NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: Th-2 (APPLIED PHYSICS-I)

NAME OF THE FACULTY :- MISS BASUMATI BEHERA
MR. SAUMYARANJAN PANDA

BRANCH :- AE/CE/ME/EE/EEE **SEMESTER :-** 1st

SESSION :- 2024-25 **EXAMINATION :-** 2024 (W)

CHAPTER WISE DISTRIBUTION OF PERIODS

serial no.	Name of the unit	Distribution of period per unit needed
1	Physical world, Units and Measurements	10
2	Force and Motion	11
3	Work, Power and Energy	10
4	Rotational Motion	10
5	Properties of Matter	14
6	Heat and Thermometry	11
	Total	**66**

Behera 13-08-2024

Sign of Faculty

13.08.2024

Sign of H.O.D.

Discipline: AE/CE/ME/ EE/EEE	Semester: 1st	**NAME OF THE TEACHING FACULTY :** MISS BASUMATI BEHERA . MR. SAUMYARANJAN PANDA
		SESSION : 2024-25 **EXAMINATION :** 2024 (W)
Week	**Class Day**	**Topics to be Covered**
1st	1st	**Unit 1: Physical world, Units and Measurements** Physical quantities; fundamental and derived, Units and systems of units (FPS, CGS and SI units)
	2nd	Dimensions and dimensional formulae of physical quantities, Principle of homogeneity of dimensions,
	3rd	Dimensional equations and their applications (conversion from one system of units to other,
	4th	Checking of dimensional equations and derivation of simple equations),
2nd	1st	Limitations of dimensional analysis.
	2nd	Measurements: Need, measuring instruments, least count,
	3rd	types of measurement (direct, indirect),
	4th	Errors in measurements (systematic and random),
3rd	1st	absolute error, relative error, error propagation
	2nd	error estimation and significant figures.
	3rd	**Unit 2: Force and Motion** Scalar and Vector quantities – examples, representation of vector,Types of vectors.
	4th	Addition and Subtraction of Vectors,Triangle and Parallelogram law (Statement only)
4th	1st	Resolution of a Vector and its application to inclined plane and lawn roller, Scalar and Vector Product.
	2nd	Force, Momentum, Statement
	3rd	derivation of conservation of linear momentum
	4th	its applications such as recoil of gun, rockets Impulse and its applications
5th	1st	Circular motion, definition of angular displacement, angular velocity, angular acceleration,
	2nd	Frequency, time period, Relation between linear and angular velocity linear acceleration. and angular acceleration (related numerical),
	3rd	Relation between linear acceleration. Angular acceleration (related numerical)
	4th	Centripetal and Centrifugal forces with live examples.
6th	1st	Expression and applications such as banking of roads and bending of cyclist
	2nd	**Unit 3: Work, Power and Energy** Work: Concept and units, examples of zero work,
	3rd	positive work and negative work .

Week	Class Day	Topics to be Covered
	4th	Friction: concept, types, laws of limiting friction, coefficient of friction,
7th	1st	claws of limiting friction, coefficient of friction coefficient of friction,
	2nd	work relationship Calculation of power (numerical problems)
	3rd	Reducing friction and its engineering applications
	4th	Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications
8th	1st	Energy and its units, kinetic energy, gravitational potential energy with examples and derivations,.
	2nd	Mechanical energy, conservation of mechanical energy for freely falling bodies trans-formation of energy (examples).
	3rd	Power and its units, power and work relationship , Calculation of power (numerical problems)
	4th	**1st Inernal assessment**
9th	1st	**Unit 4: Rotational Motion** Translational motions with examples
	2nd	Rotational motion with example
	3rd	Definition of torque and angular momentum and their examples
	4th	Conservation of angular momentum (quantitative) and its applications.
10th	1st	Moment of inertia and its physical significance
	2nd	radius of gyration for rigid body
	3rd	Theorems of parallel and perpendicular axes (statements only)
	4th	Relation between torque and momen of inertia , between angular momentum and moment of inertia
11th	1st	Moment of inertia of rod, disc
	2nd	Moment of inertia of ring and sphere (hollow and solid); (Formulae only).
	3rd	**Unit 5: Properties of Matter Elasticity:** Definition of stress and strain, moduli of elasticity
	4th	Hooke's law, significance of stress-strain curve
12th	1st	Pressure: definition, units, atmospheric pressure, Gauge pressure, absolute pressure,
	2nd	Fortin's Barometer and its applications
	3rd	Surface tension: concept, units
	4th	Cohesive and adhesive forces, angle of contact,

Week	Class Day	Topics to be Covered
13th	1st	Ascent Formula (No derivation), applications of surface tension Effect of temperature and impurity on surface tension
	2nd	Viscosity and coefficient of viscosity:
	3rd	Terminal velocity, Stoke's law and effect of temperature on viscosity
	4th	Application in hydraulic systems
14th	1st	Hydrodynamics: Fluid motion, stream line and turbulent flow
	2nd	Reynolds's number Equation of continuity
	3rd	Bernoulli's Theorem (only formula and numerical) and its applications.
	4th	applications. And problems
15th	1st	**Unit 6: Heat and Thermometry** Concept of heat and temperature, modes of heat transfer (conduction, convection
	2nd	Specific heats, scales of temperature and their relationship
	3rd	Types of Thermometer (Mercury thermometer, Bimetallic thermometer
	4th	Platinum resistance thermometer, Pyrometer) and their uses.
16th	1st	**2nd internal assesment**
	2nd	(Mercury thermometer, Bimetallic thermometer
	3rd	Expansion of solids, liquids and gases,
	4th	Coefficient of linear, surface and cubical expansions
17th	1st	Relation amongst coefficient of linear,
	2nd	surface and cubical expansions
	3rd	Co-efficient of thermal conductivity, Engineering applications
	4th	Engineering applications

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