

MATHEMATICS III

Module I (12hrs)

Idea of Engineering optimization problems, modelling of problems and principle of modelling. Linear Programming: Formulation of LPP, Graphical solution, Simplex method, Big-M method, Revised simplex method, Duality theory and its application, Dual simplex method. Transportation problems: Finding an initial basic feasible solution by Northwest Corner rule, Least Cost rule, Vogel's approximation method. Assignment problems.

Module II (10 hrs)

Laplace transformation and its use in getting solution to differential equations, Convolution, Integral equations Fourier series, Fourier expansion of functions of any period, Even and odd functions, Half range expansion, Taylor series, Laurent series.

Module III (10 hours)

Fourier transform and Fourier Integral, Gamma, Beta functions, error function
Vector differential calculus: vector and scalar functions and fields, Derivatives, Curves, tangents and arc length

Module III (10 hours)

Vector differential calculus: gradient, divergence, curl
Vector integral calculus: Line Integrals, Green Theorem, Surface integrals, Gauss theorem and Stokes theorem

Text and Reference Books:

1. Advanced Engineering Mathematics by E. Kreyszig, Publisher: John Willey & Sons Inc-8th Edition
2. Higher Engineering Mathematics by B. V. Ramana, Publisher: TMH
3. Mathematical Methods by Potter and Goldberg, Publisher: PHI
4. Operations Research, F.S.Hiller, G.J.Lieberman, Tata McGraw Hill, Eighth Edition, 2005
5. Operations Research- Principle and Practice, A. Ravindran, D. T. Philips, J. Solberg, Second edition, Wiley India Pvt Ltd.