SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Mathematics)
Semester: IV
Syllabus with Effect from: November-2013

Paper Code: PS04EMTH03	Total Credit: 4
Title Of Paper: Differential Manifold - II	

Unit	Description in detail	Weighting (%)
I	Multilinear algebra, tensor products and tensors, tensor fields on a manifold, differential forms.	25%
II	The exterior derivative and its properties, closed forms and exact forms, examples, Poincare lemma, deRham cohomology groups and vector calculus in E^3.	25%
III	Integration on a manifold, Stoke's theorem, Riemannian metric, Levi-Civita connection.	25%
IV	Gauss theory of surfaces in $\mathbb{R}^3$, Curvature and parallel translates, spaces of constant curvature.	25%

Basic Text & Reference Books:-

➢ S. Kumaresan, A course on Differential Geometry and Lie Groups, TRIM 22, Hindustan Book Agency, 2002.
➢ F. Warner, Foundation of Differentiable Manifolds and Lie Groups, Springer-Verlag, 1984.
➢ M. Spivak, A Comprehensive Introduction to Differential Geometry, Published or Perish, 1970.