# EE1203: Vector Calculus

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# Course Contents

- **Vectors and Coordinate Systems**: Vectors and Operations on Vectors, dot product and cross product, lines, planes, and surfaces, curvilinear coordinates, and functions of multiple variables.
- **Differential Calculus**: Partial Derivatives, Directional Derivative, Gradient, Significance of Gradient, Representation of Gradient Fields, Divergence and Curl, Significance of Divergence and Curl, Laplacian Operator.
- **Integral calculus**: Line, surface and volume integrals, flux of a vector field, conservative fields, potentials, Green's Theorem, divergence Theorem and Stokes' Theorem.

# References


- Susan Jane Colley - Vector Calculus-Addison Wesley (2012)
- Corral, Michael. Vector calculus. Open-Source, 2013.
- Marsden, Jerrold E., and Anthony Tromba. Vector calculus. Macmillan, 2003
- Various open-source lectures and notes

# Grading Policy: 1-2 Segment

- 40% weightage: Mid-segment exam or two mini-quizzes.
- Mini-quizzes may be surprise quizzes, depending on class participation, or significant absences on a given day.
- Practice problems will be provided at the end of relevant topics. These will not be evaluated, but quizzes will primarily be based on these practice problems.
- 60% weightage: End-segment exam.