

LESSON PLAN

SUBJECT: APPLIED PHYSICS-I

BRANCH: MECHANICAL ENGINEERING

SEMESTER: 1ST (2025-26)


NAME OF THE FACULTY: ASEEMA BARIK



GOVERNMENT POLYTECHNIC, BHADRAK


HOD, Humanities & Sc


Academic Coordinator
Academic Co-ordinator


Principal
Govt. Polytechnic, Bhadrak

LESSON PLAN FOR WINTER SEMESTER – 2025
Dept. of Humanities & Science, Govt .Polytechnic, Bhadrak

Name of the Faculty : ASEEMA BARIK
Course Code: TH-2
Theory: APPLIED PHYSICS-I
Total Periods :60
Examination: WINTER (2025)
Sem: FIRST

Internal Assessment/ Sessional: 30
End Sem. Exam: 70
Total Mark :100
Class Start : 06.08.2025

Discipline: Humanities & Science	Semester: 1ST(2025)	Name of the Teaching Faculty : Aseema Barik
Subject: Applied Physics-I	No. of Days/per week class allotted: 04	Semester from date: 06.08.2025 To Date: 04.12.2025 No. of Weeks: 15
Week	Class Day	Theory/ Topics
1 st	1 st	<ul style="list-style-type: none"> Brief discussion on geometry and mathematics Definition of physical quantities ,fundamental units ,derived units
	2 nd	<ul style="list-style-type: none"> System of units (FPS, CGS and SI units)
	3 rd	<ul style="list-style-type: none"> Definition of dimension
	4 th	<ul style="list-style-type: none"> Dimensional formula of physical quantities Dimensional equation and principle of homogeneity
2 nd	1 st	<ul style="list-style-type: none"> Applications of dimensional equation (checking of dimensional equations)
	2 nd	<ul style="list-style-type: none"> Applications of dimensional equation (derivation of simple equations)
	3 rd	<ul style="list-style-type: none"> Measuring instruments, Least count, types of measurements
	4 th	<ul style="list-style-type: none"> Errors in measurements (systematic,random), Absolute error, Relative error
3 rd	1 st	<ul style="list-style-type: none"> Error propagation, error estimation & significant figures
	2 nd	<ul style="list-style-type: none"> Definition & concept of Scalar and Vector quantities
	3 rd	<ul style="list-style-type: none"> Representation of vectors and types of vectors
	4 th	<ul style="list-style-type: none"> Addition and subtraction of vectors

4 th	1 st	<ul style="list-style-type: none"> Triangle and Parallelogram Law (statement only)
	2 nd	<ul style="list-style-type: none"> Scalar and Vector product
	3 rd	<ul style="list-style-type: none"> Resolution of vector and its application to inclined plane and lawn roller
	4 th	<ul style="list-style-type: none"> Concept of Force and Momentum Statement and derivation of conservation of linear momentum
5 th	1 st	<ul style="list-style-type: none"> Applications of linear momentum such as recoil of gun, rockets, impulse
	2 nd	<ul style="list-style-type: none"> Circular motion, definition of angular displacement, angular velocity & acceleration, frequency, time period
	3 rd	<ul style="list-style-type: none"> Relation between v, ω and a, α
	4 th	<ul style="list-style-type: none"> Centripetal and centrifugal forces with live examples, expression & applications such as banking roads and bending of cyclist
6 th	1 st	<ul style="list-style-type: none"> Definition of Work and units, Examples of zero work, positive work, negative work
	2 nd	<ul style="list-style-type: none"> Friction: Definition, concept and types (static and dynamic)
	3 rd	<ul style="list-style-type: none"> Laws of Limiting Friction, Co-efficient of friction
	4 th	<ul style="list-style-type: none"> Reducing friction and its engineering applications
7 th	1 st	<ul style="list-style-type: none"> Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications
	2 nd	<ul style="list-style-type: none"> Concept of energy and its units Kinetic energy
	3 rd	<ul style="list-style-type: none"> Gravitational potential energy with examples and derivations
	4 th	<ul style="list-style-type: none"> Mechanical energy, conservation of mechanical energy for freely falling bodies, transformation of energy (example)
8 th	1 st	<ul style="list-style-type: none"> Concept of Power and its units Power and work relationship, calculation of power
	2 nd	<ul style="list-style-type: none"> Translational and Rotational motions with examples
	3 rd	<ul style="list-style-type: none"> Definition of Torque and angular momentum and their examples
	4 th	<ul style="list-style-type: none"> Conservation of angular momentum (quantitative) and its applications
9 th	1 st	<ul style="list-style-type: none"> 1ST INTERNAL ASSESSMENT
	2 nd	<ul style="list-style-type: none"> Moment of inertia and its physical significance Radius of gyration for rigid body

	3 rd	<ul style="list-style-type: none"> Theorems of parallel and perpendicular axes(statements only)
	4 th	<ul style="list-style-type: none"> Moment of inertia of rod, disc, ring and sphere(hollow and solid) [formulae only]
10 th	1 st	<ul style="list-style-type: none"> Concept of elasticity, definition of stress and strain
	2 nd	<ul style="list-style-type: none"> Moduli of elasticity, Hooke's law Significance of stress-strain curve
	3 rd	<ul style="list-style-type: none"> Definition of pressure and units Atmospheric pressure, Gauge pressure, absolute pressure
	4 th	<ul style="list-style-type: none"> Fortin's Barometer and its applications
11 th	1 st	<ul style="list-style-type: none"> Concept of surface tension and units Cohesive and adhesive forces
	2 nd	<ul style="list-style-type: none"> Angle of contact, ascent formula(no derivation),applications of surface tension
	3 rd	<ul style="list-style-type: none"> Viscosity and co-efficient of viscosity, terminal velocity
	4 th	<ul style="list-style-type: none"> Stoke's law and effect of temperature on viscosity Application of hydraulic systems
12 th	1 st	<ul style="list-style-type: none"> Concept of Hydrodynamics, fluid motion
	2 nd	<ul style="list-style-type: none"> Stream line and turbulent flow, Reynold's number Equation of continuity
	3 rd	<ul style="list-style-type: none"> Bernoulli's theorem (only formula and numerical) and its applications
	4 th	<ul style="list-style-type: none"> Concept of heat and temperature
13 th	1 st	<ul style="list-style-type: none"> Models of heat transfer (conduction, convection and radiation with examples)
	2 nd	<ul style="list-style-type: none"> Specific heat, scales of temperature and their relationship
	3 rd	<ul style="list-style-type: none"> Types of thermometer (Mercury thermometer, Bimetallic thermometer, Pyrometer) and their uses
	4 th	<ul style="list-style-type: none"> Expansion of solids, liquids and gases
14 th	1 st	<ul style="list-style-type: none"> 2nd INTERNAL ASSESSMENT
	2 nd	<ul style="list-style-type: none"> Co-efficient of linear, surface and cubical expansion and numericals
	3 rd	<ul style="list-style-type: none"> Relation between different types of co-efficient of expansions
	4 th	<ul style="list-style-type: none"> Co-efficient of thermal conductivity and applications
15 th	1 st	<ul style="list-style-type: none"> Previous year question discussion
	2 nd	<ul style="list-style-type: none"> Short type question discussion

	3 rd	▪ Important question discussion
	4 th	▪ Important question discussion

ABarich
10.09.25
Signature of the Faculty