BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK MATHEMA
AND SCIENCE DEPARTMENT ACADEMIC PLAN

BRANCH-CIVIL & MECHANICAL (1st SEM)

Sec:- A, B, C, F, G.

SUBJECT: - ENGINEERING PHYSICS (Theory)

FACULTY NAME:- Dr Priyambhara Mohanty

Mrs Arpita Pradhan

Mr. Pradhan Ku. Gajendra.

SESSION-2020-21(WINTER)

Semester from: date. 9/11/2020 To date. / /

No of week Available:

	DATES	NO. OF PERIODS AVAILABLE	TOPIC TO BE COVERED	DATE OF TEACHING	SHORTFALL IF ANY	REASONS	DATE OF MAKE UP OF SHORTFALL	INITIAL OF FACULTY
1		4	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.	9.11.2020 10.11.2020 11.11.2020 13.11.2020	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	
2		4	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).	16.11.2020 17.11.2020 18.11.2020 20.11.2020	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	

3		4	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).	23.11.2020 24.11.2020 25.11.2020 27.11.2020	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	
4		4	UNIT 3 – KINEMATICS 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	30.12.2020 1.12.2020 2.12.2020 4.12.2020	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	
5		4	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	7.12.2020 9.12.2020 11.12.2020 14.12.2020	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	
6		4	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	15.12.2020 16.12.2020 18.12.2020 21.12.2020	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	

			derivation – Only Explanation). 5.7 Kepler's Laws of Planetary Motion (Statement only).					
7		4	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	22.12.2020 23.12.2020 28.12.2020 29.12.2020	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	

8		4	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	30.12.20 4.1.2021 5.1.2021 6.1.2021	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	
9		4	UNIT 7 - HEAT AND THERMODYNAMICS 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. 7.8 Relation between α, β & Y 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)	8.1.2021 11.1.2021 12.1.2021 13.1.2021	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	
10		4	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.	15.1.2021 18.1.2021 19.1.2021 20.1.2021	Nil Nil Nil Nil	Nil Nil Nil Nil	Nil Nil Nil Nil	
11		4	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					
12		4	UNIT 9 – ELECTROSTATICS & MAGNETOSTATICS 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.					

BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

DEPARTMENT OF MATHEMATICS AND SCIENCE

ACADEMIC SESSION-(2020-21- SUMMER)

Lesson Plan

SEMESTER:- 2nd SEM **BRANCH/SEC:-** ETC & AE&I (Sec-I)

SUBJECT:- ENGINEERING PHYSICS

FACULTY NAME:- Dr. Biswambhar Mohanty & Pradosh kumar Gajendra

2	5.5.21 10.5.21	4	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).	5.5.21 10.5.21	Nil Nil	— —	— —	
3	12.5.21 17.5.21	4	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).	12.5.21 17.5.21	Nil Nil	— —	— —	
4	19.5.21 24.5.21	4	UNIT 3 – KINEMATICS 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	19.5.21 24.5.21	Nil Nil	— —	— —	
5	31.5.21 7.6.21	4	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	31.5.21 7.6.21	Nil Nil	— —	— —	
6	16.6.21 21.6.21	4	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).	16.6.21 21.6.21	Nil Nil	— —	— —	

8	30.6.21 1.7.21	4	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	30.6.21 1-7-21	N.I N.I	—	—	
9	5.7.21 7.7.21	4	UNIT 7 - HEAT AND THERMODYNAMICS 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. 7.8 Relation between α, β & Υ 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)	5-7-21 7-7-21	N.I N.I	— —	— —	
10	8.7.21 14.7.21	4	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.	8-7-21 14-7-21	N.I N.I	— —	— —	
11	19.7.21 22.7.21	4	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	19-7-21 22-7-21	N.I N.I	— —	— —	
12	26.7.21 28.7.21	4	UNIT 9 – ELECTROSTATICS & MAGNETOSTATICS 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.	26-7-21 28-7-21	N.I N.I	— —	— —	

BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

DEPARTMENT OF MATHEMATICS AND SCIENCE

ACADEMIC SESSION-(2020-21- SUMMER)

Lesson Plan

SEMESTER:- 2nd SEM **BRANCH/SEC:-** Comp. S. C. & IT (See H)

SUBJECT:- ENGINEERING PHYSICS

FACULTY NAME:- Dr Biswambhar Mohanty and Pradesh Kumar Gajendra

2	7.5.21 10.5.21	4	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).	7.5.21 10.5.21	Nil Nil	—	—	
3	17.5.21 21.5.21	4	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).	17.5.21 21.5.21	Nil Nil	— —	— —	
4	24.5.21 28.5.21	4	UNIT 3 – KINEMATICS 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	24.5.21 28.5.21	Nil Nil	— —	— —	
5	31.5.21 4.6.21	4	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	31.5.21 4.6.21	Nil Nil	— —	— —	
6	7.6.21 11.6.21	4	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).	7.6.21 11.6.21	Nil Nil	— —	— —	

8	25.6.21 28.6.21	4	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	25.6.21 28.6.21	N.J N.J	—	—	
9	9.7.21 16.7.21	4	UNIT 7 - HEAT AND THERMODYNAMICS 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. 7.8 Relation between α, β & Υ 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)	9-7-21 16.7.21	N.J N.J	—	—	
10	19.7.21 23.7.21	4	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.	19.7.21 23.7.21	N.J N.J	—	—	
11	26.7.21 30.7.21	4	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	26.7.21 30.7.21	N.J N.J	—	—	
12		4	UNIT 9 – ELECTROSTATICS & MAGNETOSTATICS 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.					