



DEPARTMENT: MATHEMATICS AND SCIENCE
BHUBANANANDA ORISSA SCHOOL OF ENGINEERING,
CUTTACK

LESSON PLAN (Theory)

By

MISS MONALISA PARIDA

ACADEMIC SESSION:-2023

SEMESTER: -1st SEMESTER

SUBJECT: -ENGINEERING PHYSICS (THEORY)

SECTION- A

BRANCH-CIVIL

Discipline: Civil Branch	Semester: 1st Semester	Name of the Teaching Faculty: Monalisa Parida
Subject: Engineering Physics	No. of Days/ per week class allotted: 04 periods/per week (Tue, Wed, Thu, Fri):- (4 periods each)	Semester From: - Date: 16 / 08 / 2023 to 11 / 12 / 2023 No of Weeks: - 20
Week	Class Dates	Theory Topics
1st	16.08.23	Introduction, Syllabus discussion and previous years related study discussion
	17.08.23 18.08.23	UNIT 1- UNIT AND DIMENSIONS 1.1 Physical quantities(Definition) 1.2 Definition of fundamental and derived units, system of units(FPS,CGS,MKS and SI units) 1.3 Definition of dimensions and Dimensional Formulae of physical quantities
2ND	22.08.23	1.4 Dimensional equations and principle of homogeneity 1.5 Checking the dimensional correctness of Physical relations.
	23.08.23	UNIT-2 SCALARS AND VECTORS 2.1 Scalar and Vector quantities (definition and concept), Representation of a Vector – examples, types of vectors.
	24.08.23	2.2 Triangle and Parallelogram law of vector Addition (Statement only). Simple Numerical. 2.3 Resolution of Vectors – Simple Numerical on Horizontal and Vertical components.

	25.08.23	2.4 Vector multiplication (scalar product and vector product of vectors)
3 RD	29.08.23	CLASS TEST – 01
	31.08.23	UNIT-03 KINEMATICS 3.1 Concept of rest and Motion 3.2 Displacement, Speed, Velocity, Acceleration and Force (Definition, formula, dimensions and SI units)
4 TH	01.08.23	3.3 Equation of Motion under Gravity (upward and downward motion) 3.4 Circular motion: Angular displacement, Angular velocity and Angular acceleration (definition, formula and SI units)
5 TH	05.09.23 07.09.23	3.5 Relation between - (i) Linear and Angular Velocity, (ii) Linear and 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.
	08.09.23	CLASS TEST-02 UNIT 4 – WORK AND FRICTION 4.1 Work – Definition, Formula & SI units. 4.2 Friction – Definition & Concept.
6 TH	12.09.23	4.3 Types of friction (static, dynamic), Limiting Friction (Definition with Concept) 4.4 Laws of Limiting Friction (Only statement, No Experimental Verification).
	13.09.23	4.5 Coefficient of Friction – Definition & Formula, Simple Numericals 4.6 Methods to reduce friction
	14.09.23	CLASS TEST – 03
	15.09.23	UNIT -5 GRAVITATION

7 TH	21.09.23	5.1 Newton's Laws of Gravitation -statement and explanation 5.2 Universal Gravitation Constant (G)-Definition unit and Dimensions
	22.09.23	5.3 Acceleration due to gravity (g)- Definition and Concept
8 TH	26.09.23	5.4 Definition of mass and weight 5.5 Relation between g and G
	27.09.23	5.6 Variation of g with altitude and depth(No derivation - Only formula)
	28.09.23	5.7 Keplers Laws of Planetary Motion(statement only) CLASS TEST-04
9 TH	03.10.23	UNIT-6 OSCILLATION AND WAVES 6.1 Simple Harmonic Motion (SHM)-Definition and Examples
	04.10.23	6.2 Expression (Formula/Equation) for displacement, velocity, acceleration of a body /particle in SHM 6.3 Wave motion- Definition and Concept
	05.10.23	6.4 Transverse and Longitudinal wave motion - Definition , Examples and Comparison. 6.5 Definition of Different Wave Parameters (Amplitude, Wavelength, Frequency, Time Period)
	06.10.23	6.6 Derivation of Relation between Velocity, Frequency and Wavelength of a Wave 6.7 Ultrasonics- Definition , Properties , Application CLASS TEST -05
10 th	10.10.23	UNIT -07 HEAT AND THERMODYNAMICS 7.1 Heat and Temperature -Definition and Difference 7.2 Units of Heat (FPS,CGS,MKS, and SI)

