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

Department **:** Mathematics
Name/s of the Faculty **:** Dr. Arul Roselet Meryline S & Dr. P. Subbulakshmi
Course Title **:** Mathematics for Computer Science – I
Course Code **:** 23MT/AC/MS35
Shift **:** II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Recall the various applied mathematical concepts such as matrices, vector analysis, numerical methods and linear programming problems	K1
CO2	Understand the fundamentals relevant to the methods utilized in solving problems related to equations, numerical integration and vector differentiation	K2
CO3	Apply appropriate mathematical techniques in solving related problems and model real time situations	K3
CO4	Analyse the different methodology adapted to solve a particular problem	K4
CO5	Evaluate and make inference from the solutions obtained for related problems	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	3 1	**Solution of Transcendental and Algebraic Equations** 3.1 The Bisection Method **Matrices** 1.1 Eigen Values and Eigen Vectors of Square Matrices ≤ 3	K1-K5	2 3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Assignments
Jun 27 – July 4, 2024 (Day Order 1 - 6)	3 1	**Solution of Transcendental and Algebraic Equations** 3.1 The Bisection Method 3.2 Newton-Raphson Method **Matrices** 1.2 Cayley – Hamilton Theorem	K1-K5	 2 3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Quiz
July 5 – 12, 2024 (Day Order 1 - 6)	3 1	**Solution of Transcendental and Algebraic Equations** 3.2 Newton-Raphson Method **Matrices** 1.3 Diagonalization of Matrices	K1-K5	2 3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Solving
July 15 – 23, 2024 (Day Order 1 - 6)	3 1 2	**Solution of Transcendental and Algebraic Equations** 3.3 Gauss Elimination Method **Matrices** 1.3 Diagonalization of Matrices **Vector Analysis** 2.1 Scalar and Vector Point Functions	K1-K5	2 2 1	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning
July 24 – 31, 2024 (Day Order 1 - 6)	3 2	**Solution of Transcendental and Algebraic Equations** 3.3 Gauss Elimination Method **Vector Analysis** 2.2 Gradient	K1-K5	2 3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Solving

Aug 1 – 5, 2024 (Day Order 1 - 3)	3 2	**Solution of Transcendental and Algebraic Equations (Contd.)** 3.4 Gauss Jordan Elimination Method **Vector Analysis** 2.3 Divergence and Curl	K1-K5	1 2	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Quiz
Aug 6 – 10, 2024	**C.A. Test – I** (Unit 1(fully) and Unit 3 (3.1 – 3.3))						
Aug 12 – 14, 2024 (Day Order 4-6)	3 2	**Solution of Transcendental and Algebraic Equations (Contd.)** 3.4 Gauss Jordan Elimination Method **Vector Analysis** 2.4 Solenoidal and Irrotational Vectors	K1-K5	1 1	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem solving
Aug 16 – 23, 2024 (Day Order 1-6)	3 2	**Solution of Transcendental and Algebraic Equations (Contd.)** 3.4 Gauss Jordan Elimination Method **Vector Analysis** 2.5 Problems using Vector Identities	K1-K5	2 3	CO1-5	Lecture, Group Discussion and Presentations Learning by Doing Problems	Assignments
Aug 27 – Sep 3, 2024 (Day Order 1-6)	4 2	**Numerical Differentiation and Integration** 4.1 Derivatives using Newton's Forward Difference Formula **Vector Analysis** 2.5 Problems using Vector Identities	K1-K5	2 3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Presentations
Sep 4 – 11, 2024 (Day Order 1-6)	4 5	**Numerical Differentiation and Integration** 4.1 Derivatives using Newton's Forward Difference Formula **Linear Programming Problem** 5.1 Linear Programming Formulation	K1-K5	2 3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Assignment [20 marks] (Unit 5 – 5.1, Unit 3 – 3.1, 3.2, 3.3)

Sep 12 - 20, 2024 (Day Order 1-6)	4 5	**Numerical Differentiation and Integration** 4.2 Derivatives using Newton's Backward Difference Formula **Linear Programming Problem** 5.2 Graphical Method	K1-K5	2 3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Solving
Sep 23 - 26, 2024 (Day Order 1-4)	4 5	**Numerical Differentiation and Integration** 4.2 Derivatives using Newton's Backward Difference Formula **Linear Programming Problem** 5.3 General L.P.P	K1-K5	1 2	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Solving
Sep 27 – Oct 3, 2024	**C.A. Test – II** (Units 2, 3.4, 4.1)						
Oct 4 – 5, 2024 (Day 5 & 6)	4 5	**Numerical Differentiation and Integration** 4.2 Derivatives using Newton's Backward Difference Formula **Linear Programming Problem** 5.4 Canonical and Standard Forms of L.P.P.	K1-K5	1 1	CO1-5	Lecture, Group discussion and Presentations Learning by Doing Problems	Quiz
Oct 7 - 15, 2024 (Day Order 1 to 6)	4 5	**Numerical Integration** 4.3 Trapezoidal Rule **Linear Programming Problem** 5.4 Canonical and Standard Forms of L.P.P. 5.5 The Simplex Algorithm	K1-K5	2 3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Third Component Test [20 Marks] (Unit 5 : 5.2 – 5.4)
Oct 16 - 22, 2024 (Day Order 1 to 6)	4 5	**Numerical Integration** 4.3 Trapezoidal Rule **Linear Programming Problem** 5.5 The Simplex Algorithm	K1-K5	2 3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Third Component Test [10 marks] (Unit 4 – 4.2, 4.3)

Oct 23 - 24, 2024 (Day Order 1 to 2)	**REVISION**