

**LESSON PLAN**  
**No. of classes available per week-4**  
**Total period available-60**  
**Class duration- 1 Hour**  
**1st SEMESTER (W) (2025-2026)**

**DEPARTMENT OF MATH & SCIENCE**

<b>Discipline:</b> Math & Science	<b>Semester:</b> 1st	<b>Name of the Teaching faculty-</b> Nirupama Panda, Sr. Lect Math. & Sc. Dept., GP Balasore.
<b>Subject:</b> Applied Physics-I(Th-2)	<b>No of Days/Week class allotted:</b> 4	<b>Semester from Date:</b> 06/08/2025 <b>No of weeks:</b> 15
<b>Week</b>	<b>Class Day</b>	<b>Topics</b>
<b>1st</b>	<b>1st</b>	<b>Types of Physical Physical quantities; Fundamental and derived Quantities</b>
		<b>System of units (FPS, CGS and SI units)</b>
	<b>2nd</b>	<b>Writing the formulae for fundamental and derived quantities</b>
	<b>3rd</b>	<b>Dimensions and dimensional formulae of physical quantities, Application to dimensional analysis ; (i) Principle of homogeneity</b>
	<b>4th</b>	<b>(ii)Checking the correctness of equation using dimensional analysis</b>
<b>2nd</b>	<b>1st</b>	<b>(iii)Conversion from one system to another</b>
		<b>Measurments, Least count , Types of measurement(Direct, Indirect), Errors in measurement</b>
	<b>2nd</b>	<b>Scalar and Vector Quantities ,Types of Vectors</b>
	<b>3rd</b>	<b>Resolution of Vectors and Addition of Vectors</b>
	<b>4th</b>	<b>Scalar product with Numericals</b>
		<b>Vector product with Numericals</b>
<b>3rd</b>	<b>1st</b>	<b>Force and Momentum ,Derivation of Conservation of linear momentum</b>
	<b>2nd</b>	<b>Application ;Recoil of the gun and rocket</b>
	<b>3rd</b>	<b>Impulse and its Applications, Acceleration and Angular aceleration</b>
	<b>4th</b>	<b>Circular motion</b>
<b>Centripetal and centrifugal force</b>		
<b>4th</b>	<b>1st</b>	<b>Banking of road and Bending of the Cyclist</b>
	<b>2nd</b>	<b>Work : Concepts and Units, Types of Work</b>

	3rd	Friction, Concepts and Types, Laws of limiting Friction Workdone in moving an object on horizontal and inclined plane
	4th	Energy and its Units, Kinetic energy
5th	1st	Gravitational potential energy with examples and derivations Mechanical energy, Conservation of mechanical energy for freely falling bodies
	2nd	Transformation of energy with examples
		Power and its units, Power –work relationship
		Internal Examination
	3rd	Translational and rotational motion
	4th	Definition of Torque and angular momentum
		Conservation of angular momentum with applications
6th	1st	Moment of Inertia and its Physical Significance
	2nd	Radius of gyration for rigid body and numericals
	3rd	Parallel and perpendicular axes theorem
	4th	Moment of Inertia of the Rod, disc
7th	1st	Moment of Inertia of the ring, sphere ( hollow and solid )
	2nd	Doubt clear session on Rotational motion
	3rd	Elasticity
	4th	definition of stress and strain
8th	1st	Moduli of the elasticity
	2nd	Hooke's law
	3rd	Significance of stress-stress curve
	4th	Pressure, definitions and units
9th	1st	Pressure related numericals
	2nd	Types of pressure
	3rd	Fortin's Barometer and its applications
	4th	Surface tension, concept and units, cohesive and adhesive forces
10th	1st	Application of Surface tension, Effect of temperature and impurity on surface tension
	2nd	Viscosity and co-efficient of viscosity : Terminal velocity
	3rd	Stoke's law and effect of temperature on viscosity
	4th	Applications in Hydraulic Systems
11 <sup>th</sup>	1st	Hydrodynamics : Fluid motion
	2nd	Streamline and turbulent flow, Reynold's Number
	3rd	Equation of Continuity
	4th	Bernoulli's Theorem and its applications
	1st	Doubt solving session on Properties of matter
	2nd	Concept of Heat and temperature

12th	3rd	Different modes of heat transfer with examples
	4th	Specific Heat and their types
	4th	Scales of temperature and their relationship
13th	1st	Types of Thermometer; Mercury thermometer, Bimetallic thermometer
	2nd	Platinum resistance thermometer, pyrometer and their uses
	3rd	Expansion of solid, liquids and gases
	4th	Co-efficient of linear expansion and numericals
14th	1st	Co-efficient of surface expansion and numericals
		Co-efficient of cubical expansion and numericals
	2nd	Relation between different types of co-efficient of expansions
	4th	Internal Examination-2
	1st	Co-efficient of thermal conductivity and applications
15th	2nd	Simple numerical
	3rd	Short type question discussion
	4th	Previous year question discussion

Nirepama Panda  
 Signature of the faculty  
 Sr. Lect. Math & Sc (Phy)