

Semester	Code	Module Title	Credits	C/E/O	GPA/NGPA
3,5	MA2024	Calculus	2	E	GPA
Hours/Week		Pre-requisites/Co-requisites	Evaluation (%)		
Lecture	Tute/Lab		CA	WE	
2	0	MA1024	30	70	

Learning Outcomes

After the successful completion of this course students should be able to

- Perform vector differentiation and integration and evaluate vector and scalar quantities
- Perform contour integration techniques to find the complex integrals
- Apply conformal mapping

Syllabus Outline

Vector Calculus

- Vector Functions.
- Vector differentiation and differential operators.
- Space curves and curvature, line integrals
- Greens' Theorem
- Surfaces and curvature, surface integrals
- Curvilinear coordinate systems: spherical and cylindrical coordinates
- Stokes' theorem.
- Triple integrals.
- Divergence theorem

Complex Variables

- Complex valued functions and branch cuts.
- Analytical function and Cauchy-Reimann equation.
- Complex Integration
- Cauchy' s integral formula.
- Singularities, zeros and poles.
- Taylor and Laurent series.
- Residue theorem and applications of residue theorem for real integrals
- Introduction to Conformal mapping.