

FC 201 : MATHEMATICS III

CREDITS 4 (L = 4, P = 0)

1. ORTHOGONAL FUNCTIONS AND FOURIER SERIES :

Orthogonal and orthonormal functions, Fourier series, Half range Fourier sine and Fourier cosine series.

2. ORDINARY DIFFERENTIAL EQUATIONS (HIGHER ORDER) :

Ordinary differential equations with constant coefficients, Variation of parameters method, Cauchy - Euler differential equations, Simultaneous differential equations with constant coefficients, Applications of ordinary differential equations.

3. PARTIAL DIFFERENTIAL EQUATIONS :

Formation of partial differential equations, Lagrange's first order partial differential equation, Directly integrable equations, Method of separation of variables. Applications to wave equation, diffusion equation and Laplace's equation.

4. COMPLEX ANALYSIS :

Analytic functions, Cauchy Riemann equations, (Cartesian and polar forms), Harmonic functions, Milne - Thompson's method, Conformal mapping.

5. MATRICES :

Rank of a matrix, Solution of simultaneous equations, Eigenvalues, Eigenvectors of a matrix, Quadratic forms.

REFERENCE BOOKS :

1. *E. Kreyszig*

Advanced Engineering Mathematics

Wiley Eastern Ltd.

2. *Grewal B. S.*

Higher Engineering Mathematics

Khanna Publishers.