

LESSON PLAN

Discipline: CL & ME Engg..	Semester: First (1 st)	Name of the Faculty: Mr. Ajaya Kumar Rout
Subject: Engg. Physics	No. of days/week class allotted: Six (6)	Semester from Date: 25.10.22 to Date: 31.01.23 No. of Weeks: 15
WEEK	CLASS DAY	THEORY TOPICS
1 st	1 st	Introduction to Physical quantities
	2 nd	Definition of fundamental and derived units, systems of units (FPS, CGS, MKS and SI units)
	3 rd	Definition of dimension and Dimensional formulae of physical quantities.
	4 th	Dimensional equations and Principle of homogeneity. Checking the dimensional correctness of Physical relations.
	5 th	Review Class
	6 th	Scalar and Vector quantities (definition and concept), Representation of a Vector – examples, types of vectors.
2 nd	1 st	Triangle and Parallelogram law of vector Addition (Statement only). Simple Numerical.
	2 nd	Resolution of Vectors – Simple Numerical on Horizontal and Vertical components.
	3 rd	Vector multiplication (scalar product and vector product of vectors).
	4 th	Review Class
	5 th	Concept of Rest and Motion. Displacement, Speed, Velocity, Acceleration & Force (Definition, formula, dimension & SI units).
	6 th	Equations of Motion under Gravity (upward and downward motion) - no derivation.
3 rd	1 st	Circular motion: Angular displacement, Angular velocity and Angular acceleration (definition, formula & SI units).
	2 nd	Relation between– (i) Linear & Angular velocity, (ii) Linear & Angular acceleration).
	3 rd	Define Projectile, Examples of Projectile. Expression for Equation of Trajectory, Time of Flight
	4 th	Maximum Height, and Horizontal Range for a projectile fired at an angle, Condition for maximum Horizontal Range
	5 th	Review Class
	6 th	Work – Introduction, Definition, Formula & SI units.
4 th	1 st	Friction – Definition & Concept. Types of friction: Static, Dynamic, Limiting Friction (Definition with Concept).
	2 nd	Laws of Limiting Friction (Only statement, No Experimental Verification). Coefficient of Friction – Definition & Formula.
	3 rd	Simple Numerical
	4 th	Methods to reduce friction.
	5 th	Review Class
	6 th	Monthly Test-1
	1 st	Newton's law of Gravitation: Statement & Explanation. Universal Gravitational Constant (G) - Definition, Unit and Dimension.

5 th	2 nd	Acceleration due to gravity (g)- Definition and Concept. Definition of mass and weight
	3 rd	Relation between g and G.
	4 th	Variation of g with altitude and depth (No derivation – Only Explanation).
	5 th	Kepler's Laws of Planetary Motion (Statement only).
	6 th	Review Class
6 th	1 st	Simple Harmonic Motion (SHM) - Definition & Examples.
	2 nd	Expression (Formula/Equation) for displacement, velocity, acceleration of a body/ particle in SHM.
	3 rd	Wave motion – Definition & Concept.
	4 th	Transverse and Longitudinal wave motion:- Definition, Examples & Comparison.
	5 th	Definition of different wave parameters (Amplitude, Wavelength, Frequency, Time Period. Derivation of Relation between Velocity, Frequency and Wavelength of a wave.
	6 th	Ultrasonic – Definition, Properties & Applications.
7 th	1 st	Review Class
	2 nd	Monthly Test-2
	3 rd	Heat and Temperature – Definition & Difference. Units of Heat (FPS, CGS, MKS & SI).
	4 th	Specific Heat (concept, definition, unit, dimension and simple numerical).
	5 th	Change of state (concept), Latent Heat (concept, definition, unit, dimension and simple numerical)
	6 th	Thermal Expansion – Definition & Concept.
8 th	1 st	Expansion of Solids (Concept). Coefficient of linear, superficial and cubical expansions of Solids – Definition & Units.
	2 nd	Relation between α , β & γ
	3 rd	Work and Heat - Concept & Relation. Joule's Mechanical Equivalent of Heat (Definition, Unit)
	4 th	First Law of Thermodynamics (Statement and concept only)
	5 th	Review Class
	6 th	Reflection & Refraction – Definition. Laws of reflection and refraction (Statement only)
9 th	1 st	Refractive index – Definition, Formula. Solving Numerical.
	2 nd	Critical Angle and Total internal reflection – Concept, Definition & Explanation.
	3 rd	Refraction through Prism (Ray Diagram & Formula only – NO derivation).
	4 th	Fiber Optics – Definition, Properties & Applications.
	5 th	Review Class
	6 th	Electrostatics – Definition & Concept. Statement & Explanation of Coulombs laws, Definition of Unit charge.
	1 st	Monthly Test-3
	2 nd	Absolute & Relative Permittivity (ϵ) – Definition, Relation & Unit.

10 th	3 rd	Electric field, Electric field intensity (E) – Definition, Formula & Unit
	4 th	Capacitance - Definition, Formula & Unit. Series and Parallel combination of Capacitors (No derivation, Formula for effective/Combined/total capacitance & Simple numerical).
	5 th	Magnet, Properties of a magnet. Coulomb's Laws in Magnetism – Statement & Explanation,
	6 th	Magnetic field, Magnetic Field intensity (H) - (Definition, Formula & SI Unit). Magnetic lines of force (Definition and Properties)
11 th	1 st	Magnetic Flux (Φ) & Magnetic Flux Density (B) – Definition, Formula & Unit. Unit Pole
	2 nd	Review Class
	3 rd	Electric Current – Definition, Formula & SI Units.
	4 th	Ohm's law and its applications
	5 th	Series and Parallel combination of resistors (No derivation, Formula for effective/ Combined/ total resistance & Simple numerical).
	6 th	Kirchhoff's laws (Statement & Explanation with diagram).
12 th	1 st	Application of Kirchhoff's laws to Wheatstone bridge - Balanced condition of Wheatstone's Bridge.
	2 nd	Review Class
	3 rd	Electromagnetism – Definition & Concept.
	4 th	Force acting on a current carrying conductor placed in a uniform magnetic field, Fleming's Left Hand Rule.
	5 th	Faraday's Laws of Electromagnetic Induction (Statement only), Lenz's Law (Statement)
	6 th	Fleming's Right-Hand Rule Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule.
13 th	1 st	Review Class
	2 nd	Monthly Test-4
	3 rd	LASER & laser beam (Concept and Definition)
	4 th	Principle of LASER (Population Inversion & Optical Pumping)
	5 th	Properties & Applications of LASER
	6 th	Wireless Transmission – Ground Waves, Sky Waves, (Concept & Definition)
14 th	1 st	Space Waves(Concept & Definition)
	2 nd	Review Class
	3 rd	Revision class
	4 th	Revision class
	5 th	Revision class
	6 th	Revision class
15 th	1 st	Revision class
	2 nd	Revision class
	3 rd	Revision class
	4 th	Revision class
	5 th	Revision class
	6 th	Revision class