LESSON PLAN OF APPLLED PHYSICS-1

DISCIPLINE : All Branches	SEMESTER : 1st	NAME OF THE TEACHING FACULTY : SIPRA SUBHADRSHINI SENA. LECT.ST-II
SUBJECT : APPLIED PHYSICS-1	NO. OF DAYS/PER WEEK CLASS ALLOTTED:04	SEMESTER FROM DATE : 16.8.2024 TO DATE: 24.12.2024 NO. OF WEEKS : 15
WEEK :	**CLASS DAY :**	**THEORY TOPIC :**
1ST	1ST	UNIT - I: (Physical world, Units and Measurements)Physical quantities
	2ND	fundamental and derived, Units and systems of units
	3RD	Exercises
	4TH	unit and dimension
2ND	1ST	Dimensions and dimensional formulae of physical quantities
	2nd	Principle of homogeneity
	3rd	dimensions
	4th	Exercises
3RD	1st	Limitations of dimensional analysis ,Measurements: Need, measuring instruments, least count
	2nd	types of measurement (direct,Indirect)
	3rd	Exercises
	4th	absolute error, relative error, error propagation, error estimation
4TH	1st	significant figures
	2nd	Unit 2: Force and Motion ,Scalar and Vector quantities – examples, representation of vector, types of vectors.
	3rd	types of vectors.
	4th	Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only)
5TH	1ST	Exercises
	2ND	Force, Momentum, Statement and derivation of conservation of linear momentum
	3RD	applications such as recoil of gun, rockets, Impulse and its applications.
	4TH	acceleration, frequency, time period, Relation between linear and angular velocity
6TH	1ST	acceleration and angular acceleration (related numerical), Centripetal and Centrifugal
	2nd	forces with live examples, Expression and applications such as banking of roads and
	3rd	bending of cyclist.
	4th	**unit-3 :work, power and energy**, Energy and its units, kinetic energy, gravitational potential energy with examples and derivations,
7TH	1st	mechanical energy, conservation of mechanical energy for freely falling

	2nd	Power and its units, power and work relationship, calculation of power (numerical problems).
	3rd	**Unit 4: Rotational Motion Translational**
	4th	Definition of torque and angular momentum and their examples
8TH	1st	Conservation of angular momentum (quantitative) and its applications.
	2nd	Moment of inertia and its physical significance
	3rd	radius of gyration for rigid body
	4th	Theorems of parallel and perpendicular axes (statements only)
9TH	1ST	Moment of inertia of rod, disc
	2ND	ring and sphere (hollow and solid); (Formulae only)
	3RD	Exercises
	4TH	**Unit 5: Properties of Matter Elasticity**
10TH	1ST	Hooke's law
	2nd	stress and strain,
	3rd	Significance of stress strain curve
	4th	Pressure: definition, units,atmospheric pressure,gauge pressure,aboslute pressure
11TH	1st	Fortin's Barometer and its applications
	2nd	Exercises
	3rd	Surface tension: concept, units,
	4th	angle of contact
12TH	1st	Ascent Formula (No derivation)
	2nd	effect of temperature and impurity on surface tension
	3rd	Viscosity and coefficient of viscosity
	4th	Terminal velocity,
13TH	1ST	Stoke's law and effect of temperature on viscosity application in hydraulic systems.
	2ND	Hydrodynamics: Fluid motionstream line and turbulentflow
	3RD	Reynold's number Equation of continuity,
	4TH	**unit -6: HEAT AND THERMOMETRY** ,Concept of Tempearture
14TH	1ST	Bernoulli's Theorem (only formula and numericals) and its applications.
	2nd	modes of heat transfer (conduction, convection and radiation with examples)
	3rd	specific heat
	4th	scales of temperature and their relationship,
15TH	1st	Types of Thermometer (Mercury thermometer, Bimetallic thermometer, Platinum resistance thermometer, Pyrometer)
	2nd	their uses
	3rd	Expansion of solids, liquids and gases, coefficient of linear
	4th	Exercises

Signature of Faculty

Principal
Govt. polytechnic, Dhenkanal