11 th	11.10.23	7.3 Specific Heat(Concept, definition,unit, dimensions and simple numerical) 7.4 Change of State (concept),Latent Heat(concept, definition,unit, dimension and simple numerical) 7.5 Thermal Expansion - Definition and Concept 7.6 Expansion of Solids(concept)
	12.10.23	7.7 Coefficient of linear, superficial and cubical expansion of solids-Definition and Units 7.8 Relation between Alpha,..... 7.9 Work and Heat- concept and relation
	13.10.23	7.10 Joules Mechanical Equivalent of Heat(Definition,Unit) 7.11 First Law of Thermodynamics (statement and concept only)
	17.10.23	CLASS TEST- 06
	18.10.23	UNIT- 08 OPTICS
	19.10.23	8.1 Reflection & Refraction – Definition.
	20.10.23	8.2 Laws of reflection and refraction (Statement only)
12 th		8.3 Refractive index – Definition, Formula &Simple numerical.
	31.10.23	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
13 th		CLASS TEST- 07
	1.11.23 02.11.23	UNIT 09 ELECTROSTATIC AND MAGNETOSTATIC 9.1 Electrostatics - Definition and Concept

14 th	03.11.23	9.2 Statement and Explanation of Coulombs law, Definition of unit charge
	07.11.23	9.3 Absolute and Relative Permittivity -Definition , Relation and Unit
	08.11.23	9.4 Electric Potential and Electric Potential difference (Definition , formula and SI units)
		9.5 Electric Field, Electric Field intensity (E)
	09.11.23	9.6 Capacitance -Definition, formula and Unit
	10.11.23	9.7 Series and Parallel combination of Capacitors (No derivation,formula for effective/combined/total capacitance and Simple numericals)
15 th		9.8 Magnet, Properties of a magnet
		9.9 Coulombs Laws in Magnetism -Statement and Explanation,Unit Pole(Definition)
	14.11.23	9.10 Magnetic field, Magnetic Field intensity (H)- Definition, formula and SI units)
	15.11.23	9.11 Magnetic lines of Force(Definition and Properties)
		9.12 Magnetic Flux and Magnetic Flux density(B)- Definition formula and unit
16 th	16.11.23	CLAS TEST- 08
	17.11.23	UNIT-10 CURRENT ELECTRICITY
	21.11.23	10.1 Electric Current -Definition,Formula and SI units
	22.11.23	10.2 Ohms law and it's applications
		10.3 Series and Parallel Combination of resistors (No derivation, Formula for effective/combined/total resistance and simple numericals)
		10.4 Kirchhoffs laws(statement and Explanation with

17 th	23.11.23	diagram)
	24.11.23	10.5 Application of Kirchhoffs law to Wheatstone bridge - Balanced condition of Wheatstone bridge
	28.11.23	CLASS TEST-09
	29.11.23	UNIT- 11 ELECTROMAGNETISM AND ELECTROMAGNETIC INDUCTION
	30.11.23	11.1 Electromagnetism -Definition and Concept 11.2 Force acting on a current carrying conductor placed in a uniform magnetic field,Fleming's left hand rule 11.3 Faradays laws of Electromagnetic Induction (statement only) 11.4 Lenzs law(statement only) 11.5 Fleming's Right Hand Rule 11.6 Comparison between Fleming's Right Hand Rule and Fleming's left hand rule
18 th	1.12.23	CLASS TEST -10
19 th	5.12.23	UNIT -12 MODERN PHYSICS 12.1 Laser and Laser beam (Concept and Definition) 12.2 Principle of LASER (Population Inversion and Optical Pumping) 12.3 Properties and Application of LASER 12.4 Wireless Transmission -Ground Waves ,Sky Waves,Space Waves(Concept and Definition)
	6.12.23	CLASS TEST -11
	7.12.23	REVISION AND DOUBT CLEARING

8.12.23

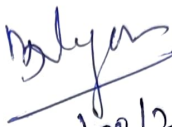
VST -01 (For Semester Examination)

VST- 02

REFERENCE BOOK:

TEXTBOOK OF ENGINEERING PHYSICS BY Dr.BISWAMBAR MOHANTY.

Signature


24/08/2023
H. O. D. (Mech & Sc.)