UCLouvain

larct1163

2026

Fundamentals of Mathematics and Physics: Heat and Hygrothermics

5.00 credits	30.0 h + 30.0 h	Q2

Teacher(s)	Faux Pascaline ;Hautem Quentin ;
Language :	French
Place of the course	Tournai
Main themes	This course aims to reinforce the mathematical foundations essential to building physics, with a particular focus on thermal and hygrothermal studies. In addition to acquiring subject-specific knowledge, 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: • Identify the essential properties of functions based on their graphical representation, • Apply fundamental concepts of functions, limits, derivatives, and integrals to solve two- and three-dimensional geometric problems, • Define and work with the concepts of energy, work, heat, and power, • Describe the different modes of heat transfer, • Calculate the heat transfer coefficient of a wall, • Quantify temperature variations and water vapor transfers within a wall in static conditions, • Identify risks of condensation, both surface and internal, within a wall for a given indoor and outdoor climatic scenario. **General Learning Outcomes** In line with the program's learning outcomes (LOs), this course contributes to the development and acquisition of the following LOs: • 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. • LO3.4 Acquire and explain the environmental, social, and economic consequences of construction and technical choices. • 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		