

DISCIPLINE: ALL BRANCH	SEMESTER: 2ND Sem	NAME OF THE TEACHING FACULTY: ABHILASH HOTA		
SUBJECT: Engineering Physics	No of Days/Per week class allotted: 4 Class P/W(60)	Semester From Date:20/03/2023 To Date:27/06/2023 No. Of Weeks: 15		
WEEK	CLASS DAY	<u>THEORY TOPICS (UNIT 1 - UNITS AND DIMENSIONS)</u>	REMARKS	
1 <sup>st</sup>	1 <sup>st</sup>	Physical quantities - (Definition). Definition of fundamental and derived units, systems of units (FPS, CGS, MKS and SI units).	Date	Dean/Pri ncipal
	2 <sup>nd</sup>	Definition of dimension and Dimensional formulae of physical quantities		
	3 <sup>rd</sup>	Dimensional equations and Principle of homogeneity. and Checking the dimensional correctness of Physical relations		
	4 <sup>th</sup>	<u>UNIT 2 - SCALARS AND VECTORS:</u> Scalar and Vector quantities (definition and concept), Representation of a Vector – examples, types of vectors.		
	1 <sup>st</sup>	Triangle and Parallelogram law of vector Addition (Statement only). Simple Numerical.		
	2 <sup>nd</sup>	Resolution of Vectors – Simple Numericals on Horizontal and Vertical components. and Vector multiplication (scalar product and vector product of vectors).		

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

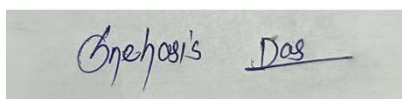
	3 <sup>rd</sup>	Acceleration due to gravity (g)- Definition and Concept.		
	4 <sup>th</sup>	Definition of mass and weight.		
6 <sup>th</sup>	1 <sup>st</sup>	Relation between g and G.		
	2 <sup>nd</sup>	Variation of g with altitude and depth (No derivation – Only Explanation). and Kepler's Laws of Planetary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

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

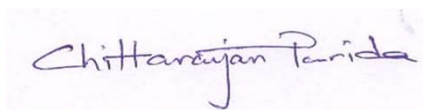
	4 <sup>th</sup>	<b><u>UNIT 9 – ELECTROSTATICS &amp; MAGNETOSTATICS</u></b> : Electrostatics – Definition & Concept. and Statement & Explanation of Coulombs laws, Definition of Unit charge		
11 <sup>th</sup>	1 <sup>st</sup>	Absolute & Relative Permittivity ( $\epsilon$ ) – Definition, Relation & Unit.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

	4 <sup>th</sup>	Ohm's law and its applications.		
13 <sup>th</sup>	1 <sup>st</sup>	Series and Parallel combination of resistors (No derivation, Formula for effective/ Combined/ total resistance & Simple numericals).		
	2 <sup>nd</sup>	Kirchhoff's laws (Statement & Explanation with diagram).		
	3 <sup>rd</sup>	Application of Kirchhoff's laws to Wheatstone bridge - Balanced condition of Wheatstone's Bridge – Condition of Balance (Equation).		
	4 <sup>th</sup>	Application of Kirchhoff's laws to Wheatstone bridge - Balanced condition of Wheatstone's Bridge – Condition of Balance (Equation).		
14 <sup>th</sup>	1 <sup>st</sup>	<p style="text-align: center;"><b><u>UNIT 11 –</u></b>  <b><u>ELECTROMAGNETISM &amp;</u></b>  <b><u>ELECTROMAGNETIC</u></b>  <b><u>INDUCTION</u></b> Electromagnetism –            Definition &amp; Concept.            and Force acting on a current carrying conductor placed in a uniform magnetic field, Fleming's Left Hand Rule</p>		
	2 <sup>nd</sup>	Faraday's Laws of Electromagnetic Induction (Statement only)		
	3 <sup>rd</sup>	Lenz's Law (Statement)		
	4 <sup>th</sup>	Fleming's Right Hand Rule		

15th	1 <sup>st</sup>	Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule.		
	2 <sup>nd</sup>	<b><u>UNIT 12 - MODERN PHYSICS:</u></b> LASER & laser beam (Concept and Definition)		
	3 <sup>rd</sup>	Principle of LASER (Population Inversion & Optical Pumping) and Properties & Applications of LASER		
	4 <sup>th</sup>	Wireless Transmission – Ground Waves, Sky Waves, Space Waves ( Concept & Definition)		



**HOD**



**DEAN**



**PRINCIP**