NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

ENGINEERING PHYSICS (TH-2)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of period	No.of periods actually needed
1	UNITS & DIMENSIONS	3	3
2	SCALARS & VECTORS	3	4
3	KINEMATICS	6	6
4	WORK & FRICTION	5	5
5	GRAVITATION	5	5
6	OSCILLATIONS & WAVES	6	6
7	HEAT & THERMODYNAMICS	7	7
8	OPTICS	4	4
9	ELECTROSTATICS & MAGNETOSTATICS	7	7
10	CURRENT ELECTRICITY	6	6
11	ELECTROMAGNETISM & ELECTROMAGNETIC INDUCTION	5	5
12	MODERN PHYSICS	3	3
TOTAL		60	60

Discipline: EE/EEE	Semester: 2ND	**NAME OF THE TEACHING FACULTY :** Miss Basumati Behera Mr.Soumya Ranjan Panda
		SESSION : 2023-24 **EXAMINATION :** 2024(S)
Week	**Class Day**	**Topics to be Covered**
1ST	**1ST**	**Unit& Dimension:** Definition of Physics, measurement, unit, physical quantities, fundamental quantities
	2ND	System of unit (C.G.S,M.K.S,F.P.S,M.K.S.A,S.I System),Matrix prefix, symbols, definition of dimension &dimensional Formula of physical quantities
	3RD	Dimensional equation & principle of homogeneity, checking the dimensional correctness of Physical relation
	4TH	**Scalar & vector:** Definition of scalar &vector quantities, Representation of vector,types of vectors & example
2ND	**1ST**	Triangle law of vector addition, Parallelogram law of vector addition, Resolution vectors
	2ND	Vector multiplication, Characteristics of Vector product, Characteristics of Scalar Product
	3RD	**Kinematics**: Concept of rest & motion, Definition & units & dimensional formula of displacement, speed, velocity, acceleration, force
	4TH	Equation of kinematics, Equation of gravity
3RD	**1ST**	Circular motion, Definition & Units & dimensional formula of angular displacement, angular velocity, angular acceleration
	2ND	Relation between- i)Linear &angular velocity, ii) Linear & Angular Acceleration
	3RD	Definition & example of projectile, Derive Projectile fired in vertical upward & downward direction
	4TH	Expression of equation of trajectory, Time of Flight, Maximum Height ,Horizontal Range for a Projectile fired at an angle, condition for maximum horizontal range
4TH	**1ST**	**Work & Friction:** Definition & S.I. Units & dimensional formula of work , definition & concept of Friction
	2ND	Types of Friction, Limiting Friction
	3RD	Statement of laws of limiting Friction
	4TH	Definition & formula of co-efficient friction, angle of repose, angle of friction
5TH	**1ST**	Method of reduce friction, advantages & disadvantages of reduce friction
	2ND	**Gravitation:** Orbit, satellite, Solar system, Statement of Kepler's law of planetary motion
	3RD	Statement & explanation of Newton's law of gravitation, unit & dimension of gravitation, universal gravitational constant (G)
	4TH	Definition of acceleration due gravity(g), Definition of mass &weight

6TH	1ST	Relation between g & G, Variation of g with altitude
	2ND	Variation of g with depth, simple numerical problem
	3RD	**Oscillation & waves:** Definition & example of Simple Harmonic Motion
	4TH	Characteristics of Simple Harmonic Motion(Amplitude, Displacement, Velocity, Acceleration, Time period, simple numerical problem
7TH	1ST	Definition & concept of Wave motion, Types of Wave motion, Transverse & Longitudinal wave motion, comparison between progressive wave & Stationary wave
	2ND	Definition of different wave parameters(amplitude, wave length, frequency, time period)
	3RD	Derivation of relation between velocity, frequency, wave length of wave
	4TH	Definition, properties & application of Ultrasonic
8TH	1ST	**Heat & Thermodynamics:** Definition & difference of Heat & Thermodynamics, Units of heat
	2ND	Definition, unit, dimension of specific heat, change of state, latent heat
	3RD	Concept & definition of Thermal Expansion
	4TH	Expansion of solid, Co-efficient of linear, superficial, cubical of solid
9TH	1ST	Relation between alpha,beta,gamma.
	2ND	Relation between work & heat, Definition of Joule's Mechanical ,Equivalent of Heat & units
	3RD	Statement & derivation of 1st law of Thermodynamics
	4TH	**Optics:** Definition of reflection & refraction, laws of reflection & refraction
10TH	1ST	Definition & formula of Refractive Index, simple numerical problem, Critical angle & Total Internal Reflection
	2ND	Ray diagram & formula of refraction through Prism
	3RD	Definition, Properties & application of Fiber Optics
	4TH	**Electrostatics & Magneto-statics:** Definition of Electrostatics, Statement & expansion of Coulombs law, unit charge
11TH	1ST	Definition ,relation & unit of Absolute & Relative permittivity, Definition of electric potential & electric potential difference,
	2ND	Definition, formula & unit of electric field, electric field intensity(E)
	3RD	Definition & formula & unit of Capacitance ,Series & Parallel Combination of capacitance
	4TH	Definition of magnet, Properties of Magnet, magnetic field,magnetic field intensity

12TH	1ST	Statement & explanation of Coulomb's laws in magnetism
	2ND	Properties of Magnetic lines of Force, magnetic flux & magnetic Flux density(B)
	3RD	**Current Electricity:** Definition, formula & unit of Electric Current
	4TH	Definition & application of Ohm's law
13TH	1ST	Series & Parallel combination of resistor
	2ND	Statement & Explanation with diagram of Kirchhoff's law
	3RD	Application of Kirchhoff's law to Wheatstone bridge
	4TH	Balanced condition of Wheatstone bridge, problem
14TH	1ST	**Electromagnetism & Electromagnetic Induction:** Definition of Electromagnetism, Force acting on a current carrying conductor placed in a uniform magnetic field
	2ND	Fleming left hand rule & Fleming right hand rule
	3RD	Comparison between Fleming left hand rule & right hand rule
	4TH	Statement of Faraday's law of Electromagnetic induction
15th	1ST	Statement & properties of Lenz's law
	2ND	**Modern Physics:** Definition of LASER, Laser beam, Principle of laser
	3RD	Properties & application of LASER
	4TH	Definition of Wireless Transmission- ground wave, sky wave, space wave