ICTP DIPLOMA PROGRAMME IN MATHEMATICS 2012-13

Differential Geometry

C. Arezzo (20 lectures : 30 hrs)

- Curves in euclidean space:

1) Definition and comments;
2) curvature;
3) torsion.
4) Frenet Formulae and Fundamental Theorem of local theory of curves.

- Regular Surfaces:

1) Definition and comments
2) Tangent plane and differential of a map
3) Vector fields and Gauss map
4) First and second fundamental form
5) Gauss and Mean curvature
6) Theorema Egregium
7) Geodesics

- Introduction to manifolds:

1) Definition and comments
2) Examples and vector bundles
3) Covariant derivative