



BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

DEPARTMENT: HUMANITIES AND SCIENCES

LESSON PLAN

SUBJECT: - APPLIED PHYSICS-I (THEORY)

ACADEMIC SESSION:-2025-26

SEMESTER: - 1ST SEM (WINTER-2025)

SECTION: - E BRANCH:- ELECTRICAL

Prepared by Dr. Biswambhar Mohanty

(Sr. Lecturer in Physics)

Lesson Plan

Discipline : Electrical Sec E		Semester : 1st	Name of Faculty : Dr. Biswambhar Mohanty
Subject: Applied Physics - I	No. of days per week Class allotted: 4P (Mon, Tue, Thu, Sat)		Semester From Date: 06-08-2025 to 04-12-2025
Week	Class Day	Dates	Theory Topics
1st	1	07-08-2025	Introduction to the Subject, Syllabus and Course Outcomes
	2	11-08-2025	<u>Unit 1: Physical world, Units and Measurements</u> Physical quantities; fundamental and derived, Units and systems of units (FPS, CGS and SI units)
	3	12-08-2025	Dimensions and dimensional formulae of physical quantities Principle of homogeneity of dimensions
	4	14-08-2025	Dimensional equations and their applications - conversion from one system of units to other
2nd	5	16-08-2025	Checking of dimensional correctness of equations
	6	16-08-2025	Derivation of simple equations, Limitations of dimensional analysis.
	7	18-08-2025	Measurements: Need, measuring instruments, least count, types of measurement (direct, indirect)
	8	19-08-2025	Error propagation, Error estimation
3rd	9	21-08-2025	Significant figures
	10	25-08-2025	<u>Unit 2: Force and Motion</u> Scalar and Vector quantities – examples, representation of vector, types of vectors.
	11	26-08-2025	types of vectors (Continue), Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only)
	12	30-08-2025	Scalar Product,
4th	13	30-08-2025	Vector Product,
	14	01-09-2025	Resolution of a Vector and its application to inclined plane and lawn roller.
	15	02-09-2025	Force, Momentum, Statement and derivation of conservation of linear momentum,
	16	04-09-2025	Its applications such as recoil of gun, rockets, Impulse and its applications.
5th	17	06-09-2025	Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period
	18	06-09-2025	Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical)
	19	08-09-2025	Centripetal and Centrifugal forces with live examples, Expression and applications such as banking of roads and bending of cyclist.
	20	09-09-2025	Doubt Clear Class
6th	21	11-09-2025	<u>Unit 3: Work, Power and Energy</u> Work: Concept and units, examples of zero work, positive work and negative work
	22	13-09-2025	Friction: concept, types,
	23	13-09-2025	Laws of limiting friction, coefficient of friction
	24	15-09-2025	Reducing friction and its engineering applications,
7th	25	16-09-2025	Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications.
	26	18-09-2025	Energy and its units, kinetic energy, gravitational potential energy with examples Derivation of gravitational potential energy
	27	20-09-2025	Mechanical energy, conservation of mechanical energy for freely falling bodies, trans- formation of energy (examples).
	28	20-09-2025	Power and its units, power and work relationship, calculation of power (numerical problems).

Week	Class Day	Dates	Theory Topics
8th	29	22-09-2025	Doubt Clear Class
	30	23-09-2025	Unit 4: Rotational Motion Translational and rotational motions with examples, Definition of torque and angular momentum and their examples
	31	25-09-2025	Conservation of angular momentum (quantitative) and its applications.
	32	04-10-2025	Moment of inertia and its physical significance,
9th	33	04-10-2025	Radius of gyration for rigid body, Theorem of parallel axes (statements only),
	34	06-10-2025	Theorem of perpendicular axes (statements only),
	35	09-10-2025	Moment of inertia of rod, disc, ring and sphere (hollow and solid); (Formulae only).
	36	13-10-2025	Doubt Clear Class
10th	37	14-10-2025	Unit 5: Properties of Matter Elasticity: definition of stress and strain
	38	16-10-2025	Moduli of elasticity, Hooke's law, significance of stress-strain curve.
	39	18-10-2025	Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure
	40	18-10-2025	Fortin's Barometer and its applications.
11th	41	20-10-2025	Surface tension: concept, units, cohesive and adhesive forces
	42	23-10-2025	angle of contact, Ascent Formula (No derivation)
	43	24-10-2025	applications of surface tension, effect of temperature and impurity on surface tension.
	44	28-10-2025	Viscosity and coefficient of viscosity:
12th	45	30-10-2025	Terminal velocity
	46	01-11-2025	Stoke's law and effect of temperature on viscosity, application in hydraulic systems.
	47	01-11-2025	Hydrodynamics: Fluid motion, stream line and turbulent flow
	48	03-11-2025	Reynold's number Equation of continuity
13th	49	04-11-2025	Bernoulli's Theorem (only formula and numericals) and its applications.
	50	06-11-2025	Doubt Clear Class
	51	10-11-2025	Unit 6: Heat and Thermometry Concept of heat and temperature, modes of heat transfer (conduction, convection and radiation with examples),
	52	11-11-2025	Scales of temperature and their relationship
14th	53	13-11-2025	Specific heats
	54	15-11-2025	Types of Thermometer (Mercury thermometer, Bimetallic thermometer and their uses.
	55	15-11-2025	Platinum resistance thermometer, Pyrometer and their uses.
	56	17-11-2025	Expansion of solids, liquids and gases, coefficient of linear, surface and cubical expansions
15th	57	18-11-2025	Relation amongst them
	58	20-11-2025	Co-efficient of thermal conductivity, engineering applications
	59	24-11-2025	Revision -1
	60	25-11-2025	Revision -2
16th	61	27-11-2025	Revision -3
	62	29-11-2025	Revision -4
	63	29-11-2025	Very Similar Test
	64	01-12-2025	Discussion on VST
17th	65	02-12-2025	Doubt Clear Class
	66	04-12-2025	Doubt Clear Class

Concerned faculty:
Dr. Biswambhar Mohanty

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