Department of Computer Engg.
Govt. Polytechnic for Women Rehan
Distt. – Kangra (H.P.) - 176022

LESSON PLAN

Program Name	Computer Engineering
Subject Name	Applied Physics-I
Subject Code	BS103
Semester	First
Subject Teacher Name	Mr. Gopal Sharma

Evaluation Scheme

Sr. No.	Subject Name	Study scheme (Hrs/Week)		Marks in Evaluation Scheme					
				Internal Assessment			External Assessment		
		Th	Pr	Th	Pr	Total	Th	Pr	Total
1.	Applied Physics-I	4	4	40	40	80	60	60	120
Reference Books		1. Concept of Physics by H.C. Verma, Engineering Physics P.V.Naik. Eagle's Prakashan. R.A.Banwat.							
		2. Text Book of Physics for Class XI & XII (Part-I, Part-II); N.C.E.R.T., Delhi, 2017-18.							

Course Outcomes (COs)

CO – 1	Applied Physics includes the study of a large number of diverse topics all related to materials/things that exist in the world around us
CO – 2	It aims to give an understanding of this world both by observation and by prediction of the way in which such objects behave.
CO – 3	Concrete use of physical principles and analysis in various fields of engineering and technology are given prominence in the course content
CO – 4	The course will help the diploma engineers to apply the basic concepts and principles to solve broad based engineering problems
CO– 5	To understand different technology based applications.

Teaching Plan

Unit No.	Name of Topic	Proposed Date	Actual Date	Remarks
1	Physical quantities: fundamental and derived, Units and systems of units (FPS, CGS and SI units)	3/08/24 5/8/24		
	Dimensions and dimensional formulae of physical quantities, Principle of homogeneity of dimensions,	6/08/24 7/08/24		
	Dimensional equations and their applications(conversion from one system of units to other.	12/08/24 13/08/24 14/08/24		
	checking of dimensional equations and derivation of simple equations), Limitations of dimensional analysis.	17/08/24 19/08/24		
	Errors in measurements (systematic and random), absolute error, relative error, error estimation and significant figures.	20/08/24 21/08/24 24/08/24		
2	Scalar and Vector quantities – examples, representation of vector, types of vectors	27/08/24 28/08/24		
	Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only), Scalar and Vector Product.	31/08/24 2/09/24 3/09/24		

	Resolution of a Vector and its application to inclined plane (Rectangular components) and lawn roller.	4/09/24		
	Force, Momentum, Statement and derivation of conservation of linear momentum, its applications such as recoil of gun &rockets, Impulse and its applications.	7/09/24 9/09/24 10/09/24		
	Class Test-1	11/09/24		
	Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period. Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical), Centripetal and Centrifugal forces with live examples, Expression and applications such as banking of roads and bending of cyclist.	16/09/24 17/09/24 18/09/24 21/09/24 23/09/24		
3	Work: Concept and units, examples of zero work, positive work and negative work	24/09/24		
	Friction: concept, types of Friction.	25/09/24		
	Friction: concept, types, laws of limiting friction, coefficient of friction,	28/09/24		
	methods for reducing friction and its engineering applications,	1/10/24		
	Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications.	5/10/24 7/10/24 8/10/24		
	Energy and its units, kinetic energy, with examples and derivations,	14/10/24		
	Gravitational potential energy with examples and derivations,	15/10/24		
	Class Test-II	16/10/24		
	Mechanical energy, conservation of mechanical energy for freely falling bodies, transformation of energy (examples).	19/10/24 21/10/24		
	Power and its units, power and work relationship, calculation of power (numerical problems).	22/10/24		
4	Translational and rotational motions with examples.	23/10/24		
	Definition of torque and angular momentum and their examples.	26/10/24		
	Conservation of angular momentum (quantitative) and its applications.	2/11/24		
	Moment of inertia and its physical significance,	4/11/24		
	Radius of gyration for rigid body, Theorems of parallel and perpendicular axes (statements only	5/11/24		
	Theorems of parallel and perpendicular axes (statements only	6/11/24		
	House Test	11 to 13/11/24		
	Moment of inertia of rod, disc, ring and sphere (hollow and solid): (Formulae only)	16/11/24		
5	Elasticity: Definition of stress and strain, different types of modulii of elasticity	16/11/24		
	Hooke's law, significance of stress-strain curve.	18/11/24		
	Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure,	18/11/24		

	Pressure: atmospheric pressure, gauge pressure, absolute pressure,	19/11/24		
	Fortin's Barometer and its applications.	19/11/24		
	Surface tension: concept, units, cohesive and adhesive forces, angle of contact,	20/11/24		
	Ascent Formula (No derivation), applications of surface tension,	20/11/24		
	Effect of temperature and impurity on surface tension.	20/11/24		
6	Concept of heat and temperature	23/11/24		
	Modes of heat transfer (conduction, convection and radiation with examples)	23/11/24		
	Scales of temperature and their relationship, Types of Thermometer (Mercury thermometer, bimetallic thermometer,	25/11/24		
	Platinum resistance thermometer, Pyrometer) and their uses.	26/11/24		
	Expansion of solids, liquids and gases	27/11/24		
	coefficient of linear, surface and cubical expansions and relation amongst them, Co-efficient of thermal conductivity.	30/11/24 2/12/24		

Assignments

Assignment No	Contents of Syllabus Covered	Proposed Date	Actual Date	Remarks
A-1	Unit-1 and Unit-2	20-09-2023		
A-2	Unit-3 and Unit-4	16-10-2023		
A-3	Unit-5 and Unit-6	6-11-2023		

House Test/Class Test

Name of test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
Class Test -1	Unit-1 and Unit-2	As per HPTSB Academic Schedule		
Class Test -2	Unit-3 and Unit-4			
House Test - 1	Unit-1, Unit-2, Unit-3 Unit-4 Unit-5 and Unit-6			

Lab Plan

Sr. No.	Name of Practical	Proposed Date		Actual Date		Remarks
		G1	G2	G1	G2	
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier caliper and find volume of each object.	6/08/24 13/08/24	3/08/24 17/08/24			
2	To determine diameter of a wire, a solid ball and thickness of cardboard using a screw gauge.	20/08/24 27/08/24	24/08/24			
3	To determine radius of curvature of a convex and a concave mirror/surface using a spherometer.	3/09/24 10/09/24	31/08/24			
4	To verify triangle and parallelogram law of forces.	17/09/24 24/09/24	7/09/24			
5	To find the co-efficient of friction between wood and glass using a	1/10/24 8/10/24	21/09/24			

	horizontal board.					
6	To determine force constant of a spring using Hook's Law	15/10/24	28/09/24			
7	To verify law of conservation of mechanical energy (PE to KE).	22/10/24	5/10/24			
8	To find the moment of inertia of a flywheel.	05/11/24	19/10/24			
9	To find the coefficient of linear expansion of the material of a rod.	19/11/24	26/10/24			
10	To determine atmospheric pressure at a place using Fortin's barometer.	26/11/24	16/11/24			
11	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.	02/12/24	23/11/24 30/11/24			

(Signature of Teacher)

(Signature of HOD)

Approved

Principal
Govt. Polytechnic for Women Rehan