Subject Code : RACSY83B

ALLIED COURSE – II (AC)
NUMERICAL ANALYSIS AND STATISTICS

UNIT I

Algebraic & Transcendental equations : Bisection Method , Newton Raphson Method, Iteration method - Finite differences –Forward , Backward differences – Newton's forward & backward difference interpolation formulae. Lagrange's interpolating polynomial.

UNIT II

Numerical differentiation - Numerical Integration using Trapezoidal rule and Simpson's first & second rules (proof not needed) - Solutions to Linear Systems – Gaussian Elimination Method – Jacobi & Gauss Siedal iterative methods – Theory and problems

UNIT III

Numerical solution of ODE : Solution by Taylor Series Method , Euler's Method , Runge - Kutta 2^{nd} order method- Adam's Predictor Corrector Method and Milne's Predictor Corrector Methods

UNIT IV

Mean , Median , Mode , Standard Deviation -Expectation –Variance and covariance – Correlation and Regression –Properties of Simple Correlation and regression coefficients – Simple Numerical Problems only .

UNIT V

Distributions : Discrete & Continuous distributions : Binomial, Poisson, Normal distributions- Properties of normal distributions –Relation between Binomial, Poisson, Normal distributions

TEXT BOOK(S)

[1] S.S.Sastry, Numerical Analysis (Unit 1 , 2 , 3)

[2] Gupta.S.C & Kapoor,V.K, Fundamentals of Mathematical Statistics, Sultan Chand & sons, New Delhi -1994. (Units 4 & 5)

REFERENCE(S)

[1] M.K. Jain, S.R.K. Iyengar and R.K. Jain, Numerical Methods for Scientific and Engineering Computation, New Age International Private Limited, 1999.

[2] C.E. Froberg, Introduction to Numerical Analysis, II Edn., Addison Wesley, 1979.