

MATH-II

1. Introduction

Credits: 3-0-0

2. Course Outline

UNIT - I: Multivariable calculus

Brief introduction to co-ordinate systems- spherical and cylindrical systems- double integral over a rectangle, double integral over a region, change of order of integration, triple integrals, change of variables and Jacobian. Vector fields, gradient, divergence, curl, vector calculus identities, parametric curves, line integrals, path dependence, fundamental theorems of line integrals, conservative fields, application of Greens theorem in 2-D, parametric surfaces, surface of revolution, surface integrals, applications of Stokes theorem and Gauss divergence theorem, Green's identities, statement of integration by parts.

UNIT - II: Mathematical Analysis

Rational numbers, sequences, subsequences, monotonicity, boundedness, convergence, limit of a sequence, Cauchy criteria, series, different tests of convergence, power series, radius of convergence