DEPARTMENT OF MATHEMATICS,

UNIVERSITY OF KARACHI,

Course Outline

MATH 508: APPLICABLE DIFFERENTIAL GEOMETRY - II

Course contents:

Bilinear and quadratic forms. Euclidean spaces. Metrics on affine spaces. Parallelism in affine metric spaces. Vector calculus. Isometrics: killing equation and killing fields, Rotation group. Surfaces. Differential geometry on surfaces. Riemannian geometry curvature, Surfaces geometry in terms of exterior forms Levi-Civita connection. Covariant derivative. Connection and curvature.

Books Recommended:

1. Crampin, M. and Pirani, F. A. E., Applicable Differential Geometry, CUP, 1986.
2. Goetz, A., Introduction to Differential Geometry; Addison Wesley, 1970.
3. Milman, R. and Parker, G., Elements of Differential Geometry; Prentice Hall Inc., 1977.
4. O' Neill, B., Elementary Differential Geometry; Academic Press, 1995.
5. Chorlton, F., Vector and Tensor Methods, Ellis Horwood, 1976.