

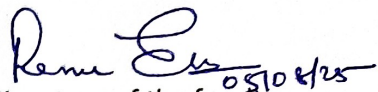


Name of the Teaching Faculty : MISS. RENU EKKA

Discipline: MATHEMATICS & SCIENCE DEPARTMENT.	Semester:1st	Name of the Teaching Faculty : MISS. RENU EKKA	
Subject: APPLIED PHYSICS-I	No. of Days/per week class allotted:	Semester From Date: 06/08/2025 No. of Weeks-15	To Date:04/12/2025
Week	Class Day	Theory/Practical Topics	
1 st	01	Unit 1: Physical world, Units and Measurements Physical quantities; fundamental and derived, Units and systems of units (FPS, CGS and SI units)	
	02	Dimensions and dimensional formulae of physical quantities	
	03	Dimensions and dimensional formulae of physical quantities	
	04	Principle of homogeneity of dimensions, Dimensional equations and their applications (conversion from one system of units to other)	
2 nd	01	(checking of dimensional equations and derivation of simple equations), Limitations of dimensional analysis.	
	02	(checking of dimensional equations and derivation of simple equations), Limitations of dimensional analysis.	
	03	Measurements: Need, measuring instruments, least count, types of measurement (direct, indirect)	
	04	Errors in measurements (systematic and random), absolute error	
3 rd	01	relative error, error propagation, error estimation and significant figures.	
	02	Unit 2: Force and Motion Scalar and Vector quantities – examples, representation of vector, types of vectors. Addition and Subtraction of Vectors,	
	03	Triangle and Parallelogram law (Statement only), Scalar and Vector Product, Resolution of a Vector and its application to inclined plane and lawn roller	
	04	Resolution of a Vector and its application to inclined plane and lawn roller	
4 th	01	Force, Momentum, Statement and derivation of conservation of linear momentum	
	02	linear momentum, its applications such as recoil of gun, rockets, Impulse and its applications.	
	03	Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period,	
	04	Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical),	
5 th	01	Numerical & Centripetal and Centrifugal forces with live examples,	
	02	Expression and applications such as banking of roads and bending of cyclist.	
	03	Work, Power and Energy Work: Concept and units, examples of zero work, positive work and negative work	
	04	Friction: concept, types, laws of limiting friction, coefficient of friction, reducing friction and its engineering applications,	
6 th	01	laws of limiting friction, reducing friction and its engineering applications,	
	02	Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications.	

	03	Energy and its units, kinetic energy, gravitational potential energy with examples and derivations, mechanical energy,
	04	gravitational potential energy with examples and derivations, mechanical energy,
7 th	01	conservation of mechanical energy for freely falling bodies, transformation of energy (examples).
	02	conservation of mechanical energy for freely falling bodies, transformation of energy (examples).
	03	Power and its units, power and work relationship, calculation of power (numerical problems).
	04	Unit 4: Rotational Motion Translational and rotational motions with examples, Definition of torque and angular momentum and their examples
8 th	01	Conservation of angular momentum (quantitative) and its applications
	02	Moment of inertia and its physical significance, radius of gyration for rigid body
	03	radius of gyration for rigid body
	04	Theorems of parallel and perpendicular axes (statements only), Moment of inertia of rod, disc, ring and sphere (hollow and solid); (Formulae only).
9 th	01	Moment of inertia of and sphere (hollow and solid) (Formulae only).
	02	Unit 5: Properties of Matter Elasticity: definition of stress and strain,
	03	moduli of elasticity, Hooke's law, significance of stress-strain curve.
	04	Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure
10 th	01	Fortin's Barometer and its applications.
	02	Fortin's Barometer and its applications.
	03	Surface tension: concept, units, cohesive and adhesive forces, angle of contact, Ascent Formula (No derivation), applications of surface tension
	04	applications of surface tension, effect of temperature and impurity on surface tension.
11 th	01	Viscosity and coefficient of viscosity: Terminal velocity, Stoke's law
	02	Stoke's law and effect of temperature on viscosity, application in hydraulic systems.
	03	Stoke's law and effect of temperature on viscosity, application in hydraulic systems.
	04	Hydrodynamics: Fluid motion, stream line and turbulent flow
12 th	01	Hydrodynamics: Fluid motion, stream line and turbulent flow
	02	Reynold's number Equation of continuity, Bernoulli's Theorem (only formula and numericals) and its applications.
	03	Reynold's number Equation of continuity, Bernoulli's Theorem (only formula and numericals) and its applications.
	04	Unit 6: Heat and Thermometry Concept of heat and temperature, modes of heat transfer (conduction, convection and radiation with examples)
13 th	01	Unit 6: Heat and Thermometry Concept of heat and temperature, modes of heat transfer (conduction, convection and radiation with examples)
	02	specific heats, scales of temperature and their relationship
	03	specific heats, scales of temperature and their relationship

	04	Types of Thermometer (Mercury thermometer, Bimetallic thermometer)
14 th	01	Platinum resistance, thermometer
	02	thermometer, Pyrometer) and their uses
	03	thermometer, Pyrometer) and their uses
	04	Expansion of solids, liquids and gases
15 th	01	Expansion of solids, liquids and gases
	02	coefficient of linear, surface and cubical expansions and relation amongst them
	03	coefficient of linear, surface and cubical expansions and relation amongst them
	04	Co-efficient of thermal conductivity, engineering applications.
	05	Co-efficient of thermal conductivity, engineering applications.


 Signature of the faculty