Mymensingh Polytechnic Institute

Outline plan of Teaching (semester Plan)

Technology: - ET. Subject:-Physics-1 (25912) Shift:-1st shift

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3	3	4

Week	Contents NO		Topics (Theory)	Topics (Practical)	remark
01	00-00 1.1-1.4 1.5-1.8	L-1 L-2 L-3	Introduce to Class. PHYSICAL WORLD AND MEASUREMENT: - Nature of Physical World.,. Scope and Excitement of Physics. Few Terms about Physics. Physics and other world of Technological Knowledge. Principle of Measurement. Fundamental and Derived Quantities and Units. Dimensions of Units. Errors in Measurement	Discussion introduces to Physics Lab	
02	2.1-2.2 2.3-2.4 2.5-2.6	L-1 L-2 L-3	SCALAR AND VECTOR QUANTITIES: - Define vector and scalar quantities with examples. Show the various representations of the vector quantities, and representation of a vector by unit vector. Find and explain the resultant of two vectors in different directions. Resolve a vector into horizontal & vertical component. Explain the dot and cross product of two vectors. Define laws of triangle of vector.	To know Personal protective Equipment.	
03	3.1-3.4 3.5-3.7 3.8-3.11	L-1 L-2 L-3	. MOTION AND EQUATIONS Of MOTION: - Define rest and motion. Classify and explain of motion. Define and explain displacement, speed, velocity, acceleration and retardation. Deduce the relationship between displacement, velocity, acceleration and retardation from these definitions. Motion of a Projectile. Equation of motion of a freely moving body thrown obliquely vertically upward or motion of a projectile . Define angular velocity and linear velocity with their units. Deduce the relation between angular velocity and linear velocity. Define centripetal and centrifugal force with examples.	1. Determine accurate diameter/side of an object using vernier calipers.	QT-1
04	4.1-4.5 4.6-4.7 4.8 -4.10	L-1 L-2 L-3	NEWTON'S LAWS OF MOTION FORCE AND FRICTION Define force. State Newton's laws of motion. Define different units of force and their correlation and also mention the dimension of force. Prove P=mf, from Newton's 2nd law of motion. Find out the resultant of parallel forces. Define inertia and momentum 4.7 State and prove the principles of conservation of momentum. Define friction and describe the different kinds of friction. Define the co-efficient of static friction. Show that the co-efficient of static friction is equal to the tangent of angle of repose State the merits and demerits of friction.	2. Measure the area of cross section of a wire by micrometer screw gage.	
			GRAVITY AND GRAVITATION	Self-check	

05	5.1-5.2 5.3-5.6 5.7-5.8	L-1 L-2 L-3	Define and explain the Kepler's Law. Define gravity and gravitation. Define and determine the gravitational constant (G) and also mention its units and dimension. Define acceleration due to gravity 'g' and mention its units and dimension. Discuss the variation of 'g' at different places. Define mass and weight with their units and dimension. Distinguish between mass and weight. Define and explain gravitational potential and escape velocity		
06	6.1-6.3 6.4-6.6 1.1-6.6	L-1 L-2 L-3	SIMPLE HARMONIC MOTION (SHM) :- Define Periodic and simple harmonic motion (SHM). State the characteristics of SHM. Describe a simple pendulum and a second pendulum. Define effective length, amplitude, phase, complete oscillation, period of oscillation, frequency. State and explain the laws of simple pendulum. Motion of simple pendulum and it's time period Self-Check	3. Measure the thickness of a glass plate by speedometer.	CT-1
07	7.1-7.2 7.3-7.4 7.5-7.6	L-1 L-2 L-3	WORK, POWER AND ENERGY: - Define work, power and energy. State the units and dimensions of work, power and energy. State and prove the principle of the conservation of energy. Define potential energy (PE) and kinetic energy (KE). Derive the equation of potential and kinetic energy. Recognize that the useful work can be found from: Efficiency = work input work output × 100.	4. Verify the law of parallelogram of forces by a force board.	
08			Midterm Exam……	Midterm Exam……	
09	9.1-9.3 9.4-9.5 9.6-9.7	L-1 L-2 L-3	. HYDROSTATICS: - Define pressure as force per unit area and state that it is measured in N/m2 or Pascal. State characteristics of liquid pressure. Establish the pressure at a point in a fluid depend upon the density of the fluid, the depth in the fluid and acceleration due to gravity. Surface tension and surface energy, Angle of contact. Capillarity and theory of capillarity. Viscosity and co-efficient of viscosity. Necessity of viscosity.	5. Draw L-T2 graph and determine the value of "g" by using a simple pendulum. 6	QT-2
10	10.1-10.2 10.4	L-1 L-2	WAVE AND SOUND: - Wave and wave motion. Transverse wave and longitudinal wave. Some definitions relating waves. Progressive wave and stationary waves. Equation of progressive wave.	Self-check	

11	10.6-10.7 10.8 10.9	L-1 L-2 L-3	WAVE AND SOUND: - Sound and production of sound. Sound is a longitudinal traveling wave. Interference of sound: Constructive and Destructive interference. Define beats and Mechanism of formation of beats. Self-Check	6.Determine Young's modulus of a steel wire by Searle's apparatus.	
12	11.1 11.2 11.3	L-1 L-2 L-3	SOUND AND VELOCITY OF SOUND: - Identify that sound is produced by vibration and travels through a medium as a longitudinal wave. Recognize that sound can be produced of different pitches (frequencies) & that the human ear has an audible frequency range covering approximately 20 Hz to 20 KHz. State the approximate frequency range for a. infrasonic sound, b. Ultrasonic (supersonic) sound.	7.Determine gravity of a solid heavier than and insoluble in water by hydrostatic balance.	
13	11.4-11.5 11.6 11.8 7.1-11.8	L-1 L-2 L-3	SOUND AND VELOCITY OF SOUND: - Explain how sound is absorbed, reflected & refracted by different types of surfaces. Describe the practical uses of echo sounding devices. 1Define velocity of sound. State the velocity of sound at NTP in still air. Compare the effects of pressure, temperature & humidity on the velocity of sound in air. Self-check	8.Determine specific gravity of a liquid by specific gravity bottle.	CT-2
14	1.1-11.8		Review.	9. Determine velocity of sound by resonance air column method.	
15			Do	Viva	
16			Do	Practical Exam	

Date 10.01.2024

Signature
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MPI