

ENGINEERING MATHEMATICS –IV(EC/EE 221)

Lectures	: 4 periods / week	Internal Assessment	: 40 Marks
Tutorials	: 1 period / week	Semester End Examination	: 60 Marks
Semester Exam	: 3 hrs	Credits	: 4

UNIT-I

COMPLEX ANALYSIS: Introduction, Continuity, Cauchy-Riemann equations, Analytic functions, Harmonic functions, Orthogonal systems.

UNIT-II

COMPLEX INTEGRATION: Cauchy's integral theorem, Cauchy's integral formula, Taylor's series, Laurent's series, Zeros and singularities.

UNIT-III

Calculation of residues, Evaluation of real definite integrals (by applying the residue theorem) Series solutions of differential equations: Introduction, Series solution, Validity of Series solution, General method (Frobenius method), Forms of series solution.

UNIT-IV

Series solution of Bessel's and Legendre's equation. Recurrence formulae, Generating functions, Rodrigue's formula, Orthogonality of Bessel's functions and Legendre polynomials

TEXT BOOK

1. Higher Engineering Mathematics, 40th Edition,- B S Grewal, Khanna Publishers,

Reference Book

2. Advanced Engineering Mathematics, 8th Edition, - Erwin Kreyszig, New Age International (P) Ltd.