GEOMETRY AND ALGEBRA	
Enrollment year	2018/2019
Academic year	2018/2019
Regulations	DM270
Academic discipline	MAT/03 (GEOMETRY)
Department	DEPARTMENT OF ELECTRICAL,COMPUTER AND BIOMEDICAL ENGINEERING
Course	BIOENGINEERING
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	1st semester (01/10/2018 - 18/01/2019)
ECTS	6
Lesson hours	60 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	STOPPINO LIDIA (titolare) - 6 ECTS
Prerequisites	The contents of the "Precorso di Matematica": 1. elemnts of algebraic and polynomial calculus. Polynomials: sum product, divisibility, factorization. Algebraic equations of first and second degree- Ruffini's Theorem. 2. Foundations of plane analytic geometry. Coordinates in the plane. Analytic representation of lines, circles, parabolas, ellipsis, hyperboles. 3. Concept of function and its graph. Elementary examples, exponential and logarithmic functions. 4. Elements of trigonometry. Sin cosin, tan functions. Goniometric equations. 5. inequalities between functions of one variable.
Learning outcomes	The aim of the course is to give to the students the basic notions and techniques of linear algebra and analytic geometry. The scope of the course is for the students to understand the concepts of vector space,

	vector subspace, basisi and dimension, matrices, determinants, rank, linear systems and their resolubility, linear maps, diagonalization, scalar product, quadratic forms and their signature. From the practical pont of view, the sudent has gain the skills that enables him to solve simple exercises on the above described concepts.
Course contents	0. (some prerequisites) 1. applied vectors in the 3-dimensional euclidean space, and its geometry. 2. Vector spaces, subspaces, bases and dimension. 3. Matrices, invertibility, determinant and rank. 4. Linear systems and their resolubility. 5. Linear maps and matrices. Matrices of a change of basis. 6. Diagonalization. Eigenvectors and eigenspaces. 7. Metric structure in vector spaces. Real Spectral theorem. 8. Quadratic forms and their applications.
Teaching methods	
Reccomended or required readings	Fulvio Bisi, Francesco Bonsante, Sonia Brivio: Lezioni di Algebra Lineare con Applicazioni alla Geometria Analitica. Edizioni La Dotta - Casalecchio di Reno (BO)
Assessment methods	
Further information	More informations at the page www.stoppino.it
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile