Date : 11/03/2019

SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR

GENERAL DEPARTMENT

MATHEMATICS

- Syllabus of Mid Semester Test- March 2019
- Subject : NUMERICAL TECHNIQUES & STATISTICAL METHODS FOR IC ENGINEERING
- Subject Code: 2141703
- B. E. Semester-IV (I.C. Engineering)

Sr.No.	Topics
1	SOLUTION OF EQUATIONS AND EIGENVALUE PROBLEMS Linear interpolation (method of false position) – Newton's method - Statement of fixed point theorem – Fixed point iteration: x=g(x) method – Solution of linear system by Gaussian elimination and Gauss-Jordon method – Iterative methods: Gauss Jacobi and Gauss-Seidel methods – Inverse of matrix by Gauss Jordon method – Eigen value of matrix by power method
2	INTERPOLATION AND APPROXIMATION Lagrangian Polynomials – Divided differences – Newton's forward difference formulas.
3	NUMERICAL DIFFERENTION AND INTEGRATION Derivatives from difference tables – Divided differences and finite differences – numerical integration by trapezoidal and Simpson's 1/3 and 3/8 rules, Double integrals using trapezoidal and Simpson's rules
4	INITIAL VALUE PROBLEMS FOR ORDINARY DIFFERINTIAL EQUATIONS Single step methods: Taylor series method – Euler and modified Euler methods – Fourth order Runge-Kutta method for solving first and second order equations.
5	INTRODUCTION TO STATISCTICAL PARAMETERS Significant figures, scientific notations, average- Mean, Mode, Median, geometric mean, harmonic mean, root-mean-square and root-sum-squares average.
6	PROBABILITY AND PROBABILITY DISTRIBUTIONS Introduction to probability; Random Experiments, Sample Space, Events and their probabilities; Some basic results of probability, Conditional probability, Random variables: Probability distributions; Expected value & variance of a probability distribution.