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

Department : **MATHEMATICS**
Name of the Faculty : **DR. ARPUTHA CHRISTY K**
Course Title : **MATHEMATICS FOR COMPUTER SCIENCE-I (Sec B)**
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 problem	K1
CO2	Understand the fundamentals relevant to the methods utilized in solving problems relating to equations, numerical integration and vector differentiation	K2
CO3	Apply appropriate mathematical techniques in solving related problems and model real time situations	K3
CO4	Analyze the different methodology adopted 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)	1	Unit 1: Matrices 1.1 Eigen values and eigen vectors of square matrices of order ≤ 3 1.2 Cayley-Hamilton theorem	K1-K5	5	CO1-5	Lecture and Problem Solving	Questioning
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1	Unit 1: Matrices 1.2 Cayley-Hamilton theorem 1.3 Diagonalization of matrices	K1-K5	5	CO1-5	Lecture and Problem Solving	Slip Test
July 5 – 12, 2024 (Day Order 1 - 6)	1&2	Unit 1: Matrices 1.3 Diagonalization of matrices Unit 2: Vector Analysis 2.1 Scalar and vector point function 2.2 Gradient	K1-K5	5	CO1-5	Lecture and Problem Solving	III Component Test-1 (1.3)& Assignment (15 + 5 Marks)
July 15 – 23, 2024 (Day Order 1 - 6)	2	Unit 2: Vector Analysis 2.3 Divergence and curl 2.4 Solenoidal and irrotational vectors	K1-K5	5	CO1-5	Lecture and Problem Solving	Questioning

July 24 – 31, 2024 (Day Order 1 - 6)	2	Unit 2: Theory of Equations 2.5 Problems using vector identities	K1-K5	5	CO1-5	Lecture and Problem Solving	Questioning
Aug 1 – 5, 2024 (Day Order 1 - 3)	3	Unit 3: Solutions of Transcendental and Algebraic Equations 3.1 The Bisection Method 3.2 Newton-Raphson Method	K1-K5	3	CO1-5	Lecture and Problem Solving	Questioning
Aug 6 – 10, 2024	**C.A. Test – I (Test Portions- Unit 1, Unit 2, Unit 3.1 and 3.2)**						
Aug 12 – 14, 2024 (Day Order 4-6)	3	Unit 3: Solutions of Transcendental and Algebraic Equations 3.2 Newton-Raphson Method	K1-K5	2	CO1-5	Lecture and Problem Solving	Questioning
Aug 16 – 23, 2024 (Day Order 1-6)	3	Unit 3: Solutions of Transcendental and Algebraic Equations Solutions of Simultaneous equations 3.3 Gauss Elimination Method 3.4 Gauss-Jordan Elimination Method	K1-K5	5	CO1-5	Lecture and Problem Solving	Questioning

| Aug 27 – Sep 3, 2024 (Day Order 1-6) | 3 &4 | Unit 3: Solutions of Transcendental and Algebraic Equations

Solutions of Simultaneous equations

3.5 Gauss Elimination Method
3.6 Gauss-Jordan Elimination Method

Unit 4: Numerical Differentiation and Numerical Integration

Numerical Differentiation
4.1 Derivatives using Newton's forward difference formula | K1-K5 | 5 | CO1-5 | Lecture and Problem Solving | Questioning |
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| Sep 4 – 11, 2024 (Day Order 1-6) | 4 | Unit 4: Numerical Differentiation and Numerical Integration

Numerical Differentiation
4.1 Derivatives using Newton's forward difference formula
4.2 Derivatives using Newton's backward difference formula | K1-K5 | 5 | CO1-5 | Lecture and Problem Solving | III Component Test-2 (4.1and 4.2) (20 Marks) |

Sep 12 - 20, 2024 (Day Order 1-6)	4	Unit 4: Numerical Differentiation and Numerical Integration 4.2 Derivatives using Newton's backward difference formula Numerical Integration 4.3 Trapezoidal Rule	K1-K5	5	CO1-5	Lecture and Problem Solving	Questioning
Sep 23 - 26, 2024 (Day Order 1-4)	4 &5	Unit 4: Numerical Differentiation and Numerical Integration Numerical Integration 4.3 Trapezoidal Rule Unit 5: Linear Programming Problem 5.1 Linear Programming formulation	K1-K5	3	CO1-5	Lecture and Problem Solving	Questioning
Sep 27 – Oct 3, 2024	**C.A. Test – II (Test portions- Unit 4 and Unit 5)**						
Oct 4 – 5, 2024 (Day 5 & 6)		Unit 5: Linear Programming Problem 5.2 Graphical Method	K1-K5	2	CO1-5	Lecture and Problem Solving	Questioning

Oct 7 - 15, 2024 (Day Order 1 to 6)		Unit 5: Linear Programming Problem 5.2 Graphical Method 5.3 General L.P.P. 5.4 Canonical and Standard form of L.P.P	K1-K5	5	CO1-5	Lecture and Problem Solving	III Component Test-3(5.2,5.3 and 5.4) (10 Marks)
Oct 16 - 22, 2024 (Day Order 1 to 6)		Unit 5: Linear Programming Problem 5.4 Canonical and Standard form of L.P.P 5.5 The Simplex Algorithm	K1-K5	5	CO1-5	Lecture and Problem Solving	Questioning
Oct 23 - 24, 2024 (Day Order 1 to 2)	**REVISION**						