

Errors

1. Approximation Error
2. Round-off Error
3. Truncation Error
4. Relative and Absolute Error

Roots of Equations:

1. Bisection Method
2. Method of False Position (Regula Falsi Method)
3. Iteration Method
4. Secant Method
5. Newton-Raphson Method
6. Generalized Newton's method
7. Ramanujan's Method

Solution to System of Nonlinear:

1. Method of Iteration
2. Newton-Raphson Method

Interpolation:

- A. Evenly Spaced Points
 1. Newton's Formulae for Interpolation
 2. Gauss' Central Difference Formulae
 - a) Gauss' Central Forward Formulae
 - b) Gauss' Central Backward Formulae
- B. Unevenly Spaced Points
 1. Lagrange's Interpolation Formula

Least Square Curve Fitting

1. Fitting a Straight Line
2. Curve Fitting by Polynomials

Numerical Differentiation & Integration

- A. Differentiation
 1. Numerical Differentiation
- B. Integration
 1. Trapezoidal Rule
 2. Simpson's 1/3-Rule
 3. Simpson's 3/8-Rule

Linear Algebraic Equations

- A. Solution of Linear Systems - Direct Methods
 1. Gauss Elimination
 2. Gauss-Jordan Method

- 3. LU Decomposition Method
- B. Solution of Linear Systems - Iterative Methods
 - 1. Gauss-Seidal Method
 - 2. Jacobi's Method

Ordinary Differential Equation

- 1. Euler Method
- 2. Runge-Kutta Method Fourth Order