

**Content**

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
MAT116	Analytic Geometry	2	4	0	0	4	6

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	Draw a connection between geometry in High School and 2nd year Undergraduate Linear Algebra and Analysis
Content	Planar coordinates, orthogonal coordinates, parallel coordinates, polar coordinates, homogen coordinates, Vectors, Change of basis in a plane, Curves, Classification of planar curves, examples of algebraic curves, conics, Second degree curves in a plane, families of curves
References	Géométrie, Cours et Exercices, A. Warusfel et al., Vuibert 2002 Géométrie élémentaire, André Gramain, Hermann, 1997. Précis de géométrie analytique, G.Papelier, Vuibert 1950. Exercices de géométrie analytique, P.Aubert, G.Papelier, Vuibert 1953. Cours de géométrie analytique, B. Niewenglowski, Gauthier-Villars, 1894.

## Theory Topics

Week	Weekly Contents
1	Planar coordinates, orthogonal coordinates, parallel coordinates, polar coordinates,
2	Planar coordinates, orthogonal coordinates, parallel coordinates, polar coordinates,
3	homogeneous coordinates
4	Vectors, oriented segments
5	Linear dependence of vectors
6	Interior product, exterior product
7	Interior product, exterior product
8	Mid-term examination
9	Change of coordinates in a plane
10	Change of coordinates in a plane
11	Translations, rotations
12	Curves, classification of planar curves
13	Curves, classification of planar curves
14	Conics, Second degree curves in a plane, families of curves