UCLouvain

larct1162

2026

Fundamentals of Mathematics and Physics: Mechanics

5.00 credits	30.0 h + 30.0 h	Q1

Teacher(s)	Faux Pascaline ;Hautem Quentin ;
Language :	French
Place of the course	Tournai
Main themes	This course aims to strengthen and develop the mathematical and physical foundations essential to structural mechanics. It also reviews planar and volumetric entities and their transformations to enable the critical use of graphics systems. Additionally, the course fosters the development of cross-disciplinary skills, including generalization and deductive reasoning, abstraction and modeling, and precision.
Learning outcomes	**At the end of this learning unit, the student is able to :** **Specific Learning Outcomes** By the end of this course, students will be able to: • Decompose a complex geometric figure in the plane or in space to determine its dimensions using similarities and trigonometric functions, • Identify the essential properties of geometric shapes and apply them with clear and rigorous reasoning to solve geometric problems, • Calculate the area and volume of simple geometric shapes using basic vector operations, • Determine the coordinates of points and the equations of lines and planes based on their geometric positions, • Formulate and apply various laws and principles related to forces, • Graphically and analytically reduce or decompose a force system and an individual force, • Apply fundamental concepts of structural mechanics, including force, lever arm, moment, force couple, and static equilibrium. **General Learning Outcomes** In line with the program's learning outcomes (LOs), this course contributes to the development and acquisition of the following LOs: • LO2.1 Acquire and proficiently apply the conventions of representation in two and three dimensions. • LO3.1 Acquire and explain the physical and physiological principles related to architecture. • LO3.3 Acquire and apply scientific and technical knowledge to realize an architectural project. • LO4.1 Learn and explain the concepts and methods of scientific disciplines. • LO4.3 Learn and apply the content of artistic or scientific disciplines to enrich the architectural project.
Faculty or entity in charge	LOCI

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Architecture (Tournai)	ARCT1BA	5		