LESSON PLAN (WINTER - 2023)		
Discipline: Sec-A (CE) & Sec-B (EE&EEE)	**Semester: 1ST**	**Name of the Teaching Faculty: ABAKASH PRADHANI**
Subject: BASIC ENNG. PHYSICS (Th. 2a)	**No. of days/ per week class allotted: 4**	**Semester From Date : 16/08/2023 to Date: 11/12/2023** **No. of Weeks: 15**
Week	**Class Day**	**Theory/ Practical Topics**
1st	1st	**Units and Dimensions:** Physical Quantities, System of Units.
	2nd	Dimensions & Dimensional formula of physical quantities.
	3rd	Principle of Homogeneity, Correctness of Physicsl Equation.
	4th	**Scalars and Vectors:** Scalar and Vector quantitis, Representation of Vector, Types of Vectors.
2nd	1st	Laws of Vector addition, Resolution of Vectors.
	2nd	Vector multiplication (Scalar and Vector product of vectors).
	3rd	**Kinematics:** Concept of Rest and Motion, Displacement, Speed, Velocity, Acceleration & Force.
	4th	Equation of motion under gravity (upward and downward motion).
3rd	1st	Circular motion, angular displacement, angular velocity and angular acccleration.
	2nd	Relation between : Linear & Angular Velocity ; Linear & Angular Acceleration.
	3rd	Definition and concepts of projectile motion, Angle of projection, Trajectory.
	4th	Time of flight, Maximum Hight, Horizontal range and Condition for maximum range of projectile.
4th	1st	**Work and Friction:** Work and Friction - Definition, Formula & SI units.
	2nd	Definition of static, limiting & dynamic Friction.
	3rd	Laws of Limiting Friction.
	4th	Coefficient of Friction.
5th	1st	Methods to reduce Friction, Laws of limiting Friction.
	2nd	**Gravitation:** Newton's Law of Gravitation, Universal Gravitational Constant (G).
	3rd	Acccleration due to gravity (g)
	4th	Definition of mass and weight, Relation between g and G.
6th	1st	Variation of g with altitude & depth.
	2nd	Kepler's laws of planetary motion-statement only.
	3rd	**Oscillations and Waves:** Simple Hermonic motion (SHM) - Definition.
	4th	Expression for Displacement, Velocity, Acceleration of a body in SHM.
7th	1st	Wave motion - Definition and concept.
	2nd	Longitudinal & Transverse wave motion- Definition, Examples and comparison.
	3rd	Different wave parameters- amplitude, frequency, time period, wave length & velocity and relations.

P.T.O.

	4th	Utrasonic- Definition, properties & applications.
8th	1st	**Heat & Thermodynamics:** Heat and Temperature- Definition & Difference, Units of Heat.
	2nd	Specific Heat, Change of State, Latent Heat.
	3rd	Thermal Expansion, Expansion in solids.
	4th	Coefficient of linear, superficial & cubical expansion of solids. Definition & Units.
9th	1st	Relation between coefficient of linear, superficial & Cubical expansion of solids.
	2nd	Work and Heat, Joule's Mechanical Equivalent of Heat.
	3rd	First law of Thermodynamics.
	4th	**Optics:** Reflection & Refraction, Laws of Reflection & Refraction.
10th	1st	Refractive Index - Definition and Formula.
	2nd	Critical angle & Total internal reflection - Concept, Definition & Explanation, Refraction through a prism.
	3rd	Fiber optics- Definition, Properties & Applications.
	4th	**Electrostatics & Magnetostatics:** Electrostatics - Definition and concept.
11th	1st	Coulomb's laws- statement, explanation, Unit Charge, Absolute & Relative Permittivity.
	2nd	Electric Potential and Potential difference, Electric field and Electric field Intersity (E).
	3rd	Capacitance, Series and Parallel combination of Capacitors.
	4th	Magnet, Properties of Magnet, Coulomb's Law in Magnetism, Unit Pole.
12th	1st	Magnetic Field, Magnetic Field Intensity (H), Magnetic lines of force.
	2nd	Magnetic Flux & Magnetic Flux Density (B).
	3rd	**Current Electricity:** Electric Current - Definition, Formula and SI Units.
	4th	Ohm's law and its applications.
13th	1st	Series and Parallel combination of resistors.
	2nd	Krichoff's laws (Statement & Explanation with diagram)
	3rd	Application of Krichoff's laws to Wheatstone bridge.
	4th	Balanced condition of Wheatstone's Bridge - Condition of Balance (Equation).
14th	1st	**Electromagnetism & Electromagnetic Induction:** Electromagnetism - Definition & Concept.
	2nd	Force acting on a current carrying conductor in a uniform magnetic field, Fleming's Left Hand Rule.
	3rd	Faraday's law of Electromagnetic Induction- Statement only, Lenz's Law - Statement.
	4th	Fleming's Right Hand Rule.
15th	1st	Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule.
	2nd	**Modern Physics:** LASER & Laser beam, Principle of LASER (Population inversion & Optical pumping)
	3rd	Properties and Applications of LASER.
	4th	Wireless Transmission - Ground, Sky and Space Waves (Concept & Definition).

Akakash Sadhani
Lect. in Physics