APPLIED MATHEMATICS - III

MODULE I

Probability: Probability, Random variables, Probability distributions, Mean and variance of distribution, Binomial, Poisson, and Hyper-geometric distributions, Normal and exponential distribution, Distribution of several random variables. Statistics: Random sampling, Estimation of Parameters, Confidence Intervals, Testing of hypothesis, Acceptance sampling, Regression Analysis, Fitting Straight Lines, Correlation analysis

MODULE II

Partial Differential Equation: Partial differential equation of first order, Linear partial differential equation, Nonlinear partial differential equation, Homogenous and non-homogeneous partial differential equation with constant co-efficient, Cauchy type, Monge's method, Second order partial differential equation The vibrating string, the wave equation and its solution, the heat equation and its solution, Two dimensional wave equation and its solution, Laplace equation in polar, cylindrical and spherical coordinates.

MODULE III

Complex Analysis: Analytic function, Cauchy-Riemann equations, Laplace equation, Conformal mapping, Complex integration: Line integral in the complex plane, Cauchy's integral theorem, Cauchy's integral formula, Derivatives of analytic functions

MODULE IV

Power Series, Taylor's series, Laurent's series, Singularities and zeros, Residue integration method, evaluation of real integrals.

Text books:
1. E. Kreyszig," Advanced Engineering Mathematics:, Eighth Edition, Wiley India
2. B.V. Ramana, " Higher Engineering Mathematics", Tata McGraw Hill

Reference books:

1. E.B. Saff, A.D.Snider," Fundamental of Complex Analysis", Third Edition, Pearson
2. Jay L. Devore, "Probability and Statistics for Engineering and Sciences", Seventh Edition, Thomson/CENGAGE Learning India Pvt. Ltd
3. P.V.O'Neil, "Advanced Engineering Mathematics", CENGAGE Learning, New Delhi
fa4. Mathematical Methods by Potter Goldberg Publisher: PHI