DEPARTMENT: MATHEMATICS AND SCIENCE

BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

LESSON PLAN

By

MR. PRADOSH KUMAR GAJENDRA

ACADEMIC SESSION:-2022-23

SEMESTER: - 1ST SEMESTER

SUBJECT: -ENGINEERING PHYSICS (THEORY)

SECTION- F

Discipline: Mechanical Branch	Semester: 2nd Semester	Name of the Teaching Faculty: Pradosh Kumar Gajendra
Subject: Engineering Physics	No. of Days/ per week class allotted: 02 periods/per week (Mon Tue):- (2 periods)	Semester From: - Date: 26 / 10 / 2022 to 31/ 01/2023 No of Weeks: - 15
Week	**Class Dates**	**Theory Topics**
1st	31.10.22 01.11.22	Introduction, Syllabus discussion and previous years related study discussion **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).
2nd	07.11.22	**UNIT 1 - UNITS AND DIMENSIONS** 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. **UNIT 3 – KINEMATICS** 3.1 Concept of Rest and Motion. 3.2 Displacement, Speed, Velocity, Acceleration & FORCE (Definition, formula, dimension & SI units).
3rd	14.11.22 15.11.22	**UNIT 3 – KINEMATICS** 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.

4th	21.11.22	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.
	22.11.22	**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.
5th	28.11.22	5.5 Relation between g and G. 5.6 Variation of g with altitude and depth (No derivation – Only Explanation).
	29.11.22	5.7 Kepler's Laws of Planetary Motion (Statement only).
6th	05.12.22	CLASS TEST-1
	06.12.22	**UNIT 7 - HEAT AND THERMODYNAMICS** 7.1 Heat and Temperature – Definition & Difference 7.2 Units of Heat (FPS, CGS, MKS & SI).
7th	12.12.22	**UNIT 7 - HEAT AND THERMODYNAMICS** 7.3 Specific Heat (concept, definition, unit, dimension and simple numerical)
	13.12.22	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) 7.7 Coefficient of linear, superficial and cubical expansions of Solids – Definition & Units.

8th	19.12.22	7.8 Relation between α, β & ϒ 7.9 Work and Heat - Concept & Relation. 7.10 Joule's Mechanical Equivalent of Heat (Definition, Unit)
	20.12.22	7.11 First Law of Thermodynamics (Statement and concept only. CLASS TEST -2 **UNIT 9 – ELECTROSTATICS & MAGNETOSTATICS** 9.1 Electrostatics – Definition & Concept. 9.2 Statement & Explanation of Coulombs laws, Definition of Unit charge.
9th	26.12.22	**UNIT 9 – ELECTROSTATICS & MAGNETOSTATICS** 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
	27.12.22	9.7 Series and Parallel combination of Capacitors (No derivation, Formula for effective/Combined/total capacitance & Simple numerical).
10th	02.01.23	**UNIT 9 – ELECTROSTATICS & MAGNETOSTATICS** 9.8 Magnet, Properties of a magnet. 9.9 Coulomb's Laws in Magnetism – Statement & Explanation, Unit Pole (Definition).
	03.01.23	9.10 Magnetic field, Magnetic Field intensity (H) - (Definition, Formula & SI Unit).

11th	09.01.23	9.11 Magnetic lines of force (Definition and Properties)

9.12 Magnetic Flux (Φ) & Magnetic Flux Density (B) – Definition, Formula & Unit. |
| | 10.01.23 | UNIT 11 – ELECTROMAGNETISM & ELECTROMAGNETIC INDUCTION
11.1 Electromagnetism – Definition & Concept. |
| 12th | 16.01.23 | 11.2 Force acting on a current carrying conductor placed in a uniform magnetic field, Fleming's Left Hand Rule |
| | 17.01.23 | 11.3 Faraday's Laws of Electromagnetic Induction (Statement only)
11.4 Lenz's Law (Statement) |
| 13th | 23.01.23 | 11.5 Fleming's Right Hand Rule |
| | 24.01.23 | 11.6 Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule.
CLASS TEST-3 |
| 14th | 30.01.23 | 11.6 Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule. |
| | 31.01.23 | **VST FOR SEMESTER EXAM** |

REFERENCE BOOK:
1. TEXTBOOK OF ENGINEERING PHYSICS BY Dr.BISWAMBAR MOHANTY.

Signature