

13SH2201 ENGINEERING MATHEMATICS-IV

(Common to EEE&ECE)

Credits: 4

Lectures / Week: 4 Hrs

Sessional Marks: 40

Univ. Exam. Duration: 3Hrs

Univ. Exam. Marks: 60

UNIT-I

DETERMINATION OF ROOTS OF NON-LINEAR EQUATIONS: Bisection Method - Iterative methods - Falsi position method – Newton Raphson method.

CURVE FITTING: Fitting a straight line – Second degree curve by the method of least Squares – Power Curve by the method of least Squares. Correlation: Coefficient of correlation – Rank correlation – Regression of lines.

UNIT-II

SOLUTION OF LINEAR AND NON-LINEAR ALGEBRAIC EQUATIONS: Iterative methods – Gaus Jordan– Gauss Elimination with Pivotal condensation –Triangular factorization methods – Gauss- Seidel and Newton – Raphson iterative methods.

UNIT-III

SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS: Taylor's Series method □ Euler's method –Euler's modified method — Runge-Kutta Second and Fourth order methods - Runge-Kutta Grill method – Milne's Predictor and Corrector methods for first order equations.

UNIT-IV

NUMERICAL INTERPOLATION, DIFFERENTIATION AND INTEGRATION: Newton's forward and backward interpolation formula – Lagrange's interpolation formula - Numerical Differentiation by Richardson's extrapolation—Numerical integration by Romberg method.

UNIT-V

PROBABILITY AND STATISTICS: Introduction – Random variables – Discrete and Continuous distributions – Binomial, Poisson's and Normal distributions.

TEXT BOOKS:

1. Higher Engineering Mathematics by Dr. B.S.Grewal.
2. Higher Engineering Mathematics by H.K Das et al.
3. Numerical Methods by Balagurusamy, Tata McGraw- Hill

REFERENCE BOOKS:

1. Numerical methods by S.Armugam etal, Scitech
2. Engineering Mathematical Methods by B.V.Ramana ,TMH