

BUILDING PHYSICS AND ENERGETICS

2022/23. 2. SEMESTER

BASIC INFORMATION		
COURSE NAME	Building Physics and Energetics	Épületfizika és energetika
COURSE CODE(S)	YARÉPENBNF	
DEPARTMENT	Óbuda University Ybl Miklós Faculty of Architecture, Institute of Architecture	
PROGRAMME, TRAINING	Architect BSc	full time
COURSE INSTRUCTOR (Instructor managing the course)	Dr. Attila Talamon PhD, Associate Professor talamon.attila@ybl.uni-obuda.hu	Consultations: according to the institute's website
PRE-REQUIREMENT	none	
HOURS OF LECTURES (WEEKLY)	2 h lecture	
HOURS OF CLASSROOM PRACTICE/ LAB EXERCISE (WEEKLY)	1 h practice	
FIELD AND TRAINING (WEEKLY)	0 hours	
ASSIGNMENT	end-of-semester written exam, semester project - term mark	
CREDITS	6 credits	
AIM OF THE COURSE, BRIEF DESCRIPTION	AIM OF THE COURSE <ul style="list-style-type: none"> • Introduction to Building Physics and Energetic, the basic concepts of building energy, building energy calculations Basic concepts of building acoustics. • The effect of acoustic properties of building structures. • Introduction to the system of fire protection regulations. • Basics of fire protection planning. 	
RECOMMENDED LITERATURE	Andy Walker - Solar Energy: Technologies and Project Delivery for Buildings Passive Design Toolkit https://vancouver.ca/files/cov/passive-design-large-buildings.pdf National Building Energy Performance Strategy https://ec.europa.eu/energy/sites/ener/files/documents/2014_article4_hungary_en%20translation.pdf	
REQUIRED TECHNICAL APPLIANCES/ SOFTWARE	The use of mobile phones and other aids during the exams is prohibited! In the case of online education: Contact: Neptun, E-learning and E-mail. Education materials: According to E-learning Lessons: E-learning, Zoom	

SCHEDULE OF THE SEMESTER				
WEEK	LECTURE	LECTURER	FORM OF TRAINING	PROGRAM OF TRAINING
1	1.1. Lecture: Introduction to building physics.	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
	1.2. Lecture: Heat transmission through solid building boundary structures in stacioner condition			
2	2. Lecture: Basic concepts of fire protection, fire exposure tests for construction products	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
3	3.1. Lecture: Forms of moisture transmission in building boundary structures. Vapor diffusion.	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
4	4.1. Lecture: Thermal bridges	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
5	5.1. Lecture: Heat transport with solar radiation. Glazed structures	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
	5.2. Lecture: Possibilities of architectural utilization of solar energy			
6	6.1. Lecture: Heat transfer in instacioner conditions	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
7	7.1. Lecture: Levels of building energy regulation	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
8	8. Lecture: Energy certification of buildings	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
9	9.1. Lecture: Architectural utilization of passive and active solar energy. Shade structures	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
10	10. Lecture: Architectural utilization of passive and active solar energy. Shade structures	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
11	11 Lecture: Air circulation, natural ventilation.	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded

12	12. Lecture: Thermal comfort	TA	ON-SITE / ONLINE	Practical application e-mail, Neptun or e-learning, lecture material will be uploaded
13	Written exam Semester project submission		ON-SITE / ONLINE	
14	Late written exam Late semester project submission		ON-SITE / ONLINE	

REQUIREMENTS FOR THE COMPLETION OF THE SEMESTER		
MID-SEMESTER TASKS AND TESTS		
Requirement	Description	Value (point, %, grade)
PARTICIPATION AT LESSONS	The practice lessons can be missed up to three times (see § 46 ETVSZ)	-
IN CASE OF ABSENCE FROM LESSONS AND EXAMINATIONS	Absence is considered to be justified with a medical certificate presented.	-
Short description of the Semester Project	<p>Building physics calculations for building energy regulation</p> <p>Method for calculating the energy performance of a selected building. Existing status analysis:</p> <ul style="list-style-type: none"> - Selection of an existing family house (60 m2 minimum) or smaller appartement house. -Analysis of the building from energy efficiency point of view. (architectural features, windows, wall layers, solar orientation, et) U-value calculation (compliance, non-compliance) -Description and analysis of the the existing active energy systems (heating, cooling, domestic hot water, lighting, connection points to the grid) Labeling the certificate. <p>The final submission and consultation of the semester assignments can only be done electronically at the e-mail address provided by the instructors above: talamon.attila@ybl.uni-obuda.hu</p>	max. 50 points
END-OF-SEMESTER WRITTEN EXAM	End-of-semester dissertation from the topics/fields of the semester presentations. END-OF-SEMESTER DISSERTATION max. 50 points, (min. 30 points).	max. 50 points (min.30 points)
LATE END-OF-SEMESTER WRITTEN EXAM	Replacement of the written exam is possible at the end of the semester.	
TOTAL		100 points

SEMESTER CLOSING REQUIREMENTS					
CONDITIONS FOR OBTAINING A SIGNATURE	Accepted Semester Project and End-of-semester dissertation.				
CONDITIONS FOR OBTAINING AN OFFERED GRADE	The successful conclusion of the semester is the following: - the semester project is accepted and the total value is at least 35 points - the end-of-semester dissertation (possibly its replacement) at least 35 points.				
	0-60 point	61-70 point	71-80 point	81-90 point	91-100 point
	1 - FAIL	2 - PASS	3 - SATISFACTORY	4 - GOOD	5 - EXCELLENT
CONDITIONS FOR OBTAINING AN OFFERED GRADE	Conditions for admission to the exam: Accepted Semester Project and End-of-semester dissertation. (Signature) The successful offered grade conclusion of the semester is the following: - the semester project is accepted and the total value is at least 35 points - the end-of-semester dissertation (possibly its replacement) at least 35 points.				
EXAM GRADE	Conditions for admission to the exam: Accepted Semester Project and End-of-semester dissertation. (Signature)				
EXAM GRADE	0-60 points	61-70	71-80	81-90	91-100
	1 - FAIL	2 - PASS	3 - SATISFACTORY	4 - GOOD	5 - EXCELLENT