, acceleration, momentum, force etc.	1 st	Revision & Checked practical note book
	2 nd	Dim. Formula of work, power, energy, surface tension, stress, strain, moment of inertia		
	3 rd	Principle of homogeneity of dimensionsconversion from one system of units to other	2 nd	Revision & Checked practical note book
	4 th	Tutorial: Doubt session and problem solving		
3 rd	1 st	Limitations of dimensional analysis	1 st	To find internal diameter and depth of a beaker using verniercaliper and hence find its volume.
	2 nd	Revision of unit- 1 (Complete) and 1 st assignment		
	3 rd	Scalar and vector quantities – examples Addition of Vectors, Triangle and Parallelogram law	2 nd	To find internal diameter and depth of a beaker using verniercaliper and hence find its volume.
	4 th	Tutorial: Doubt session and problem solving		

4th	1 st	Scalar and Vector Product, Definition of Distance , Displacement, Speed, Velocity, Acceleration, Force and Resolution of force	1 st	Revision & Checked practical note book
	2 nd	Newton's laws of motion and Conservation of linear momentum		
	3 rd	Impulse and its examples and introduction to Circular motion,	2 nd	Revision & Checked practical note book
	4 th	Tutorial: Doubt session and problem solving		
5th	1 st	Angular displacement, angular velocity, angular Acceleration and relation between linear and angular system.	1 st	To find the diameter of wire using screw gauge.
	2 nd	Centripetal and centrifugal forces		
	3 rd	Banking of roads (application of centrifugal force)	2 nd	To find the diameter of wire using screw gauge.
	4 th	Tutorial: Doubt session and problem solving		
6th	1 st	class test of unit 1 and 2	1 st	Revision & Checked practical note book
	2 nd	Work, its units and types		
	3 rd	Energy and its units: Kinetic energy and potential energy, Transformation of energy.	2 nd	Revision & Checked practical note book
	4 th	Energy conservation law in case of freely falling body		
7th	1 st	Power (definition,formula and units), Simple numerical problem on power	1 st	To determine the thickness of glass strip using a spherometer
	2 nd	Rotational motion with examples		
	3 rd	Definition of torque and angular momentum and their example	2 nd	To determine the thickness of glass strip using a spherometer
	4 th	Tutorial: Doubt session and problem solving		
8th	1 st	Conservation of angular momentum	1 st	Revision & Checked practical note book
	2 nd	Moment of inertia and its physical significance		
	3 rd	Radius of gyration (definition, Derivation and formula).	2 nd	Revision & Checked practical note book

	4 th	Tutorial: Doubt session and problem solving		
9th	1 st	Re-revision of unit 3 and 4.	1 st	To determine radius of curvature of a given spherical surface by a spherometer.
	2 nd	2nd class test of unit 3 and 4		
	3 rd	Definition of deforming force restoring force, elastic body & plastic body and types of stress and strain	2 nd	To determine radius of curvature of a given spherical surface by a spherometer.
	4 th	Hooke's law, Different types of module of elasticity.		
10th	1 st	Pressure, Pascal's law	1 st	Revision & Checked practical note book
	2 nd	Surface tension: definition, its units, surface tension, effect of temperature on Surface tension		
	3 rd	Viscosity: definition, units and effect of temp.	2 nd	Revision & Checked practical note book
	4 th	Tutorial: Doubt session and problem solving		
11th	1 st	Fluid motion, stream line and turbulent flow.	1 st	To verify parallelogram law of forces
	2 nd	Revision of 5th unit		
	3 rd	3 rd class test	2 nd	To verify parallelogram law of forces
	4 th	Tutorial: Doubt session and problem solving		
12th	1 st	Definition of heat and temperature, Difference between heat and temperature	1 st	Revision & Checked practical note book
	2 nd	Principles of measurement of temperature, Modes of transfer of heat		
	3 rd	Conduction, convection and radiation Properties of heat radiation	2 nd	Revision & Checked practical note book
	4 th	Tutorial: Doubt session and problem solving		
13th	1 st	Different scales of temperature and their relationship	1 st	To determine the atmospheric pressure at a place using Fortin's Barometer
	2 nd	Principles of measurement of temperature.		

	3 rd	Revision of 6th unit	2 nd	To determine the atmospheric pressure at a place using Fortin's Barometer
	4 th	Tutorial: Doubt session and problem solving		
14th	1 st	4 th Class test	1 st	Revision & Checked practical note book
	2 nd	Revision of 1 st and 2nd unit		
	3 rd	Class test	2 nd	Revision & Checked practical note book
	4 th	Revision of 3 rd and 4th unit		
15th	1 st	Class test	1 st	Re revision of experiments
	2 nd	Re revision of 5 units		
	3 rd	Re revision of 6 units	2 nd	Re revision of experiments
	4 th	Tutorial: Doubt session and problem solving		
16th	1 st	Wave motion: Introduction to periodic motion, Transverse and longitudinal wave motion with examples	1 st	To determine force constant of spring using Hooke's law
	2 nd	Term used in S.H.M like displacement, amplitude, time period, frequency, wavelength	1 st	To determine force constant of spring using Hooke's law
	3 rd	Wave velocity, relationship among wave velocity, frequency and wave length		
	4 th	Tutorial: Doubt session and problem solving	2 nd	To determine force constant of spring using Hooke's law
17th	1 st	Simple Harmonic Motion (SHM): definition and examples	1 st	Revision & Checking of practical note books
	2 nd	Cantilever: definition and formula of time period		
	3 rd	Free, forced and resonant vibrations		
	4 th	Tutorial: Doubt session and problem solving	2 nd	Revision & Checking of practical note books
18th	1 st	Acoustics of buildings – reverberation, reverberation time	1 st	Measuring room temperature with the help of thermometer and its conversion in different scale.
	2 nd	Echo, noise,		

