Subject Code : RACSY75C

NUMERICAL METHODS & STATISTICS

UNIT I

Solution of Algebraic and transcendental Equations: Introduction – Bisection Method, false Position Method, Iteration Method, Newton - Ralphson method. Solution of simultaneous Linear Equations: Gauss – Elimination method, Gauss - Seidal, Gauss- Jacobi Method.

UNIT II

Interpolation: Introduction – Finite Differences – Newton's Forward, Backward and Interpolation Formulae – Lagrange's Interpolation formulae. Numerical Differentiation and Integration: Numerical Differentiation – Numerical Integration – Trapezoidal Rule – Simpson's (1/3, 3/8) Rules.

UNIT III

Numerical solution of ordinary differential Equations: Taylor's series, Picard's Method, Euler method, modified Euler method, Improved Euler method, Range – Kutta methods.

UNIT IV

Probability: Definition – Addition, Multiplication and Bayes's Theorem – Simple Applications – Random variables – Expectation and random variable – Probability distributions : Binomial –Poisson – Normal distributions.

UNIT V

Statistics: Definition – Classification and Tabulation of data –measures of central values: Mean - Median – Mode – Their relationship – measures of dispersion: Range – Quartile deviation – Mean deviation – standard deviation – correlation.

TEXT BOOKS

1. **S.S. Sastry** , Introductory methods of numerical Analysis, Prentice Hall India, 1994.
2. **R.S.N. Pillai and Bagavathi S**, Statistics, Chand and Company Ltd. New Delhi
3. **S.P. Gupta**, Statistical Methods, S.Chand and Company Ltd. New Delhi.

REFERENCE BOOK

1. P. Kandasamy, "Numerical Methods", S. Chand & Co. New Delhi.