**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