

Faculty	Ingegneria
Bachelor	Mechanical Engineering (La Spezia)
Year/Semester	1/I

Course Title	Geometry
ID Course Code	56720
Course Credits (CFU)	6
Scientific-Disciplinary Sector	MAT/03
Course Type	mono-disciplinary course
Lecturer-in-charge	CATALISANO Maria Virginia

Learning Outcomes:

The course provides an introduction to linear algebra and analytic geometry. with particular focus on matrix computations, on vector spaces and on solving linear systems and analytical geometry problems in 2 and 3 dimensions.

Course Organisation Details

Sets and maps. Complex numbers and polynomials. Linear systems and gaussian elimination. Matrices, determinants, rank. Vector spaces. Vectors in geometry. Subspaces, bases, dimension. Linear maps. Matrices related to a linear map. Eigenvalues, eigenvectors. The diagonal form of a matrix. Quadratic forms. Systems of cartesian coordinates, linear changes of coordinates. Points, lines and planes: cartesian and parametric equations, parallelism, angles, distances, orthogonal projections. Circumferences and spheres. Conics.

Assessment	hours
Lectures	36.0
Practice	24.0
Laboratory	0.0
Integrative activities	0.0

References

- 1) Internal notes (Perelli-Catalisano).
- 2) E.Carlini, M. V. Catalisano, F. Odetti, A. Oneto, M. E. Serpico, "GEOMETRIA PER INGEGNERIA - Raccolta di temi d'esame risolti", editore Progetto Esculapio (Bologna), 2008.
- 3) F.Odetti, M.Raimondo, "Elementi di algebra lineare e geometria analitica ", ECIG, 2002.

Organization and examinations

The examination consists of a written part and an oral discussion

Pre-requisites

Elementary notions of arithmetic, algebra, trigonometry, set theory,