

JIS College of Engineering
(An Autonomous, NAAC 'A' Grade Institution)

Mathematics

Code: BM 101

CONTACTS: 3L + 1 T

CREDITS: 4

Course contents

Algebra: Sets, Union, intersection, complement, mapping, notion of group, ring, field with simple examples; Polynomials, division algorithm, fundamental theorem of classical algebra (without proof), Descartes rule of sign and their application, relation between roots and coefficients, symmetric function of roots, transformation of polynomial equations, Cardan's solution of cubic equation. Matrices, addition and multiplication of matrices, inverse matrix, solution of linear equations in three variables by Cramer's rule, solution of three line linear equations by matrix inversion method.

Differential calculus: Limits of function and continuity, fundamental properties of continuous functions (without proof), geometric meaning of derivative and differential, rules of differentiation, successive differentiation, Rolle's theorem, mean value theorem, Taylor's and Maclaurin's theorems with Cauchy's and Lagrange's forms of reminder, Taylor's series, function of several variables, partial derivatives, total differential, Euler's theorem on homogeneous functions of two variables. Introduction to: Application to plane curves.

Integral calculus: Rules of integration of indefinite integrals, solution of definite integrals and their elementary properties, idea of improper integrals.

Dimensional geometry: Transformation of rectangular axes, invariants, general equation of second degree – reduction to standard forms.