

1. Floating Point Arithmetic
  - [Machine Precision]
  - [Overflow / Underflow]
  - [Binary Decimals]
  - [Chopping / Rounding]
2. Solving Algebraic equations
  - [Bisection]
  - [Fixed Point]
  - [Newton's Method]
  - [Secant Method]
  - [Regula Falsi]
3. Linear Algebra
  - [Determinants]
  - [Solvability]
  - [Gaussian Elimination]
  - [Pivoting]
  - [LU Decomposition]
  - [Vector Norms]
  - [Matrix Norms]
  - [Residual]
  - [Forward / Backward Relative Error]
  - [Condition Number]
  - [Iterative Methods]
  - [Spectral Radius]
  - [Jacobi]
  - [Gauss Seidel]
  - [SOR]
4. Interpolation
  - [Lagrange polynomial]
  - [Newton's divided difference polynomial]
  - [Error of polynomial interpolation]
  - [Chebyshev Points]
  - [Least Squares]
5. Numerical Differentiation
  - [Truncation Error]
  - [Best Step Size]
  - [Undetermined Coefficients]
  - [Richardson Extrapolation]

## 6. Numerical Integration

[Endpoint Rules]

[Trapezoidal Rule]

[Simpson's Rule]

[Richardson Extrapolation]

[Gaussian Quadrature]

## 7. Numerical Solutions of ODE's

[Implicit / Explicit Schemes]

[Stability]

[Consistency]