NUMERICAL METHODS
Code : M(CS) 301
Contacts : 2L
Credits :2

Approximation in numerical computation: Truncation and rounding errors, Fixed and floating-point arithmetic, Propagation of errors.   (4)

Interpolation: Newton forward & backward interpolation, Lagrange's and Newton's divided difference Interpolation.   (5)

Numerical integration: Trapezoidal rule, Simpson's 1/3 rule, Weddle's rule.   (3)

Numerical solution of a system of linear equations:
Gauss elimination method, Matrix inversion, LU Factorization method, Gauss-Jacobi and Gauss-Seidel iterative methods.   (6)

Numerical solution of Algebraic equation:
Bisection method, Secant method, Regula-Falsi method, Newton-Raphson method.   (4)

Numerical solution of ordinary differential equation: Taylor's series method, Euler's method, Runge Kutta methods, Predictor-Corrector methods and Finite Difference method.   (6)

Text Books:
1. C.Xavier: C Language and Numerical Methods.
2. Dutta & Jana: Introductory Numerical Analysis.
3. J.B.Scarborough: Numerical Mathematical Analysis.
4. Jain, Iyengar , & Jain: Numerical Methods (Problems and Solution).