Lecture Plan

Name of the College: Government College of Arts, Science and Commerce. Sanquelim - Goa

Name of Faculty: Suvarna Patil/Vidhita Parab	**Subject:** Physics	
Paper code: PHY100	**Program: F.Y.B.Sc**	**Division:**
Academic year: 2024-25	**Semester: V**	**Total Lectures: 60**

Course Objectives: .
This course aims at providing the fundamental concepts of Objectives: Physics and correlating them to solve the real-world problems

Course Outcome: Student will be able to
1. Recall the fundamental concepts of Physics for critical thinking and problem solving.
2. Understand the fundamental concepts to comprehend the physical phenomena happening around us.
3. Apply fundamental concepts of Physics to solve these problems.
4. Analyse the concepts in different scenarios.

Student Learning Outcome: **Students will be able to understand basic physics and apply it to solve probelms in day today life.**

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
June- july	28-06-2024	06-07-2024	3L+1P	Mechanics: Standards and units, vectors: vector addition, vector	Solving Problems	Chalk and Board	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa

				subtraction, components of vector. Force, discussion of Newton's First law of motion, Newtons second law, mass and weight			Publishing House, 1997.
				1. Introduction to measurement techniques :a) Use of Vernier callipers b) Use of micrometre screw gauge		Chalk and Board	
	08-07-2024	13-07-2024		freely falling body, Frictional force: frictional force acting on a block moving on the flat surface and inclined surface, Newtons third law of motion, Newton's law of Gravitation. Work and energy: work, work done by varying force,			Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa Publishing House, 1997.
				Introduction to travelling microscope and finding diameter of capillary tube			
	15-07-2024	20-07-2024		work		Chalk and Board	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young,

				and kinetic energy, gravitational potential energy, conservative and dissipative forces, impulse and momentum, Conservation of momentum. Collisions, moment or torque of force			University Physics, 6 th ed., Narosa Publishing House, 1997.
				Introduction to Spectrometer and finding angle of prism			
	22-07-2024	27-07-2024		Rotation: Angular velocity, angular acceleration, moment of inertia, angular momentum, conservation of angular momentum.		Chalk and Board	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa Publishing House, 1997.
				Plotting of graph: slope and intercept for linear and non-linear curves.			
August	29-07-2024	03-08-2024		Properties of Matter: Elasticity: stress, strain, elasticity and plasticity, elastic		Chalk and Board	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa

				modulus, the force constant			Publishing House, 1997.
	05-08-2024	10-08-2024		Surface tension: Surface tension, surface energy, pressure difference across a surface film, contact angle and capillarity.		Chalk and Board+Presentattiom	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa Publishing House, 1997.
				P-N junction diode characteristics			
	12-08-2024	17-08-2024		Viscosity: Equation of Continuity, Bernoulli's equation, Viscosity, Poiseuille's law, Stokes law, Reynolds number.		Chalk and Board+Presentation	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa Publishing House, 1997.
				Surface tension by capillary rise			
	19-08-2024	24-08-2024		Heat Concept of temperature, thermometers, defining of a temperature scale, The Celsius, Rankine and Fahrenheit scales, Thermal expansion, thermal stresses,		Prsentation	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa Publishing House, 1997.

				Viscosity by Stokes method			
	26-08-2024	31-08-2024		heat transfer, Quantity of heat, heat capacity, experimental values of heat capacities, change of phase, conduction,		Presentation	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa Publishing House, 1997.
				Determination of angle of minimum deviation and refractive index of prism			
September	02-09-2024	05-09-2024		convection, radiation, Stefan's Boltzmann law. **Moment of Inertia of a flywheel**		Prsentation	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa Publishing House, 1997.
	13-09-2024	14-09-2024		Light The nature of light, Sources of light, speed of light, electromagnetic spectrum, waves, wavefronts and rays, reflection and refraction, total internal reflection, Huygens' principle, dispersion.		Presentation	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa Publishing House, 1997.
	16-09-2024	21-09-2024		Interference and coherent sources, interference fringe,		Presentation	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young,

				Young's double slit experiment, interference in thin films -Newtons rings, Diffraction: Fresnel diffraction, Fraunhofer diffraction by single slit, the plane diffraction grating. resolving power of an optical instrument.			University Physics, 6 th ed., Narosa Publishing House, 1997.
	23-09-2024	28-09-2024		Polarisation-Malus law, polarisers, Brewster's law, double refraction, optical activity.		Presentation	Fracis W. Sears and Mark W. Zemansky, Hugh D. Young, University Physics, 6 th ed., Narosa Publishing House, 1997.
October	30-09-2024	05-10-2024		Sound and Acoustics Noises and Musical sounds, Loudness, how loudness is measured, Decibel, intensity of a sound. Acoustics- acoustic powers of different sources of sound, pitch, quality of sound, architectural acoustics, reverberation, acoustical demands on an auditorium,		Chalk and Board	D. R. Khanna and R. S. Bedi, A Textbook of Sound, Atma Ram and Sons, 1992 D. R. Khanna and R. S. Bedi, A Textbook of Sound, Atma Ram and Sons, 1992

	07-10-2024	12-10-2024		reverberation time and absorption coefficient. Sabine's law,Electrostatics and Magnetism Electric charge, Coulomb's law, conductors and insulators, electric field, electric field lines, Gauss's law, Electric field potential, current, resistance,electromotive force. magnetic field, magnetic field lines, magnetic dipoles, Electromagnetic induction, Faradays' law, Lenzs' law.		Chalk and Board	David Halliday, Robert Resnick, Jearl Walker, Fundamentals of Physics, Extended Fifth edition, Wiley publication,1987.D. R. Khanna and R. S. Bedi, A Textbook of Sound, Atma Ram and Sons, 1992
	14-10-2024	22-10-2024		Modern physics: Dual nature of light, de Broglie waves, uncertainty principle. Bohr atom, Bohr's postulates. Semiconductors: Intrinsic semiconductors, doping a		Presentation	David Halliday, Robert Resnick, Jearl Walker, Fundamentals of Physics, Extended Fifth edition, Wiley publication,1987.D. R. Khanna and R. S. Bedi, A Textbook of Sound, Atma

				semiconductor, p- type and n- type semiconductor, unbiased diode, depletion layer, Forward bias, and reverse bias.			Ram and Sons, 1992

Assessment Rubrics

Component	Max Marks
ISA 1	7.5
ISA 2	7.5
Practical	25
Semester End Exam	60