LESSON PLAN: (Engineering Physics)		
Discipline :	**Mechanical engineering and Electrical engineering**	
Faculty :	**Jyotshna Rani Sahoo**	
Semester :	**1st semester**	
Duration :	**14 WEEKS (15th September 2022 to 22nd December 2022)**	
Work Load :	**Lecture :**	**4 Lectures per week (50 minutes per Class)**
Week	**Week Day**	**Theory**
1st	1st	Physical units, fundamental and derived units, system of units (FPS,CGS,MKS,and SI units)
	2nd	Definition of dimension and dimensional formulae of physical quantities
	3rd	Dimensional equations and principle of homogeneity, Checking the dimensional correctness of physical relations
	4th	Scalar and Vector quantities,representation of a vector,examples and types of vector
2nd	5th	Triangle and parallelogram law of vector addition,simple numericals, Resolution of vectors
	6th	Vector multiplications (Scalar product and vector product of vector)
	7th	Concept of rest and motion, Displacement,speed, velocity, acceleration and force(definition,formula, dimensions and SI units)
	8th	Equation of motion under gravity, Circular motion; Angular displacement, angular velocity and angular acceleration
3rd	9th	Relation between linear and angular velocity,linear and angular acceleration,define projectile,examples of projectile, Expression for equation of trajectory
	10th	Time of flight, maximum height and horizontal range, condition for maximum horizontal range
	11th	Work; definition formula and si units, friction; definition and concept,types of friction, limiting friction
	12th	Laws of limiting friction, coefficient of friction
4th	13th	Methods of reducing friction, Newton's law of gravitation
	14th	Universal gravitational constant, Acceleration due to gravity
	15th	Definition of mass and weight,Relation between G and g
	16th	Variation of g with altitude
5th	17th	Kepler's law of planetary motion
	18th	Simple harmonic motion,
	19th	expression for displacement, velocity, acceleration of a body in SHM Wave motion,
	20th	transverse and longitudinal wave motion
6th	21st	Definition of different wave parameters (amplitude, wavelength, frequency,time period)
	22nd	Derivation of wave parameters
	23rd	Ultrasonic waves

	24th	specific heat
7th	25th	Heat and temperature,unit of heat
	26th	Change of state of heat, latent heat
	27th	Thermal expansion,
	28th	expansion of solid,Coefficient of linear, superficial and cubical expansion of solids
8th	29th	Relation between alpha,beta and gamma,work and heat
	30th	Joule's mechanical equivalent of heat,
	31st	First law of thermodynamics
	32nd	Reflection and refraction and discussion
9th	33rd	laws of reflection and refraction, refractive angle
	34th	critical angle and total internal reflection
	35th	Refraction through prism,fiber optics
	36th	Electrostatics, coulomb's law
10th	37th	Absolute and relative permittivity, electric potential and electric potential difference
	38th	Electric field, electric field intensity, capacitance
	39th	Series and parallel combination of capacitors
	40th	Magnet, property of magnet, Coulomb's law of magnetism
11th	41st	Magnetic field and magnetic field intensity
	42nd	Magnetic lines of force, magnetic flux and magnetic flux density
	43rd	Electric current, ohm's law and application
	44th	Kirchoff' law of current and voltage
12th	45th	Application of Kirchoff's law to wheatstone's bridge and it's balance condition
	46th	Series and parallel combination of resistors
	47th	Simple numericals and discussion
	48th	Electromagnetism
13th	49th	Fleming's left hand rule
	50th	Force acting on a current carrying conductor

	51st	Faraday's law of electro magnetic induction
	52nd	Lenz's law, Fleming's right hand rule
14th	53rd	Comparison between Fleming's left and rule and right hand rule
	54th	Laser and laser beams, principle of laser
	55th	P properties and application of laser, wireless transmission; ground waves
	56th	sky waves,space waves