SEMESTER II		
Paper Code	**THEORY**	**Credits:2**
MT201	**Title: Calculus-II**	**30 L**
Unit 1	**Vectors in R² and R³ and Derivatives**	**15 L**
	Vectors in two and three dimensional space, vector addition and scalar multiplication, dot product, length, and distance. Parametric equations, polar coordinates, lines and planes. Cylindrical and spherical coordinates. Functions in two/three variables, Limits, Continuity, Directional derivatives, partial derivatives, gradient.	
Unit 2	**Differentiability of Scalar valued functions**	**15 L**
	Higher order partial derivatives. Euler's theorem for homogeneous function, Mean Value Theorem and Taylor's theorem of functions of two variables Extreme values of functions of two variables.	

References:

1. Vector Calculus: Marsden and Tromba, Freeman 2004
2. Calculus: Early Transcendentals (Stewart's Calculus Series) – James Stewart.
3. Calculus and Analytic Geometry - G.B. Thomas and R. L. Finney, Addison-Wesley.

Additional References:

1. Tom Apostol, Calculus Volume 1, One variable calculus with an introduction to Linear Algebra, Second Edition, Wiley Publications.
2. Sudhir. R. Ghorpade and Balmohan V. Limaye, A Course in Calculus and Real Analysis, Springer International Edition.
3. Introduction to vector analysis, H.F. Davis and A. D. Snider, Universal Book stall, New Delhi.
4. Schaum's outline of Theory and Problems of Differential and Integral Calculus.