Module Code	MA2073	Title	Calculus for System Modelling			
Credits	02	Hours/ Week	Lectures	02	Pre-requisites	MA1013
			Lab/Tutorials	–		

Learning Outcomes

At the end of this module the student should be able to

- Perform vector differentiation and integration and evaluate vector and scalar quantities in various engineering applications.
- Perform contour integration techniques.
- Apply conformal mapping in physical system modeling.
- Use probability distributions for various decision making in engineering.

Outline Syllabus

Vector Calculus

- Multivariable functions, partial differentiation, chain rule, directional derivatives,
- Maxima and minima, Lagrange multipliers.
- Taylor series expansion of multivariate functions.
- Double Integral, triple integral, vector functions;
- Introduction to vector calculus. Vector differentiation and differential operators, space curves and line integral, surface integrals.

Complex Variables

- Taylor and Laurent's series, contour integration.
- Introduction to conformal mapping.

Basic Probability and Statistics

- Properties of random variables.
- Statistical distributions.
- Applications involving Binomial, Poisson, Normal and Exponential distributions.

Note: Only for CS students.