MT-500	Scientific Computing
	Introduction to Computing and Programming: Introduction and key features, Developing algorithms and applications, Analyzing and accessing data, Visualising data, Performing numeric computation. Solution of System of Linear Equations: Gauss-Jordan, Jacobi method, Gauss-Seidel method. Solution of System of Non Linear Equations: Secant method, Newton's method and Fixed-Point iterations, Roots of polynomials, Multiple roots. Statistical and Least Square Methods: Curve fitting, Regression. Numerical Differentiation: Interpolation formulae for numerical differentiation. Numerical Integration: Trapezoidal rule and Simpson’s rule, Newton-Cotes integration formulas, Composite rules and Romberg integration, Gaussian quadrature. Numerical Solution of ODEs: Taylor’s series and Euler’s methods, Runge-Kutta and multistep methods, Predictor-Corrector methods. Writing Computer programmes for above mentioned topics in suitable programming environment.