

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule: November 2024 – April 2025

Department : Mathematics
Name of the Faculty : Dr. Sindiya Therese S
Course Title : NUMERICAL METHODS WITH PROGRAMS IN C
Course Code : 19MT/ME/NM45
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov 18 – 25, 2024 (Day Order 1-6) 6 hrs	Unit 1: Numerical Solutions of Algebraic and Transcendental Equations 1.1 Bolzano’s Bisection Method 1.2 Newton Raphson Method Practical 1.5 C program to find the Smallest Positive Root / the Largest Negative Root of the equation $f(x) = 0$ by using the Bisection Method and Newton Raphson Method	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Nov 26- Dec 3, 2024 (Day Order 1 to 6) 6 hrs	Unit 1: Numerical Solutions of Algebraic and Transcendental Equations Iterative Methods of Solving Simultaneous Equations 1.3 Jacobi’s Method Practical 1.6 C program to solve a System of Linear Algebraic Equations using Gauss Jacobi’s Iteration Method and Gauss Siedel Method	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Dec 4-11, 2024 (Day Order 1 to 6) 6 hrs	Unit 1: Numerical Solutions of Algebraic and Transcendental Equations Iterative Methods of Solving Simultaneous Equations 1.4 Gauss Seidel Iteration Method Practical 1.6 C program to solve a System of Linear Algebraic Equations using Gauss Jacobi’s Iteration Method and Gauss Siedel Method	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment

Dec 12-19, 2024 (Day Order 1 to 6) 6 hrs	Unit 2: Finite Differences 2.1 Forward Differences 2.2 Backward Differences Practical 2.7 C program to Interpolate and Extrapolate using the given pairs of values of x and y by Newton's Forward and Backward Interpolation Formulae	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Dec 20, 2024 (Day Order 1) 2 hrs	Unit 2: Finite Differences 2.3 Central Differences Interpolation with Equal Intervals Practical 2.8 C program to Interpolate using the given pairs of values of x and y by Stirling's Central Difference Interpolation Formula	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Jan 3 – 7, 2025 (Day Order 3 to 6) 3 hrs	Unit 2: Finite Differences 2.4 Gregory-Newton's Forward and Backward Interpolation Formulae Practical 2.8 C program to Interpolate using the given pairs of values of x and y by Stirling's Central Difference Interpolation Formula 2.9 C program to Interpolate y using the given pairs of values of x and y by Lagrange's Interpolation Formula	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Jan 8 – 17, 2024 (Day Order 1 to 6) 6 hrs	Unit 2: Finite Differences 2.5 Central Difference Interpolation Formulae – Gauss Forward and Backward Interpolation Formulae, Stirling's Interpolation Formula Interpolation with Unequal Intervals 2.6 Lagrange's Interpolation Formula for Unequal Intervals Practical 2.9 C program to Interpolate y using the given pairs of values of x and y by Lagrange's Interpolation Formula	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Third Component Test I – 25 Marks Assignment – Unit 1,2
Jan 18 - 23, 2025	C.A. Test – I (Unit 1 & 2)			

Jan 24 - 30, 2025 (Day Order 1 to 6) 6 hrs	Unit 3: Numerical Differentiation 3.1 Values of the Derivatives of y based on Newton's Forward and Backward Interpolation Formulae, Stirling's Formula Practical 3.3 C program to find the Derivative at the Initial Point of a Tabulated Function by Newton Forward and Backward Interpolation Formula	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Feb 3-8, 2025 (Day Order 1 to 6) 6 hrs	Unit 3: Numerical Differentiation 3.2 Second Order Derivatives of f(x) using Newton's Formulae - Maximum and Minimum Value of f(x) Practical 3.3 C program to find the Derivative at the Initial Point of a Tabulated Function by Newton Forward and Backward Interpolation Formula	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Feb 10– 18, 2025 (Day Order 1 to 4) 4 hrs	Unit 4: Numerical Integration 4.1 Newton Cote's Quadrature Formula 4.2 Trapezoidal Rule Practical 4.5 C program to Evaluate numerically using Trapezoidal and Simpson's rule	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Feb 19- 26, 2025 (Day Order 1-6) 6 hrs	Unit 4: Numerical Integration 4.3 Simpson's One Third Rule Practical 4.5 C program to Evaluate numerically using Trapezoidal and Simpson's rule	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Feb 27- Mar 6, 2025 (Day Order 1 to 6) 6 hrs	Unit 4: Numerical Integration 4.4 Simpson's Three Eighth Rule Practical 4.5 C program to Evaluate numerically using Trapezoidal and Simpson's rule	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Mar 7 – 11, 2025 (Day Order 1 to 3) 3 hrs	Unit 5: Application 5.1 Numerical Solution to Ordinary Differential Equations Practical 5.4 C program to Solve the Differential Equation by Euler's Method	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Third Component Test II – 25 Marks Project – Units All

Mar 12 –17, 2025	C.A. Test – II (Unit 3 & 4)			
Mar 18 – 20, 2025 (Day 4 to 6) 2 hrs	Unit 5: Application 5.2 Euler’s Method Practical 5.4 C program to Solve the Differential Equation by Euler’s Method	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Mar 21 - 28, 2025 (Day Order 1 to 6) 6 hrs	Unit 5: Application 5.3 Runge Kutta Method Practical 5.5 C program to Solve Simultaneous Differential Equations by using Runge Kutta Method of the Fourth Order	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
Mar 29- April 3, 2025 (Day Order 1 to 3) 3 hrs	Unit 5: Application 5.3 Runge Kutta Method Practical 5.5 C program to Solve Simultaneous Differential Equations by using Runge Kutta Method of the Fourth Order	Problem Solving, Group Work, Hands on training	Veerarajan T. and Ramachandran T., Numerical Methods , New Delhi: McGraw Hill, 2019	Slip Test & Assignment
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