UCL Université catholique de Louvain

LBARC1260

2016-2017

Building physics

3.0 credits	30.0 h	1q

Teacher(s) :	Bodart Magali ;
Language :	Français
Place of the course	Bruxelles
Prerequisites :	*The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Aims :	*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".*
Evaluation methods :	The evaluation is a written exam based on applications of theory to cases ranging from simple to more elaborated, as practiced during the term.
Teaching methods :	The course is taught in auditorium. All theory notions reviewed are very extensively illustrated by real cases, from the simplest to the most elaborated, for which the relevant physical phenomenon are quantified.
Content :	The course starts with the quantification of energy involved during the shifting of a load and the heating of some material. The emphasis is put on the differentiation of the notions of energy and power, taking the units into account for each quantification. The different heat propagation modes and the parameters of thermal comfort are then accurately described before tackling the chapter regarding heat exchanges through building walls. The notion of thermal bridge is then introduced. Their influence on energy losses in buildings are then quantified. This allows to switch from the scale of a wall to the building, in order to calculate the energy requirements of the building in static mode. The final chapter addresses the water vapor transmission in a wall. For that purpose, the moist air diagram is very accurately studied. The students are then taught how to draw the curve of vapor pressure within a wall and how to accurately assess when the risks of internal condensation are present and to determine the protection methods to prevent this condensation. The chapter ends with the surface condensation phenomenon.
Bibliography :	Teaching support material -- Syllabus -- PowerPoint presentations hard copies
Faculty or entity in charge:	LOCI

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Bachelor in architecture (Bruxelles)	ARCB1BA	3	LBARC1143 **and** LBARC1144	