

1.	Title of the course	Multivariable Calculus
2.	Course number	MA521L
3.	Structure of credits (L-T-P-C)	3-0-0-3
4.	New course/modification to	Modified with MA510L/MULTIVARIABLE CALCULUS AND MEASURE THEORY
5.	To be offered by	Mathematics and Statistics
6.	Prerequisite	CoT
7.	<b>Course Objective(s):</b> To define the notions of limits, continuity, differentiation, and integration for the real-valued functions of several real variables. To describe the derivative of a function of multivariable as a linear map.	
8.	<b>Course Content:</b> Review of Euclidean spaces, Functions of several variables: limits and continuity, partial derivatives, tangent plane, derivative as a linear map, the chain rule, Taylor's theorem, maxima and minima, Lagrange multipliers, inverse function theorem, implicit function theorem, Double and triple integrals: area and volume, change of variables, Curves: parametrization, arc-length and its invariance, Line integrals of scalar and vector fields along curves, Curl and divergence, Conservative vector fields and Green's theorem, Surface integrals and Stokes' theorem, The divergence theorem.	
9.	<b>Textbook(s):</b> 1. Apostol T M, Mathematical Analysis, 2nd Edition, Narosa (2002). 2. Ghorpade S R and Limaye B V, A Course in Multivariable Calculus and Analysis, Springer (2009).	
10.	<b>Reference(s):</b> 1. Folland G B, Advanced Calculus, Pearson (2011). 2. Marsden J E, Tromba A J and Weinstein A, Basic Multivariable Calculus, Springer (2000). 3. Thomas G B, Hass J, Heil C and Weir M D, Calculus, 14th Edition, Pearson Education (2018). 4. Colley S J, Vector Calculus, 4th Edition, Pearson (2011).	