PHYSICS LESSON PLAN SUMMER 2023-24

DISCIPLINE: PHYSICS	SEMESTER: 2nd	NAME OF THE TEACHING FACULTY: MISS SUSHREE SANGITA BEHERA (PTGF)
Subject: ENGINEEERING PHYSICS	**No. of Days/per week class allotted: 04classes**	**Semester From date:29-01-2023 to Date:14.05.2023**
Total period alloted: 60	**No. of Weeks: 16**	

Sl. No	Week	Class Day	Theory/Practical Topics	No of periods allotted
1	**4th Week/ March 2024**	1ST	1.1 Physical quantities - (Definition). 1.2 Definition of fundamental and derived units, systems of units (FPS, CGS, MKS and SI units).	1
		2ND	1.3 Definition of dimension and Dimensional formulae of physical quantities.	1
		3RD	1.4 Dimensional equations and Principle of homogeneity,	1
		4TH	2.1 Scalar and Vector quantities (definition and concept), Representation of a Vector – examples, types of vectors.	1
2	**1st Week / February 2024**	1ST	2.2 Triangle and Parallelogram law of vector Addition (Statement only),2.3 Resolution of Vectors – Simple Numericals on Horizontal and Vertical components	1
		2ND	2.4 Vector multiplication (scalar product and vector product of vectors).	1
		3RD	3.1 Concept of Rest and Motion. 3.2 Displacement, Speed, Velocity, Acceleration & FORCE (Definition, formula, dimension & SI units).	1
		4TH	3.3 Equations of Motion under Gravity (upward and downward motion) - no derivation.	1
3	**2nd Week/ February 2024**	1ST	3.4 Circular motion: Angular displacement, Angular velocity and Angular acceleration (definition, formula & SI units).	1
		2ND	3.5 Relation between –(i) Linear & Angular velocity, (ii) Linear & Angular acceleration). 3.6 Define Projectile, Examples of Projectile.	1
		3RD	3.7 Expression for Equation of Trajectory, Time of Flight, Maximum Height and Horizontal Range for a projectile fired at an angle, Condition for maximum Horizontal Range.	1

		4TH	3.7 Expression for Equation of Trajectory, Time of Flight, Maximum Height and Horizontal Range for a projectile fired at an angle, Condition for maximum Horizontal Range.	1
4	**3rd Week/ February 2024**	1ST	4.1 Work – Definition, Formula & SI units. 4.2 Friction – Definition & Concept.	1
		2ND	4.3 Types of friction (static, dynamic), Limiting Friction (Definition with Concept).	1
		3RD	4.4 Laws of Limiting Friction (Only statement, No Experimental Verification). 4.5 Coefficient of Friction – Definition & Formula, Simple	1
		4TH	4.6 Methods to reduce friction	1
5	**4th Week/ February 2024**	1ST	5.1 Newton's Laws of Gravitation – Statement and Explanation. 5.2 Universal Gravitational Constant (G)- Definition, Unit	1
		2ND	5.3 Acceleration due to gravity (g)- Definition and Concept. 5.4 Definition of mass and weight.	1
		3RD	5.5 Relation between g and G.	1
		4TH	5.6 Variation of g with altitude and depth (No derivation – Only Explanation).	1
6	**1st Week/ March 2024**	1ST	5.7 Kepler's Laws of Planetary Motion (Statement only).	1
		2ND	6.1 Simple Harmonic Motion (SHM) - Definition & Examples.	1
		3RD	6.2 Expression (Formula/Equation) for displacement, velocity, acceleration of a body/ particle	1
		4TH	6.3. Wave motion – Definition & Concept. 6.4 Transverse and Longitudinal wave motion – Definition, Examples & Comparison	1
7	**2nd Week/ March 2024**	1ST	6.5 Definition of different wave parameters (Amplitude, Wavelength, Frequency, Time Period.	1
		2ND	6.6 Derivation of Relation between Velocity, Frequency and Wavelength of a wave	1
		3RD	6.7 Ultrasonics – Definition, Properties & Applications.	1
		4TH	7.1 Heat and Temperature – Definition & Difference 7.2 Units of Heat (FPS, CGS, MKS & SI).	1
8	**3rd Week/ March 2024**	1ST	7.3 Specific Heat (concept, definition, unit, dimension and simple numerical) 7.4 Change of state (concept), Latent Heat (concept, definition, unit, dimension and simple numerical)	1
		2ND	7.5 Thermal Expansion – Definition & Concept	1
		3RD	7.6 Expansion of Solids (Concept)	1

		4TH	7.7 Coefficient of linear, superficial and cubical expansions of Solids – Definition & Units. 7.8 Relation between α, β & ϒ	1
9	**4th Week/ March 2024**	1ST	7.9 Work and Heat - Concept & Relation	1
		2ND	7.10 Joule's Mechanical Equivalent of Heat (Definition, Unit),7.11 First Law of Thermodynamics (Statement and concept only	1
		3RD	8.1 Reflection & Refraction – Definition. 8.2 Laws of reflection and refraction (Statement only)	1
		4TH	8.3 Refractive index – Definition, Formula &Simple numerical.	1
10	**1st Week/ April 2024**	1ST	8.4 Critical Angle and Total internal reflection – Concept, Definition & Explanation	1
		2ND	8.5 Refraction through Prism (Ray Diagram & Formula only – NO derivation), 8.6 Fiber Optics – Definition, Properties & Applications	1
		3RD	9.1 Electrostatics – Definition & Concept. 9.2 Statement & Explanation of Coulombs laws, Definition of Unit charge.	1
		4TH	9.3 Absolute & Relative Permittivity (ε) – Definition, Relation & Unit. 9.4 Electric potential and Electric Potential difference (Definition, Formula & SI Units).	1
11	**2nd Week / April 2024**	1ST	9.5 Electric field, Electric field intensity (E) – Definition, Formula & Unit. 9.6 Capacitance - Definition, Formula & Unit.	1
		2ND	9.7 Series and Parallel combination of Capacitors (No derivation, Formula for effective/Combined/total capacitance & Simple numericals). 9.8 Magnet, Properties of a magnet.	1
		3RD	9.9 Coulomb's Laws in Magnetism – Statement & Explanation, Unit Pole (Definition). 9.10 Magnetic field, Magnetic Field intensity (H) - (Definition, Formula & SI Unit).	1
		4TH	9.11 Magnetic lines of force (Definition and Properties)	1
12	**3rd Week/ April 2024**	1ST	9.12 Magnetic Flux (Φ) & Magnetic Flux Density (B) – Definition, Formula & Unit.	1
		2ND	10.1 Electric Current – Definition, Formula & SI Units.	1
		3RD	10.2 Ohm's law and its applications.	1
		4TH	10.3 Series and Parallel combination of resistors (No derivation, Formula for effective/Combined/ total resistance & Simple numericals).	1
13	**4th Week/ April 2024**	1ST	10.4 Kirchhoff's laws (Statement & Explanation with diagram).	1
		2ND	10.5 Application of Kirchhoff's laws to Wheatstone bridge - Balanced condition of Wheatstone's Bridge – Condition of Balance (Equation).	1
		3RD	11.1 Electromagnetism – Definition & Concept.	1

		4TH	11.2 Force acting on a current carrying conductor placed in a uniform magnetic field, Fleming's Left Hand Rule	1
14	**1st Week/ May 2024**	1ST	11.3 Faraday's Laws of Electromagnetic Induction (Statement only) 11.4 Lenz's Law (Statement)	1
		2ND	11.5 Fleming's Right Hand Rule	1
		3RD	11.6 Comparison between Fleming's Right Hand Rule and Fleming's	1
		4TH	12.1 LASER & laser beam (Concept and Definition)	1
15	**2nd Week/ may 2024**	1ST	12.2 Principle of LASER (Population Inversion & Optical Pumping)	1
		2ND	12.3 Properties & Applications of LASER 12.4 Wireless Transmission – Ground Waves, Sky Waves, Space Waves (Concept & Definition	1
		3RD	REVISION	1
		4TH	REVISION	1

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