UTKAL INSTITUTE OF ENGG AND TECH

DISCIPLINE: ALL BRANCH	SEMESTER: 2ND Sem	NAME OF THE TEACHING FACULTY: Mr.GANESH MAHARATHY		
SUBJECT: Engineering Physics	No of Days/Per week class allotted: 4 Class P/W(60)	Semester From Date:29/01/2024 To Date:14/05/2024 No. Of Weeks: 15		
WEEK	CLASS DAY	THEORY TOPICS (UNIT 1 - UNITS AND DIMENSIONS)	REMARKS	
1st	1st	Physical quantities - (Definition). Definition of fundamental and derived units, systems of units (FPS, CGS, MKS	Date	Dean/Principal
	2nd	Definition of dimension and Dimensional formulae of physical quantities		
	3rd	Dimensional equations and Principle of homogeneity. and Checking the dimensional correctness of Physical relations		
	4th	UNIT 2 - SCALARS AND VECTORS: Scalar and Vector quantities (definition and concept), Representation of a Vector – examples, types of vectors.		
	1st	Triangle and Parallelogram law of vector Addition (Statement only). Simple Numerical.		
	2nd	Resolution of Vectors – Simple Numericals on Horizontal and Vertical components. and Vector multiplication (scalar product and vector product of vectors).		

2nd	3rd	**UNIT 3 - KINEMATICS** Concept of Rest and Motion. and Displacement, Speed, Velocity, Acceleration & FORCE (Definition, formula, dimension & SI units).		
	4th	Equations of Motion under Gravity (upward and downward motion) - no derivation.		
3rd	1st	Circular motion: Angular displacement, Angular velocity and Angular acceleration (definition, formula & SI units).		
	2nd	Relation between –(i) Linear & Angular velocity, (ii) Linear & Angular acceleration).		
	3rd	Define Projectile, Examples of Projectile.		
	4th	Expression for Equation of Trajectory, Time of Flight, Maximum Height and Horizontal Range for a projectile fired at an angle. Condition for maximum		
4th	1st	**UNIT 4 – WORK AND FRICTION** Work – Definition, Formula & SI units. and Friction – Definition & Concept.		
	2nd	Types of friction (static, dynamic), Limiting Friction (Definition with Concept).		
	3rd	laws of Limiting Friction (Only statement, No Experimental Verification).		
	4th	Coefficient of Friction – Definition & Formula, Simple Numericals.		
	1st	Methods to reduce friction		

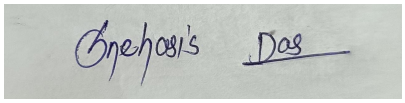
5th	2nd	Newton's Laws of Gravitation – Statement and Explanation. and Universal Gravitational Constant (G)- Definition, Unit and Dimension.		
	3rd	Acceleration due to gravity (g)- Definition and Concept.		
	4th	Definition of mass and weight.		
6th	1st	Relation between g and G.		
	2nd	Variation of g with altitude and depth (No derivation – Only Explanation). and Kepler's Laws of Planetary Motion (Statement only).		
	3rd	**UNIT 6 - OSCILLATIONS AND WAVES** Simple Harmonic Motion (SHM) - Definition & Examples. and Expression (Formula/Equation) for displacement, velocity, acceleration of a body/ particle in SHM.		
	4th	Wave motion – Definition & Concept.		
7th	1st	Transverse and Longitudinal wave motion – Definition, Examples & Comparison.		
	2nd	Definition of different wave parameters (Amplitude, Wavelength, Frequency, Time Period.		
	3rd	Derivation of Relation between Velocity, Frequency and Wavelength of a wave		

	4th	Ultrasonics – Definition, Properties & Applications.		
8th	1st	**THERMODYNAMICS :** Heat and Temperature – Definition & Difference and Units of Heat (FPS, CGS, MKS & SI).		
	2nd	Specific Heat (concept, definition, unit, dimension and simple numerical) and Change of state (concept),		
	3rd	Thermal Expansion – Definition & Concept and expansion of solids.		
	4th	Coefficient of linear, superficial and cubical expansions of Solids – Definition & Units		
9th	1st	Relation between α, β & ϒ		
	2nd	Work and Heat - Concept & Relation. And Joule's Mechanical Equivalent of Heat (Definition, Unit)		
	3rd	First Law of Thermodynamics (Statement and concept only)		
	4th	**UNIT 8 – OPTICS:** Reflection & Refraction – Definition. and Laws of reflection and refraction (Statement only)		
10th	1st	Refractive index – Definition, Formula &Simple numerical.		
	2nd	Critical Angle and Total internal reflection – Concept, Definition & Explanation		
	3rd	Refraction through Prism (Ray Diagram & Formula only – NO derivation).. and Fiber Optics – Definition, Properties & Applications.		

	4th	**UNIT 9 – ELECTROSTATICS & MAGNETOSTATICS :** Electrostatics – Definition & Concept. and Statement & Explanation of Coulombs laws, Definition of Unit charge		
11th	1st	Absolute & Relative Permittivity (ε) – Definition, Relation & Unit. And Electric potential and Electric Potential difference (Definition, Formula & SI Units).		
	2nd	Electric field, Electric field intensity (E) – Definition, Formula & Unit. and Capacitance - Definition, Formula & Unit		
	3rd	Series and Parallel combination of Capacitors (No derivation, Formula for effective/Combined/total capacitance & Simple numericals).		
	4th	Magnet, Properties of a magnet. and Coulomb's Laws in Magnetism – Statement & Explanation, Unit Pole (Definition).		
12th	1st	Magnetic field, Magnetic Field intensity (H) - (Definition, Formula & SI Unit). and Magnetic lines of force (Definition and Properties)		
	2nd	Magnetic Flux (Φ) & Magnetic Flux Density (B) – Definition, Formula & Unit.		
	3rd	**UNIT 10 – CURRENT ELECTRICITY** Electric Current – Definition, Formula & SI Units		

	4th	Ohm's law and its applications.		
13th	1st	Series and Parallel combination of resistors (No derivation, Formula for effective/ Combined/ total resistance & Simple numericals).		
	2nd	Kirchhoff's laws (Statement & Explanation with diagram).		
	3rd	Application of Kirchhoff's laws to Wheatstone bridge - Balanced condition of Wheatstone's Bridge – Condition of Balance (Equation).		
	4th	Application of Kirchhoff's laws to Wheatstone bridge - Balanced condition of Wheatstone's Bridge – Condition of Balance (Equation).		
14th	1st	**UNIT 11 – ELECTROMAGNETISM & ELECTROMAGNETIC INDUCTION** Electromagnetism – Definition & Concept. and Force acting on a current carrying conductor placed in a uniform magnetic field, Fleming's Left Hand Rule		
	2nd	Faraday's Laws of Electromagnetic Induction (Statement only)		
	3rd	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	**UNIT 12 - MODERN PHYSICS:** LASER & laser beam (Concept and Definition)		
	3rd	Principle of LASER (Population Inversion & Optical Pumping) and Properties & Applications of LASER		
	4th	Wireless Transmission – Ground Waves, Sky Waves, Space Waves (Concept & Definition)		



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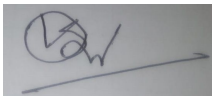

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