1.	Title of the course	Differential Geometry
2.	Course number	MA630L
3.	Structure of credits (L-T-P-C)	3-0-0-3
4.	New course/modification to	New
5.	To be offered by	Mathematics and Statistics
6.	Prerequisite	CoT
7.	**Course Objective(s):** To formulate the foundations of differential geometry. To introduce the notion of a Lie group.	
8.	**Course Content:** Manifolds; Differential structures: smooth structures, smooth functions, partial derivatives, critical points, immersion theorems, partitions of unity; Tangent bundle: tangent space, vector bundles, equivalence classes of curves and derivations, orientation; Tensors: dual bundle, covariant and contravariant tensors, mixed tensors; Vector fields and differential equations: Integral curves, existence and uniqueness theorems, flow, Lie derivatives and brackets.	
9.	**Textbook(s):** 1. Spivak M, A Comprehensive Introduction to Differential Geometry, 3rd Edition, Publish or Perish, Inc. (1999).	
10.	**Reference(s):** 1. Boothby W M, An Introduction to Differentiable Manifolds and Riemannian Geometry, 2nd Edition, Academic Press (2002). 2. Helgason S, Differential geometry, Lie Groups, and Symmetric Space, American Mathematical Society (2001). 3. Pressley A, Elementary Differential Geometry, 2nd Edition, Springer (2010).	