

MT-112 MATHEMATICS FOR ARCHITECTS

Sets & Functions:

Definition of set, set operation. Relations, functions, Graph of functions. Trigonometric functions and their applications.

Differential & Integral Calculus:

Limits of functions, Continuity of function. Derivative of function. Leibniz theorem. Extreme value of functions Partial differentiation, curvature and radius of curvature of a curve, Techniques of integration. Definite & indefinite integrals. Reduction formulae. Beta and Gamma functions with applications (arc length, area, volume, centeroid, inertia). Ordinary Differential equation.

Solid Geometry:

Coordinate Systems in three dimensions. Direction cosines, and ratios. Vector equation of straight line, plane and sphere, Surface of revolutions. Transformation (Cartesian, polar & Cylindrical).

Matrices & Determinants:

Definition of Matrix, Determinant of matrix. Types of matrix, Elementary row operation. Echelon & reduced Echelon forms. Rank of a matrices, Determination of consistency of a system of linear equations. Application in related problems.

Statistics & Probability:

Types of data, presentation of data, objects, classifications, Tabulation, Frequency distribution, Graphical representation. Simple & Multiple Bar diagrams, Sector & Pie-Diagram, Histogram, Frequency Polygon. Frequency Curves & their types, Measure of central tendency, measure of dispersions, Moments. Skewness & Kurtosis. Basic concepts of Permutation & Combination. Definitions of probability. Laws of probability with application.

Recommended Books

Text Book

Calculus & Analytical Geometry

Howard Anton

Edition

Fifth

Reference Books

Calculus

Thomas & Finney

1994

Introduction to Statistics

Walpole

Sixth