

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**COURSE PLAN (June - November 2026)**

Department : Physics
Name/s of the Faculty : Ms. Panimaya Peshija. A
Course Title : Properties of matter
Course Code : 25PH/MC/PT13
Shift : I

COURSE OUTCOMES (COs)

COs	Description						CL
CO1	define stress and strain, three moduli of elasticity, bending of beams, fundamental principles and theories of surface tension and viscosity of liquids.						K1
CO2	describe the elastic behaviour of solids, the physical properties of liquids that impact fluid motion.						K2
CO3	apply the theoretical concepts to determine bending moment, elevation and depression in a beam due to different types of loading, and illustrate real life examples for surface tension and viscosity of fluids.						K3
CO4	deduce expressions related to elasticity of solids and fluid dynamics.						K4
CO5	Evaluate and solve problems related to properties of solids and fluids.						K5
Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 22, 2026 (Day Order 6)							

Jun 23 – July 1, 2026 (Day Order 1- 6)	I	Elasticity I 1.1 Elasticity – Stress – Strain – Hooke’s law - different moduli of elasticity – Poisson’s ratio - relation between the elastic moduli - bending of beams – expression for the bending moment	K1-K5	3	CO1- CO5	Blackboard, Lecture	Concept mapping
July 2 – July 8, 2026 (Day Order 1- 6)	I	1.1 Depression of the loaded end of a cantilever – depression at the midpoint of a beam loaded at the middle (non-uniform bending) - experiment to determine Young’s modulus ‘E’(using pin and microscope)	K1-K5	3	CO1- CO5	Lecture, Demonstration	Property study activity cum assessment for different materials
July 9 – 16, 2026 (Day Order 1- 6)	I	1.1 Elevation at the midpoint of a beam(uniform bending) - experiment to determine Young’s modulus ‘E’ (using scale and telescope).	K1-K5	2	CO1- CO5	Lecture, Blackboard, Hands on	Think-Pair-Share activity

	II	Elasticity II 2.1 Torsion - expression for torque per unit twist -		1			
July 17 – 24, 2026 (Day Order 1- 6)	II	2.1 work done in twisting a wire - Torsional oscillation of a body – expression for time period	K1-K5	3	CO1- CO5	Problem solving	Component-Problem solving - K4,K5 Level-20marks
July 25 – 28, 2026 (Day Order 1- 3)	II	2.1 determination of rigidity modulus ‘G’ by torsion pendulum (Dynamic torsion method).	K1-K5	1	CO1- CO5	Simulation, Lecture	Discussion , complete the derivation activity
July 29 – Aug 3, 2026	C.A. Test - I						
Aug 4 - 6, 2026 (Day Order 4 - 6)	III	Surface tension 3.1 Surface tension - explanation of surface tension based on molecular theory - work done in increasing the surface area - work done in blowing a bubble	K1-K5	2	CO1- CO5	Creative media	Concept mapping
Aug 7 – 14, 2026 (Day Order 1- 6)	III	3.1 angle of contact - pressure difference across a liquid surface – excess pressure inside a curved liquid surface	K1-K5	3	CO1- CO5	Demonstration,Lecture, Blackboard	Mini Quiz

Aug 17 - 24, 2026 (Day Order 1- 6)	III	3.2 Experimental determination of surface tension and interfacial surface tension by drop weight method - Quincke's method.	K1-K5	3	CO1- CO5	Simulation, Lecture	One-Min paper summary, error analysis activity
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	IV	Fluid Dynamics I 4.1 Viscosity - coefficient of viscosity - Poiseuille's formula for the flow of liquid through a capillary tube	K1-K5	3	CO1- CO5	Demo, learning by doing activity	Brain dump-flash cards
Sep 3 – 11, 2026 (Day Order 1- 6)	IV	4.1 corrections to Poiseuille's formula – Terminal velocity and Stoke's formula	K1-K5	3	CO1- CO5	Jigsaw activity	Exit tickets-summary quiz
Sep 15-17, 2026 (Day Order 1 - 3)	IV	4.1 Ostwald's viscometer	K1-K5	1	CO1- CO5	Video lecture	Component-M CQs - K1,K2 Level- 20marks
Sep 18 –23, 2026	C.A. Test - II						
Sep 24 - 28, 2026 (Day 4 – 6)	V	Fluid Dynamics II 5.1 Fluid motion - Stream line flow and turbulent flow -	K1-K5	2	CO1- CO5	Group discussion	Component-As signment-K3 level-10marks
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	V	5.1 critical velocity - Reynold's number - Euler's continuity equation for unidirectional flow	K1-K5	3	CO1- CO5	PPT, Lecture	Scoreboard activity

Oct 8 - 14, 2026 (Day Order 1 - 6)	V	5.1 Bernoulli's principle and equation	K1-K5	3	CO1- CO5	Lecture, Blackboard	Problem Completion race
Oct 15 - 21, 2026 (Day Order 1- 4)	REVISION						