**Unit 1: Solution of Nonlinear Equations**

1. Bisection Method
2. Method of False Position
3. Newton-Raphson Method
4. Fixed Point Iteration

**Unit 2: Interpolation and Approximation**

1. Lagrange's Interpolation
2. Newton's Interpolation (Forward, Backward, and Divided Differences)
3. Cubic Spline Interpolation
4. Least Squares Method (Linear and Non-linear Data)

**Unit 3: Numerical Differentiation and Integration**

1. Newton's Differentiation Formulas
2. Trapezoidal Rule
3. Simpson's 1/3 Rule
4. Simpson's 3/8 Rule
5. Romberg Integration
6. Numerical Double Integration

**Unit 4: Solution of Linear Algebraic Equations**

1. Gaussian Elimination Method
2. Gauss-Jordan Method
3. Matrix Inversion using Gauss Elimination
4. Factorization Method
5. Jacobi Iteration Method
6. Gauss-Seidel Iteration Method
7. Power Method

**Unit 5: Solution of Ordinary Differential Equations**

1. Taylor Series Method
2. Euler's Method
3. Heun's Method
4. Runge-Kutta Methods (2nd and 4th Order)
5. Shooting Method

**Unit 6: Solution of Partial Differential Equations**

1. Finite Difference Equations
2. Laplacian Equation
3. Poisson's Equation