

Lesson Plan

Name of Faculty : **Dr Bhajan Lal**

Discipline : **Applied Science**

Semester : **I**

Subject : **Applied Physics-I**

Lesson Plan Duration: 15 Week (From July 2018 to Nov 2018)

Work Load (Lecture/ Practical) per week (In hours): Lecture – 4, Practical – 4)

APPLIED PHYSICS – I (170013)

Week	Theory		Practical	
	Lecture Day	Topic (Including Assignment / Test)	Practical Day	Topic
1	1	Basic about Physics and broad area	1	Familiarisation with verniercaliper, screw gauge, spherometer and find their least count.
	2	Physical quantities, Basic concept		
	3	Types of Physical quantities		
	4	Units - fundamental and derived units, systems of units (FPS, CGS and SI units)		
2	5	Dimensions and dimensional formulae of physical quantities (area, volume, velocity, acceleration	2	To find the time period of a simple pendulum
	6	Dimensional formulae of physical quantities (momentum, force, impulse, work, power, energy, surface tension, stress, strain, moment of inertia.)		
	7	Principle of homogeneity of dimensions		
	8	Dimensional equations and dimensional analysis. Applications of dimensional equations,		
3	9	Conversion from one system of units to other for density, force, work, energy, velocity and acceleration	3	To find diameter of solid cylinder using a verniercaliper
	10	Checking of correctness and derivation of formulas (potential energy, kinetic energy, pressure)		
	11	Limitations of dimensional analysis		
	12	Revision and Problem discussion		
4	13	Revision and Problem discussion	4	To find internal diameter and depth of a beaker using a verniercaliper and hence find its volume.
	14	Assignment 1		
	15	Scalar and vector quantities – examples, representation of vector		
	16	Addition of Vectors, Triangle and Parallelogram law (Statement only), Scalar and Vector Product(statement and formula only)		
5	17	Force, Rectangular components, Resolution of force.	5	Revision and Viva Voce
	18	Newton's laws of motion(Statement and examples)		
	19	Momentum, Conservation of linear momentum (statement), applications such as recoil of gun.		
	20	Impulse and its examples		
6	21	Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period.	6	To find the diameter of wire using screw gauge
	22	Relation between linear and angular velocity, linear acceleration and angular acceleration		
	23	Centripetal and centrifugal forces(definition and formula only)		
	24	Application of centripetal force such as Banking of roads		
7	25	Banking of roads (derivation of angle of banking)	7	To find thickness of paper using screw gauge.
	26	Revision and Problem discussion		
	27	Sessional Test 1		
	28	Work: and its units, types of work (zero work with examples)		
8	29	Types of work (positive work and negative work with examples)	8	Revision and Viva Voce
	30	Energy and its units: Kinetic energy with examples and their derivation		
	31	Energy and its units: potential energy with examples and their derivation		
	32	Principle of conservation of mechanical energy for freely falling bodies, examples of transformation of energy.		
9	33	Power (definition, formula and units)	9	To determine the thickness of glass strip using a spherometer
	34	Revision and Problem discussion		
	35	Assignment 2		
	36	Rotational motion with examples		
10	37	Definition of torque and angular momentum and their examples	10	Revision and Viva Voce
	38	Conservation of angular momentum (quantitative) and its examples		
	39	Moment of inertia and its physical significance, radius of gyration (definition, derivation and formula).		
	40	Revision and Problem discussion		
11	41	Sessional Test 2	11	To verify parallelogram law of forces
	42	Definition and types of stress and strain,		
	43	Hooke's law, different types of module of elasticity.		
	44	Pressure: definition, its units, atmospheric pressure,		
12	45	Gauge pressure, absolute pressure	12	To determine the atmospheric pressure at a place using Fortin's Barometer
	46	Surface tension: definition, its units,		
	47	Applications of surface tension, effect of temperature on Surface tension		
	48	Viscosity: definition, units, effect of temperature on viscosity		
13	49	Fluid motion, stream line and turbulent flow	13	Revision and Viva Voce
	50	Revision and Problem discussion		
	51	Assignment 3		
	52	Heat & Temp, Difference between heat and temperature		
14	53	Modes of transfer of heat (Conduction, convection	14	To determine force constant of spring using Hooke's law
	54	Modes of transfer of Heat (radiation with examples). Properties of heat radiation		
	55	Different scales of temperature and their relationship		
	56	Principles of measurement of temperature		
15	57	Thermal conductivity(definition), co-efficient of thermal conductivity	15	Revision and Viva Voce
	58	Revision and Problem discussion		
	59	Sessional Test 3		