

## LESSON PLAN

Session June-Dec 2024

Faculty Name: Dr Sanjay Kumar Sao

Subject: Applied Physics

Semester: First

Branch: - CSE/ET &T

UNIT NUMBER	NAME OF THE TOPIC	NO OF CLASS REQUIRED	REMARK
<b>Unit-1.0 Units, Measurement and Error analysis</b>	1.1 Unit of physical quantity 1.11 Fundamental and derived unit	01	
	1.2 Unit system 1.21 CGS, MKS and SI (a) Advantages/disadvantages of SI unit system (b) Seven basic and Supplement 1.3 Dimensional Analysis	01	
	1.31 Dimensional formula and equations. 1.32 Applications of Dimensional equations. 1.33 Numerical problems on Dimensional analysis.	01	
	1.4 Measurement 1.41 Accuracy, Precision and Errors.	01	
	1.42 Absolute, Relative and percentage Error.	01	
	1.5 Significant figures and rounding off, Assignment Given	01	
	Revision, Doubt Class, Assignment, Quiz conduction	01	
	Unit Test-1	01	
		Total 08	
<b>Unit-2.0 Force and General Properties of matter</b>	<b>2.1 Force</b> 2.11 Types of Forces (a) Conservative and non- conservative forces	01	
	(b) Frictional Forces, Limiting static and dynamic friction.	01	
	(c) Centripetal and centrifugal force and (d) their illustration.	01	
	(e) Gravitational Force', $G'$ and ' $g'$ and their interrelation, Factors affecting ' $g'$	01	
	<b>2.2 Elasticity</b> 2.21 Hooke's law (a) Elastic limit and elastic fatigue	01	
	2.22 Moduli of elasticities (a) Young's modulus, Bulk Modulus, Shear modulus of rigidity	01	
	<b>2.3 Surface Tension</b> 2.31 Molecular force, surface energy, effect of temperature	01	
	2.32 Cohesive and adhesive force 2.33 Excess pressure and its illustration, rise of liquid in capillary tube	01	
	<b>2.4 Viscosity</b> 2.41 Coefficient of viscosity, Newton's law of viscosity	01	
	2.42 Streamline and turbulent flow, Reynolds number 2.43 Poiseuille's equation (no derivation of formula), Stoke's law and their applications Assignment Given	01	

	Revision, Doubt Class, Assignment, Quiz conduction	01	
	Unit Test-2		
		Total 12	
<b>Unit-3.0 Optics, optical instruments and optical fibers</b>	3.1 Refraction	01	
	3.11 Laws of refraction		
	3.12 Lenses and combination of lenses	01	
	3.2 Absolute and relative refractive index	01	
	3.21 Refraction through prism, Angle of minimum deviation and its relation	01	
	3.3 Total internal reflection of light		
	3.31 Critical angle.		
	3.32 Applications of TIR	02	
	3.33 Optical fiber, NA of Optical fiber		
	3. 4 Optical instruments		
	3.41 Simple and compound microscope	01	
3.42 Spectrometer			
3.5 Electromagnetic spectrum			
3.51 Pure and Impure spectrum, Visible range, Assignment Given	01		
Revision, Doubt Class, Assignment, Quiz conduction	01		
Unit Test-3	01		
		Total 10	
<b>Unit-4.0. Electrostatics, Magnetism and Current Electricity</b>	4.1 Electric Charge, Coulomb's Law	01	
	4.2 Electric Field, Potential, Potential Difference between Two Points, Equi- potential Surfaces	01	
	4.3 Types of dielectrics and dielectric Strength	01	
	4.4 Capacity, Units, Principle of Capacitor		
	4.41 Factors Affecting Capacity, type of capacitors	01	
	4.5 Magnetism: -		
	4.51 Magnetic lines of force, lines of induction,	01	
	4.6 Current Electricity		
	4.61 Resistance, Specific resistance	01	
	4.62 Series and parallel combination of resistance		
	4.63 Internal resistance of a cell	01	
4.64 Potential difference and e.m.f of a cell			
4.65 Combination of cells in series and in parallel.			
4.66 Simple applications of Wheatstone bridge, metre bridge and Potentiometer	01		
4.67 Electrical power, Assignment Given			
Revision, Doubt Class, Assignment, Quiz conduction	01		
Unit Test-4	01		
		Total 10	
<b>UNIT 5. Modern Physics</b>	5.1 Photoelectric effect	01	
	5.11 Laws of photoelectric emission, Photoelectric equation and threshold frequency	01	
	5.12 Photo cell		
	5.2 X-rays	01	

	5.21 Production of X rays, properties & uses.		
	5.3 Laser	01	
	5.31 Spontaneous and stimulated emission		
	5.32 population inversion, pumping scheme and active system	01	
	Ruby Laser and semiconductor laser	01	
	5.4 Ultra-sonics		
	5.41 Frequency range	01	
	5.42 Methods of production- Magnetostriction & Piezo electric method		
	5.43 Properties of ultra- sonics		
	5.44 Applications of ultra- sonics, Assignment Given	01	
	Revision, Doubt Class, Assignment, Quiz conduction	01	
	Unit Test-5	01	
		Total 10	
	Total Class Required	50	



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