		coefficient of absorption of sound		
	3 rd	Methods to control reverberation time		
	4 th	Tutorial: Doubt session and problem solving		
			2 nd	Measuring room temperature with the help of thermometer and its conversion in different scale.
19 th	1 st	Ultrasonic (production methods) Applications to cold welding, drilling and SONAR	1 st	Revision & Checking of practical note books
	2 nd	Optics: Reflection, refraction of light and refractive index		
	3 rd	Lens formula (no derivation), power of lens and related numerical problems		
	4 th	Tutorial: Doubt session and problem solving	2 nd	Revision & Checking of practical note books
20 th	1 st	Total internal reflection (TIR), critical angle and conditions for total internal reflection	1 st	To find the time period of a simple pendulum
	2 nd	Applications of TIR		
	3 rd	Microscope and Telescope (definition) Uses of microscope and telescope		
	4 th	class test	2 nd	To find the time period of a simple pendulum
21 st	1 st	Electrostatics: Coulomb's law and electric charge and unit charge		
	2 nd	Electric field and Electric lines of force (definition and properties)	1 st	Revision & Checking of practical note books
	3 rd	Electric Flux and Electric intensity due to a point charge		

	4 th	Tutorial: Doubt session and problem solving	2 nd	Revision & Checking of practical note books
22 nd	1 st	Electric potential (definition and formula)	1 st	To determine and verify the time period of Cantilever
	2 nd	Gauss' law (Statement and derivation)Series and parallel combination of capacitors		
	3 rd	Capacitor and Capacitance (with formula and units)Numerical problems		
	4 th	Tutorial: Doubt session and problem solving	2 nd	To determine and verify the time period of Cantilever
23 rd	1 st	Revision of 7 th and 8 th units	1 st	Revision & Checking of practical note books
	2 nd	Current Electricity:Electric current and its units		
	3 rd	Direct and alternating current		
	4 th	Tutorial: Doubt session and problem solving	2 nd	Revision & Checking of practical note books
24 th	1 st	Class test	1 st	To verify ohm's laws by plotting a graph between voltage and current
	2 nd	Ohm's law and resistance		
	3 rd	Specific resistance (definition and units) and Conductance		
	4 th	Tutorial: Doubt session and problem solving,	2 nd	To verify ohm's laws by plotting a graph between voltage and current
		Kirchhoff's laws (statement and formula)		
25 th	1 st	Series and parallel combination of resistancesNumerical problems	1 st	Revision & Checking of practical note books
	2 nd	Electric power,Electric energy and its units		
	3 rd	Heating effect of current Kirchhoff's law		
	4 th	Tutorial: Doubt session and problem solving	2 nd	To verify laws of resistances in series combination. To verify laws of resistance in parallel combination

26 th	1 st	Revision of 9 th and 10 th units	1 st	To find resistance of galvanometer by half deflection method
	2 nd	class test		
	3 rd	Electromagnetism: Introduction to magnetism		
	4 th	Tutorial: Doubt session and problem solving		
27 th	1 st	Magnetic field and magnetic intensity	2 nd	To verify laws of reflection of light using mirror.
	2 nd	Magnetic lines of force, magnetic flux and their units		
	3 rd	Types of magnetic materials, Dia, para and ferromagnetic materials with examples		
	4 th	Tutorial: Doubt session and problem solving		
28 th	1 st	Semiconductor physics: Definition of energy level and Energy bands and types of materials (insulator, semiconductor, conductor)	1 st	Revision & Checking of practical note books
	2 nd	Intrinsic and extrinsic semiconductors		
	3 rd	p-n junction diode and its V-I characteristics		
	4 th	Tutorial: Doubt session and problem solving	2 nd	To verify laws of refraction using glass slab.
29 th	1 st	Diode as half wave rectifier Diode as full wave rectifier	1 st	Revision & Checking of practical note books
	2 nd	Semiconductor transistor: pnp and npn (Introduction only)		
	3 rd	class test Applications of lasers		
	4 th	Tutorial: Doubt session and problem solving	2 nd	To find the focal length of a concave lens, using a convex lens
30 th	1 st	Modern Physics: Lasers: full form, characteristics	1 st	To study colour coding scheme of resistance.

	2 nd	Introduction to nanotechnology		
	3 rd	Definition of nanomaterial's with examples, Applications of nanotechnology		
	4 th	Tutorial: Doubt session and problem solving Revision of 6 th and 7 th units		
31 th	1 st	Fiber optics: Introduction to optical fibers(definition and parts)	1 st	Revision of experiments
	2 nd	Applications of optical fibers in different fields		
	3 rd	Class test		
	4 th	Tutorial: Doubt session and problem solving	2 nd	Revision & Checking of practical note books
32 nd	1 st	Revision of 11 th unit	1 st	Revision of experiments
	2 nd	Revision of 12 th unit		
	3 rd	Tutorial: Doubt session and problem solving		
	4 th	Class Test	2 nd	Revision & Checking of practical note books
33 rd	1 st	Revision of 13 th unit	1 st	Revision of experiments
	2 nd	Revision of 13 th unit		
	3 rd	Tutorial: Doubt session and problem solving		
	4 th	Class Test	2 nd	Revision & Checking of practical note books