

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**  
**COURSE PLAN June - November 2024**

**Department** : Physics  
**Name/s of the Faculty** : Dr. C. Stella  
**Course Title** : Physics for Chemistry I  
**Course Code** : 23PH/AC/PC33  
**Shift** : I

**COURSE OUTCOMES (COs)**

<b>COs</b>	<b>Description</b>	<b>CL</b>
<b>CO1</b>	Recall the basic ideas of physical properties of different states of matter, motion of a rigid body, relativity and wave nature of light.	K1
<b>CO2</b>	Understand the elastic nature of solids, surface tension, viscosity of liquids, oscillation of a rigid body, constant nature of velocity of light in free space and physical optics.	K2
<b>CO3</b>	Apply the knowledge obtained to determine the bending moment, modulus of elasticity, coefficient of viscosity, surface tension, period of oscillation, transformation equation and wavelength.	K3
<b>CO4</b>	Study the distinguishing characteristics of solid, liquid and light.	K4
<b>CO5</b>	Impart analytical skills to solve problems related to properties of matter, liquids, relativity and wave nature of light.	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	I	<b>Unit I: Properties of Matter 1.1</b> Elasticity: Moduli of Elasticity – Poisson’s Ratio- Young’s Modulus – Bending of Beams - Expression for Bending Moment- Depression at the Loaded End of the Cantilever	K1-K5	3	1-5	Lecture and Power point presentation	Questioning and Discussion
Jun 27 – July 4, 2024 (Day Order 1 - 6)	I	Depression and Elevation at the Mid Point of a Loaded Beam- Torsion in a Wire – Torsional Oscillations–Torque Per Unit Twist - Expression for Period	K1-K5	3	1-5	Lecture and Problem solving	Questioning and problem solving
July 5 – 12, 2024 (Day Order 1 - 6)	II	<b>Unit II : Surface Tension and Viscosity:</b> <b>2.1</b> Introduction- Experimental Determination of Surface Tension and Interfacial Surface Tension by Drop Weight Method - Variation of surface tension with temperature	K1-K5	3	1-5	Power point presentation and Group discussion	Questioning and Discussion

July 15 – 23, 2024 (Day Order 1 - 6)	II	<b>2.2</b> Viscosity -Streamline and Turbulent Flow – Critical Velocity - Expression for Critical Velocity- Poiseuille’s method for determining coefficient of viscosity of a liquid (Variable Pressure Head)	K1-K5	3	1-5	Lecture and Power point presentation	Questioning and problem solving
July 24 – 31, 2024 (Day Order 1 - 6)	II&II I	Variation of Viscosity with Temperature <b>Unit III: Mechanics</b> <b>3.1</b> Dynamics: Moment of Inertia – Definition - Compound Pendulum	K1-K5	3	1-5	Lecture and Problem solving	Questioning and problem solving
Aug 1 – 5, 2024 (Day Order 1 - 3)	III	Expression for the Period of Oscillation	K1-K5	1	1-5	Lecture and Power point presentation	Component Test I (20 marks)
Aug 6 – 10, 2024	<b>C.A. Test - I</b>						
Aug 12 – 14, 2024 (Day Order 4-6)	III	Centre of Suspension and Centre of Oscillation– Minimum Period of Oscillation of a Compound Pendulum	K1-K5	2	1-5	Lecture and Power point presentation	Questioning and problem solving
Aug 16 – 23, 2024 (Day Order 1-6)	IV	Determination of ‘G’ <b>Unit IV: Relativity</b> <b>4.1</b> Newton’s laws of motion and its limitations - Inertial Frames of Reference - Newtonian relativity – Galilean transformation equations.	K1-K5	3	1-5	Lecture and Group discussion	Questioning and discussion

Aug 27 – Sep 3, 2024 (Day Order 1-6)	IV	<b>4.2</b> Postulates of Special Theory of Relativity- Lorentz Transformation Equations	K1-K5	3	1-5	Lecture and Power point presentation	Questioning and discussion
Sep 4 – 11, 2024 (Day Order 1-6)	IV	Length Contraction - Time Dilation -- Twin Paradox and Meson Paradox	K1-K5	3	1-5	Lecture and Power point presentation	Questioning And problem solving
Sep 12 - 20, 2024 (Day Order 1-6)	IV	<b>4.3</b> Relativistic Momentum (no derivation) – Mass Energy Relation – Physical Significance	K1-K5	3	1-5	Lecture and problem solving	Questioning
Sep 23 - 26, 2024 (Day Order 1-4)	V	<b>Unit V: Optics</b> <b>5.1</b> Interference: Introduction - Interference Due to Reflected Light – Newton’s Rings – Measurements of Wavelength	K1-K5	2	1-5	Lecture and Power point presentation	Component Problem Test II (20 marks)
Sep 27 – Oct 3, 2024	<b>C.A. Test - II</b>						
Oct 4 – 5, 2024 (Day 5 & 6)	V	Air wedge – Determination of diameter of a thin wire by air wedge	K1-K5	1	1-5	Lecture and Power point presentation	Questioning and problem solving

Oct 7 - 15, 2024 (Day Order 1 to 6)	V	Introduction to Diffraction - Fraunhofer Diffraction-Transmission Grating- Normal Incidence - Determination of Wavelength Polarisation: Introduction - Plane of Polarization	K1-K5	3	1-5	Lecture and problem solving	Questioning and Component Assignment (10 marks)
Oct 16 - 22, 2024 (Day Order 1 to 6)	V	5.2 Polarisation by Refraction - Brewster's Law-Polarisation by Reflection-Double Refraction - Nicol Prism - Nicol Prism as a Polarizer and Analyser Polaroids - uses of Polaroids	K1-K5	3	1-5	Lecture and power point presentations	Questioning and discussion
Oct 23 - 24, 2024 (Day Order 1 to 2)	<b>REVISION</b>						