STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (June - November 2026)

Department : **Mathematics**

Name/s of the Faculty : **Dr. A. S. Shanthi (4 hours) & Dr. Arputha Christy K (1 hour)**

Course Title : **Mathematics for Physics-I**

Course Code : **25MT/ME/MP13**

Shift : **I**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	recall basic mathematical concepts required for students to pursue Physics using Mathematics	K1
CO2	develop a logical understanding of the subject with mathematical skills that provide the clear understanding for the physical laws	K2
CO3	apply appropriate mathematical principles in solving problems	K3
CO4	analyze and present mathematical solutions in a concise manner	K4
CO5	evaluate and make decisions in solving real world problems	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 22, 2026 (Day Order 6)	5	5.1 Finite Differences	K1- K5	0+1	CO1-5	Lecture Solving problems Learning by Doing	Quiz
Jun 23 – July 1, 2026 (Day Order 1- 6)	1, 5	1.1 Eigenvalues and Eigenvectors 5.2 Forward Difference Table	K1- K5	4+1	CO1-5	Lecture Solving problems Learning by Doing	Quiz
July 2 – July 8, 2026 (Day Order 1- 6)	1,5	1.2 Cayley Hamilton Theorem 5.3 Interpolation Methods	K1- K5	4+1	CO1-5	Lecture Solving problems Group discussions	Quiz

July 9 – 16, 2026 (Day Order 1- 6)	1, 5	1.3 Similar Matrices 1.4 Diagonalization of Matrices Possessing Distinct Eigenvalue 5.4 Newton's Forward Formula	K1- K5	4+1	CO1-5	Lecture Solving problems Learning by Doing	Slip test
July 17 – 24, 2026 (Day Order 1- 6)	2, 5	2.1 Higher Derivatives - n th derivative – Standard results 5.4 Newton's Forward Formula	K1- K5	4+1	CO1-5	Lecture Solving problems Group discussions	**Third Component I** Quiz **Marks:** 15 **Portions:** Prelims in Matrices and differential calculus
July 25 – 28, 2026 (Day Order 1- 3)	2	2.2 Trigonometric Transformations	K1- K5	2+0	CO1-5	Lecture Solving problems Learning by Doing	Quiz
July 29 – Aug 3, 2026	**C.A. Test – I (Units 1 & 5.1-5.4)**						

Aug 4 - 6, 2026 (Day Order 4 - 6)	2, 5	2.3 Formation of Equations Involving Derivatives 5.5 Newton's Backward Formula	K1- K5	2+1	CO1-5	Lecture Solving problems Learning by Doing	Quiz
Aug 7 – 14, 2026 (Day Order 1- 6)	2, 5	2.4 Liebnitz's Formula for nth derivative - Problems Involving Liebnitz's formula 5.5 Newton's Backward Formula	K1- K5	4+1	CO1-5	Lecture Solving problems Group discussions	Slip test
Aug 17 - 24, 2026 (Day Order 1- 6)	3, 5	3.1 Partial Differential Equation 3.2 Formation of Equations by Elimination of Constants and an arbitrary function 5.5 Newton's Backward Formula	K1- K5	4+1	CO1-5	Lecture Solving problems Learning by Doing	Slip test
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	3, 5	3.3 Definition of General, Particular,	K1- K5	4+1	CO1-5	Lecture	**Third Component II**

		Complete and Singular Integral 5.6 Binomial Method				Solving problems Group discussions	Problem solving **Marks:** 15 **Portions:** 2.3, 2.4
Sep 3 – 11, 2026 (Day Order 1- 6)	3, 5	3.4 Solutions of First Order Equations in their Standard Forms 5.6 Binomial Method	K1- K5	4+1	CO1-5	Lecture Solving problems	Questioning
Sep 15-17, 2026 (Day Order 1 - 3)	3	3.5 Lagrange's Method of Solving of Linear Equations $Pp + Qq$ = R	K1- K5	2+0	CO1-5	Lecture Solving problems	Slip test
Sep 18 –23, 2026	**C.A. Test – II (Unit 3 & 5.5, 5.6)**						
Sep 24 - 28, 2026 (Day 4 – 6)	4, 5	4.1 Definitions of Beta and Gamma Functions 4.2 Recurrence Formula for Gamma Functions 5.7 Lagrange's Formula	K1- K5	3+1	CO1-5	Lecture Solving problems	Questioning

Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	4, 5	4.3 Properties of Beta Functions 5.7 Lagrange's Formula	K1- K5	3+2	CO1-5	Lecture Solving problems Group discussions	**Third Component III** Assignment **Marks:** 20 **Portions:** 4.1, 4.2, 4.3, 5.7
Oct 8 - 14, 2026 (Day Order 1 - 6)	4, 5	4.4 Relation between Beta and Gamma Functions 5.7 Lagrange's Formula	K1- K5	3+2	CO1-5	Lecture Solving problems Learning by Doing	Slip test
Oct 15 - 21, 2026 (Day Order 1- 4)	**REVISION**						