

4.0 credits	30.0 h + 20.0 h	1q
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Teacher(s) :	Félix Yves ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	<p>1. Euclidean geometry and its generalizations. In particular curves (curvature, torsion, special curves), surfaces (curvatures, ruled surfaces), 3D objects (regular polyhedra, convex geometry, intersection of 3D objects)</p> <p>2. The projective extension of euclidean geometry (projective space, projective transformations, duality, ...)</p> <p>3. Introduction to other geometries : non-euclidean geometry and the axiom of parallels, topological classification of surfaces (Klein bottle, Euler characteristic, orientation), hyperbolic geometry (Escher paintings), ...</p> <p>4. Forms and numbers in nature : the golden ratio and the Fibonacci numbers (properties, geometrical interest), fractals objects (constructions, fractal dimension)</p>
Aims :	<p>1) To describe a set of mathematical tools that enable the technical geometric calculations (lengths, areas, volumes, angles,...)</p> <p>2) To help students to visualize, imagine and construct new spaces</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Content :	<p>The different chapters of the course are :</p> <ul style="list-style-type: none"> - euclidean geometry - affin geometry - projective geometry - metric curve theory - metric theory of surfaces - topology and surfaces - fractal geometry - axiomatic geometry
Other infos :	<p>FSAB 1101 or an equivalent course FSAB 1102 or an equivalent course</p>
Cycle and year of study :	> Bachelor in Engineering : Architecture
Faculty or entity in charge:	LOCI