

CURRICULUM – B.TECH - NAVAL ARCHITECTURE & OCEAN ENGINEERING

SEMESTER 1

MA 1101: FUNCTIONS OF SEVERAL VARIABLES

Course Content:

Limits, continuity and differentiability of functions of several variables. Taylor's theorem and applications to unconstrained and constrained optimization. Vector calculus: Gradient, Divergence, Curl, Line integral, conservative fields, Green's theorem, surface area of solids of revolution, surface area, surface integral, Triple integrals and Gauss Divergence theorem, Stokes' theorem.

Text Books:

1. **G.B. Thomas Jr., M.D. Weir and J.R. Hass**, Thomas Calculus, Pearson Education, 2009.

Reference Books:

1. **E. Kreyszig**, Advanced Engineering Mathematics, 10th Ed., John Willey & Sons, 2010.
2. **N. Piskunov**, Differential and Integral Calculus Vol. 1-2, Mir Publishers, 1974.
3. **G. Strang**, Calculus, Wellesley-Cambridge Press, 2010.
4. **J.E. Marsden, A.J. Tromba, A. Weinstein**, Basic Multivariable Calculus, Springer Verlag, 1993.

Prerequisite: