

FCE 261: Engineering Mathematics 1A Course Description

The course covers the following key areas; Basic Mathematical Concepts: Elementary set operation, De Morgans law, relations; Boolean algebra. Functions of a single Variable: Types of functions, limits, continuity; Rolles theorem, Mean-Value theorem. Differentiation: Derivatives of functions including inverse trigonometric, hyperbolic, inverse hyperbolic, logarithmic; Leibnitzs theorem; differentials; Applications of differentiation. Introduction Methods of integration including partial fractions, substitution, integration by parts, reduction formulae, Mean-Value theorem for integrals; Differentiation of integrals; Applications including more advanced concepts of areas and volumes, centroids and moments of inertial. Sequences and Series: Properties of sequences; Expansion of functions and power series; Taylors and Maclaurins series, remainder term; Convergence of power series; Applications