

IHARSUGUDA ENGINEERING SCHOOL, IHARSUGUDA

DEPARTMENT OF MATHEMATICS & SCIENCE

LESSONPLAN

SESSION:2021-22

SUBJECT-ENGINEERING PHYSICS

BRANCH-ALL BRANCHES

NAME OF THE FACULTY-BABITA PADHI

SEMESTER- 1ST /2ND

Sl. No.	Hours /Mins	Lecture No.	Topic to be covered	
1	UNIT-1	220	UNITS AND DIMENSIONS	
			1	Introduction to physics and importance of units and dimensions.
			2	Physical quantities definition and concept, fundamental & derived units, systems of units
			3	Definition of dimension and dimensional formulae of physical quantities, principle of homogeneity.
2	UNIT-2	165	SCALARS AND VECTORS	
			4	Dimensional equations and Principle of homogeneity. Checking the dimensional correctness of Physical relations.
			5	Scalar and Vector quantities, Representation of vectors, Types of vectors.
			6	Triangle and Parallelogram law of vector Addition, Resolution of Vectors.
3	UNIT-3	330	KINEMATICS	
			7	Simple Numerical on Horizontal and Vertical components, Scalar and vector product of vectors, properties.
			8	Concept of Rest and Motion, Displacement, Speed, Velocity, Acceleration.
			9	Force(Definition) Equations of Motion under Gravity
			10	Simple Numerical, Circular motion, Angular displacement, Angular velocity and Angular acceleration
			11	Relation between –Linear & Angular velocity, Linear & Angular acceleration.
			12	Projectile, Equation of Trajectory, Time of Flight, Maximum Height.
13	Horizontal Range for a projectile fired at an angle, Condition for maximum Horizontal Range.			

4	UNIT -4	275		WORK & FRICTION
			14	Work – Definition, Formula & SI units, Friction – Definition & Concept
			15	Types of friction- Static, dynamic, Limiting Friction.
			16	Laws of Limiting Friction
			17	Coefficient of Friction – Definition & Formula Simple Numerical,
			18	Methods to reduce friction.
5	UNIT-5	275		GRAVITATION
			19	Newton’s Laws of Gravitation – Statement
			20	Gravitational Constant (G)- Definition, Unit and Dimension. Acceleration due to gravity (g).
			21	Definition of mass and weight, Relation between g and G.
			22	Variation of g with altitude and depth.
			23	Kepler’s Laws of Planetary Motion.
6	UNIT-6	275		OSCILLATIONS AND WAVES
			24	Simple Harmonic Motion (SHM) - Definition & Examples.
			25	Expression for displacement, velocity, acceleration of a body/ particle in SHM
			26	Wave motion – Definition & Concept. Transverse and Longitudinal wave motion – Definition, Examples & Comparison.
			27	Definition of different wave parameters (Amplitude, Wavelength, Frequency, Time Period. Derivation of Relation between Velocity, Frequency and Wavelength of a wave.
			28	Ultrasonic- Definition, Properties & Applications.
7	UNIT-7	385		HEAT AND THERMODYNAMICS
			29	Heat and Temperature – Definition & Difference Units of Heat, Specific Heat (concept, definition, unit, dimension)
			30	Change of state(concept) and latent heat(concept, definition, unit, dimension) and simple numerical.
			31	Definition & Concept of Thermal Expansion in Solids.
			32	Coefficient of linear, superficial and cubical expansions of Solids – Definition & Units.
			33	Relation between α , β & γ
			34	Work and Heat - Concept & Relation, Joule’s Mechanical Equivalent of Heat
			35	First Law of Thermodynamics.

8	UNIT-8	220		OPTICS
			36	Reflection & Refraction – Definition, Laws of reflection and refraction
			37	Refractive index – Definition, Formula & Simple numerical.
			38	Critical Angle and Total internal reflection – Concept, Refraction through Prism.
			39	Fibre Optics – Definition, Properties & Applications. Doubt clear.
9	UNIT-9	385		ELECTROSTATICS AND MAGNETOSTATICS
			40	Electrostatics – Definition & Concept, Statement & Explanation of Coulombs laws,
			41	Definition of Unit charge, Absolute & Relative Permittivity (ϵ).
			42	Electric potential and Electric Potential difference ,Electric field, Electric field intensity (E) , Capacitance concept.
			43	Series and Parallel combination of Capacitors, Formula for effective capacitance & Simple numerical)
			44	Magnet, Properties of a magnet. Coulomb’s Laws in Magnetism – Statement & Explanation, Unit Pole.
			45	Definition of Magnetic field, Magnetic Field intensity (H) ,Magnetic Flux (Φ) & Magnetic Flux Density (B)
			46	Definition and Properties of Magnetic lines of force.
10	UNIT-10	330		CURRENT ELECTRICITY
			47	Electric Current – Definition, Formula & SI Units. Ohm’s law,
			48	Applications of Ohm’s Law. Concept of resistance.
			49	Series and Parallel combination of resistors.
			50	Problems on finding equivalent resistance from electrical circuits.
			51	Kirchhoff’s laws (Current Law and Voltage law)
			52	Application of Kirchhoff’s laws to Wheatstone bridge - Balanced condition of Wheatstone’s Bridge – Condition of Balance.
11	UNIT-11	275		ELECTROMAGNETISM AND ELECTROMAGNETIC INDUCTION
			53	Electromagnetism – Definition & Concept.
			54	Force acting on a current carrying conductor placed in a uniform magnetic field.
			55	Faraday’s Laws of Electromagnetic Induction.
			56	Lenz’s Law, Fleming’s Left Hand Rule, Fleming’s Right Hand Rule.
			57	Comparison between Fleming’s Right Hand Rule and Fleming’s Left Hand Rule.

UNIT-12	165		MODERN PHYSICS
		58	LASER & laser beam (Concept and Definition),
		59	Principle of LASER (Population Inversion & Optical Pumping) Properties & Applications of LASER
		60	Wireless Transmission – Ground Waves, Sky Waves, Space Waves (Concept & Definition)

B. Padli
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Signature of faculty Member:

Sas
25-10-21

Countersignature of H.O.D:

