

Lesson plan of ENGINEERING PHYSICS Theory of 1ST Sem Winter- 2021

(From 01.11.2021 to 14.02.2022)

SL. NO	SECTION	WEEK	THEORY CHAPTER/TOPIC	PERIOD (Total:60 periods)
1	SEC-A SEC-B	01.11.2021 To 06.11.2021	UNIT 1 - UNITS AND DIMENSIONS 1.1 Physical quantities - (Definition). 1.2 Definition of fundamental and derived units, systems of units (FPS, CGS, MKS and SI units). 1.3 Definition of dimension and Dimensional formulae of physical quantities. 1.4 Dimensional equations and Principle of homogeneity. 1.5 Checking the dimensional correctness of Physical relations. DOUBT CLEARING CLASSES	04-A 04-B 01(EXTRA CLASS)
2	SEC-A SEC-B	08.11.2021 To 13.11.2021	UNIT 2 - SCALARS AND VECTORS 2.1 Scalar and Vector quantities (definition and concept), Representation of a Vector – examples, types of vectors. 2.2 Triangle and Parallelogram law of vector Addition (Statement only). Simple Numerical. 2.3 Resolution of Vectors – Simple Numericals on Horizontal and Vertical components. 2.4 Vector multiplication (scalar product and vector product of vectors). DOUBT CLEARING CLASSES	04-A 04-B
3	SEC-A SEC-B	15.11.2021 To 20.11.2021	UNIT 3 - KINEMATICS 3.1 Concept of Rest and Motion. 3.2 Displacement, Speed, Velocity, Acceleration & FORCE (Definition, formula, dimension & SI units). 3.3 Equations of Motion under Gravity (upward and downward motion) - no derivation. 3.4 Circular motion: Angular displacement, Angular velocity and Angular acceleration (definition, formula & SI units). 3.5 Relation between –(i) Linear & Angular velocity, (ii) Linear & Angular acceleration). 3.6 Define Projectile, Examples of Projectile. 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. DOUBT CLEARING CLASSES	04-A 04-B 01(EXTRA CLASS)

4	SEC-A SEC-B	22.11.2021 To 27.11.2021	UNIT 4 – WORK AND FRICTION 4.1 Work – Definition, Formula & SI units. 4.2 Friction – Definition & Concept. 4.3 Types of friction (static, dynamic), Limiting Friction (Definition with Concept). 4.4 Laws of Limiting Friction (Only statement, No Experimental Verification). 4.5 Coefficient of Friction – Definition & Formula, Simple Numericals. 4.6 Methods to reduce friction. DOUBT CLEARING CLASSES	04-A 04-B 01(EXTRA CLASS)
5	SEC-A SEC-B	29.11.2021 To 04.12.2021	UNIT 5 - GRAVITATION 5.1 Newton’s Laws of Gravitation – Statement and Explanation. 5.2 Universal Gravitational Constant (G)- Definition, Unit and Dimension. 5.3 Acceleration due to gravity (g)- Definition and Concept. 5.4 Definition of mass and weight. 5.5 Relation between g and G. 5.6 Variation of g with altitude and depth (No derivation – Only Explanation). 5.7 Kepler’s Laws of Planetary Motion (Statement only). DOUBT CLEARING CLASSES	04-A 04-B 01(EXTRA CLASS)
6	SEC-A SEC-B	06.12.2021 To 11.12.2021	UNIT 6 - OSCILLATIONS AND WAVES 6.1 Simple Harmonic Motion (SHM) - Definition & Examples. 6.2 Expression (Formula/Equation) for displacement, velocity, acceleration of a body/ particle in SHM. 6.3. Wave motion – Definition & Concept. 6.4 Transverse and Longitudinal wave motion – Definition, Examples & Comparison. 6.5 Definition of different wave parameters (Amplitude, Wavelength, Frequency, Time Period). 6.6 Derivation of Relation between Velocity, Frequency and Wavelength of a wave 6.7 Ultrasonics – Definition, Properties & Applications. DOUBT CLEARING CLASSES	04-A 04-B 01(EXTRA CLASS)

7	SEC-A SEC-B	13.12.2021 To 18.12.2021	UNIT 7 - HEAT AND THERMODYNAMICS 7.1 Heat and Temperature – Definition & Difference 7.2 Units of Heat (FPS, CGS, MKS & SI). 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) 7.5 Thermal Expansion – Definition & Concept 7.6 Expansion of Solids (Concept)	04-A 04-B
8	SEC-A SEC-B	20.12.2021 To 24.12.2021	7.7 Coefficient of linear, superficial and cubical expansions of Solids – Definition & Units. 7.8 Relation between α , β & γ 7.9 Work and Heat - Concept & Relation. 7.10 Joule’s Mechanical Equivalent of Heat (Definition, Unit) 7.11 First Law of Thermodynamics (Statement and concept only) DOUBT CLEARING CLASSES	04-A 04-B 01(EXTRA CLASS)
9	SEC-A SEC-B	27.12.2021 To 01.01.2022	UNIT 8 – OPTICS 8.1 Reflection & Refraction – Definition. 8.2 Laws of reflection and refraction (Statement only) 8.3 Refractive index – Definition, Formula & Simple numerical. 8.4 Critical Angle and Total internal reflection – Concept, Definition & Explanation 8.5 Refraction through Prism (Ray Diagram & Formula only – NO derivation).. 8.6 Fiber Optics – Definition, Properties & Applications. DOUBT CLEARING CLASSES	04-A 04-B 01(EXTRA CLASS)
10	SEC-A SEC-B	03.01.2022 To 08.01.2022	UNIT 9 – ELECTROSTATICS & MAGNETOSTATICS 9.1 Electrostatics – Definition & Concept. 9.2 Statement & Explanation of Coulombs laws, Definition of Unit charge. 9.3 Absolute & Relative Permittivity (ϵ) – Definition, Relation & Unit. 9.4 Electric potential and Electric Potential difference (Definition, Formula & SI Units). 9.5 Electric field, Electric field intensity (E) – Definition, Formula & Unit. 9.6 Capacitance - Definition, Formula & Unit. 9.7 Series and Parallel combination of Capacitors (No derivation, Formula for effective/Combined/total capacitance & Simple numericals).	04-A 04-B 01(EXTRA CLASS)

11	SEC-A SEC-B	10.01.2022 To 15.01.2022	9.8 Magnet, Properties of a magnet. 9.9 Coulomb's Laws in Magnetism – Statement & Explanation, Unit Pole (Definition). 9.10 Magnetic field, Magnetic Field intensity (H) - (Definition, Formula & SI Unit). 9.11 Magnetic lines of force (Definition and Properties) 9.12 Magnetic Flux (Φ) & Magnetic Flux Density (B) – Definition, Formula & Unit.	04-A 04-B 01(EXTRA CLASS)
12	SEC-A SEC-B	17.01.2022 To 22.01.2022	UNIT 10 – CURRENT ELECTRICITY 10.1 Electric Current – Definition, Formula & SI Units. 10.2 Ohm's law and its applications. 10.3 Series and Parallel combination of resistors (No derivation, Formula for effective/ Combined/ total resistance & Simple numericals). 10.4 Kirchhoff's laws (Statement & Explanation with diagram). 10.5 Application of Kirchhoff's laws to Wheatstone bridge - Balanced condition of Wheatstone's Bridge – Condition of Balance (Equation). DOUBT CLEARING CLASSES	04-A 04-B 01(EXTRA CLASS)
13	SEC-A SEC-B	24.01.2022 To 29.01.2022	UNIT 11 – ELECTROMAGNETISM & ELECTROMAGNETIC INDUCTION 11.1 Electromagnetism – Definition & Concept. 11.2 Force acting on a current carrying conductor placed in a uniform magnetic field, Fleming's Left Hand Rule 11.3 Faraday's Laws of Electromagnetic Induction (Statement only) 11.4 Lenz's Law (Statement) 11.5 Fleming's Right Hand Rule 11.6 Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule. DOUBT CLEARING CLASSES	03-A 04-B 01(EXTRA CLASS)
14	SEC-A SEC-B	31.01.2022 To 04.02.2022	UNIT 12 - MODERN PHYSICS 12.1 LASER & laser beam (Concept and Definition) 12.2 Principle of LASER (Population Inversion & Optical Pumping) 12.3 Properties & Applications of LASER 12.4 Wireless Transmission – Ground Waves, Sky Waves, Space Waves (Concept & Definition) DOUBT CLEARING CLASSES	04-A 04-B 01(EXTRA CLASS)

15	SEC-A SEC-B	07.02.2022 To 14.02.2022	REVISION CLASSES	04-A 04-B 01(EXTRA CLASS)
-----------	------------------------	-----------------------------------------	-------------------------	------------------------------------------

N.B - SEC C: ELECTRICAL ENGG.

SEC D: ELECTRICAL & ETC ENGG.

**Smt. Kabita Padhan
PTGF in Physics**

Academic Coordinator

Principal