13SH2101 ENGINEERING MATHEMATICS-III

(Common to EEE and ECE)

Credits: 4

Lectures / Week: 4 Hrs — Sessional Marks: 40

Univ. Exam: 3Hrs — Univ. Exam. Marks: 60

UNIT-I

APPLICATION OF PARTIAL DIFFERENTIAL EQUATIONS: Methods of Separation of Variables – One dimensional Wave equation – One dimensional Heat flow equation – Two dimensional Laplace equations.

UNIT-II

SPECIAL FUNCTIONS: Bessel functions – Properties– Recurrence formulae for Bessel function – Generating function for $J_n(x)$ – Orthogonally of Bessel Functions. Legendre functions – Rodrique's formula – Recurrence relation for Pn(x) – Generating function for Pn(x) – Orthogonality of Legender polynomials.

UNIT-III

COMPLEX ANALYSIS-I: Analytical functions, Cauchy - Riemann equations, Construction of Analytic function, Applications to flow problems. Conformal mapping–Bilinear transformations.

UNIT-IV

COMPLEX ANALYSIS-II: Complex integration – Line integral – Cauchy's theorem – Cauchy's integral formula – Taylor's theorem and Laurent's theorem (without proof) – Singularities – Poles – Residues – Residue theorem – Evaluation of real definite integrals.

UNIT-V

Z-TRANSFORMS AND DIFFERENCE EQUATIONS: Z – Transform of some standard functions- Properties of Z-Transforms – Shifting properties – Initial value theorem and final value theorem – Inverse Z- Transform – Convolution theorem – Inversion by partial fractions – Region of Convergence – Applications to difference equations.

TEXT BOOKS:

1. Higher Engineering Mathematics-B.S.Grewal, Khanna Publishers.
2. Engineering Mathematics – B.V.Ramana-TMH.
3. Advanced Engineering Mathematics-Erwin kreyszing.

REFERENCE BOOKS:

1. Higher Engineering Mathematics- H K Das et al.
2. Engineering Mathematics-III –TKV Iyengar, S.Chand.
3. Engineering Mathematics-III - M K.Venkataraman.