

JIS College of Engineering
(NAAC 'A' Accredited Autonomous Institution)

Syllabus for M. Tech (EIEM) 1ST YEAR 1ST SEM

Paper Name: Advanced Engineering Mathematics
Paper Code: M (EIEM) 101
Contact: 3L+1T

Course contents

Calculus of several variables, Implicit function theorem, Nature of singular points, Necessary and sufficient conditions for optimization, Elements of calculus of variation, Constrained Optimization, Lagrange multipliers, Gradient method, Dynamic programming. 8L

Vector space, linear dependence of vectors, basis, linear transformations, inner product space, rank and inverse of a matrix, solution of linear algebraic equation, consistency conditions, Eigen value and eigen vectors, Hermitian and Skew Hermitian matrices, Matrix eigen value and eigen vector problems(using power method). 11L

Review of Complex variables, Conformal mapping and transformations, Functions of complex variables, Pole and singularity, Integration with respect to complex argument, Residues and basic theorems on residues. 10L

Introduction, Interpolation formulae, Difference equations, Roots of equations, Solutions of simultaneous linear and non-linear equations, Solution techniques for ODE and PDE, Introduction to stability. 11L