

# BLACK DIAMOND SCHOOL OF ENGINEERING, JHARSUGUDA

## LESSON PLAN Session (2022-2023)

<b>Discipline:</b> Civil/CSE/ Electrical/ETC	<b>Semester:</b> 2nd, Summer/2023	<b>Name of the Faculty:</b> Rana Aman Singh Lecturer
<b>Subject:</b> Engineering Physics, Theory-2(a)	<b>No. of Days/week:</b> 04	<b>Start Date:</b> 20/03/2023 <b>End Date:</b> 27/06/2023

Week	Class Day	Theory Topics
1st	1st	Dimension & Dimensional formula
	2nd	principle of homogeneity, checking the correctness of physical equations by using dimensional method
	3rd	Resolution of vectors, Dot product
	4th	Cross product of vectors
2nd	1st	Doubt Clearing & Practice Class
	2nd	Equation of motion concept & numerical
	3rd	Definition & concepts of projectile motion, Angle of projection, Equation of trajectory, Maximum Height
	4th	Time of flight, Horizontal Range, Condition for maximum range
3rd	1st	Uniform circular motion, Angular Displacement, Angular velocity, Angular acceleration
	2nd	Doubt Clearing & Practice Class
	3rd	Concept of work, Friction, Static, Limiting, Dynamic friction, Laws of friction, Methods of reduction of
	4th	Laws of friction, Methods of reduction of friction, Numerical
4th	1st	Newton's Laws of gravitation ( statement & explanation )
	2nd	Universal Gravitational Constant (Definition, Unit & Dimensional Formula)

	3dr	Definition and concept of acceleration due to gravity ,relation between g & G
	4th	Definition of mass & weight ,variation of g with altitude and depth
5th	1st	Numerical, Kepler's laws of planetary motion
	2nd	Doubt Clearing & Practice Class
	3rd	Concept of wave motion, wave parameters, Transverse & Longitudinal wave Relationship between wave velocity, frequency, wavelength,
	4th	Explanation of S.H.M as a projection of a uniform circular motion on any diameter, Derivation of velocity & acceleration of a particle executing S.H.M.
6th	1st	Ultrasonic, properties & application of ultrasonic
	2nd	Doubt Clearing & Practice Class
	3rd	Definition & difference between heat & temperature, unit & dimensional formula of heat & temperature.
	4th	Concept of specific heat & latent heat (Definition, dimensional formula & numerical)
7th	1st	Definition derivation & relation among coefficient of Linear, Superficial & Cubical expansion of solids
	2nd	Definition & S.I unit of Mechanical Equivalent of heat, Numerical
	3rd	1 <sup>st</sup> law of Thermodynamics statement & explanation
	4th	Doubt Clearing & Practice Class
8th	1st	Concept & definition of reflection & refraction
	2nd	Refractive Index definition, formula & numerical.
	3rd	Critical angle & total internal reflection.
	4th	Refraction through a prism ray diagram & formula
9th	1st	Fiber optics definition, properties & application.
	2nd	Doubt Clearing & Practice Class
	3rd	Concept of electrostatics, Coulombs laws in electrostatics,
	4th	Unit charge, Absolute & relative permittivity
10th	1st	Electric potential & Electric potential difference , units
	2nd	Electric field, Electric field intensity
	3rd	Capacitance (Definition ,unit )
	4th	Series & parallel combination of capacitors, simple numerical
11th	1st	Definition & properties of a magnet, Coulomb's laws in magnetism.
	2nd	Unit pole, Magnetic field & magnetic field intensity

	3rd	Magnetic lines of force, magnetic flux & flux density.
	4th	Doubt Clearing & Practice Class
12th	1st	Electric current ,ohm's law & its application
	2nd	Series & parallel combination of resistors, numerical
	3rd	Kirchhoff's laws statement with diagram.
	4th	Kirchhoff's laws application For the balanced condition of the Wheatstone's bridge.
13th	1st	Doubt Clearing & Practice Class
	2nd	Concept of electromagnetism, force acting on a current carrying conductor placed in a uniform magnetic field.
	3rd	Faraday's laws of electromagnetic induction, Fleming's right hand rule
	4th	Lenz's law, Fleming's right hand rule
14th	1st	Comparison between Fleming's left hand rule& Fleming's right hand rule
	2nd	Doubt Clearing & Practice Class
	3rd	LASER, characteristics of LASER , Principle & application of LASER
	4th	Wireless Transmission (Ground wave , Sky wave ,Space wave )
15th	1st	Expected Questions Discussion & Practice Test 1
	2nd	Expected Questions Discussion & Practice Test 2
	3rd	Expected Questions Discussion & Practice Test 3
	4th	Expected Questions Discussion & Practice Test 4