

MA 3110 (4-0)
Intermediate Analysis

Objectives

Upon successful completion of this course, one should be able to do the following:

1. Differentiate a vector function with respect to a vector variable, find equations of tangent surfaces, find stationary vectors and classify them.
2. Solve constrained optimization problems for vector functions with multiple constraints using Lagrange multipliers.
3. Identify convex and concave functions to find Taylor approximations.
4. Find inverses of vector functions over appropriate regions.
5. Implicitly differentiate vector functions to find stationary points and inverses.
6. Evaluate multiple integrals after changing to curvilinear coordinates using Jacobians.
7. Solve simple differential equations such as separable, homogeneous, exact and first order linear equations.