

PAPER VIII - NUMERICAL AND STATISTICAL METHODS

Objective: To develop computing and program writing skills.

UNIT I: Introduction and Algebraic equations **(12 hours)**

Errors in Numerical approximation: Sources of error, various types of Errors. Chipping and rounding in different number systems. Transcendental and polynomial equation; Iterative methods, - Bisection method, False position Method, Newton Raphson Method Secant Method, Regula-Falsi Method.

UNIT II: System of Equations and Interpolation. **(12 hours)**

Solution of system of linear algebraic equations: Gauss elimination, Gauss Jordan, Gauss Jacobi and Gauss seidal. Interpolation: Polynomial interpolation, Lagrange and Newton Interpolation, Method of least squares.

UNIT III: Differential Equations: **(12 hours)**

Euler's Method and its modified form Runge kutta method IV order, Predictor, Corrector methods, Milne's and Adams Methods.

UNIT IV: Probability distribution and Correlation **(12 hours)**

Binomial poisson and Normal distribution Fitting of probability distributions, Correlation and Regression, Linear Regression, Correlation Coefficient, Multiple linear regression.

UNIT V: Tests of Hypothesis **(12 hours)**

Tests of hypothesis-Testing for attributes Mean and Normal Population- one tailed and two tailed tests – Student T-test, F-test, Chi-Square test.

TEXT BOOK(S)

1. S.S.Sastry "Introductory methods of Numerical Analysis", PHI.
2. S. C Gupta "Introduction to mathematics statistics", Sultan & Chand

REFERENCE BOOK(S)

1. "Computer Oriented Numerical Methods", V. RajaRaman, PHI.
2. Madin, a Statistical Methods, "An Introductory Text – Wiley Bastern Limited, New Delhi.
3. C. Xavier "C Language and Numerical Methods" New Age International Publications.