GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Energy-efficient buildings, PG_00045834		
Field of study	Civil Engineering		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2024/2025
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Building Structures and Material Engineering -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Marek Krzaczek	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	15.0	0.0	0.0	45

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	45	2.0	8.0	55

Subject objectives

The aim of the course is to learn about passive and active methods of reducing the building's demand for energy and methods of calculating the building's demand for energy.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W01] has knowledge of higher mathematics, physics and chemistry, which is a base of subjects, such as construction theory and advanced material technology	Skill of energy modeling of buildings.	[SW3] Assessment of knowledge contained in written work and projects
[K7_U06] is able to choose proper tools (measuring, analytical or numerical) to solve engineering problems, to acquire, filtrate, proces and analyse data	Knowledge of passive techniques and active reduction of energy demand of buildings.	[SU4] Assessment of ability to use methods and tools

Subject contents

Systematics of energy efficiency in buildings.

Passive techniques to reduce energy demand.

Active techniques to reduce energy demand.

Passive buildings.

Energy+ Buildings

Net-zero energy buildings.

Energy modeling of buildings.

Ways of heat accumulation: short and long-term.

Prerequisites and co-requisites

Completed course of Building Physics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Colloquium from the lecture	60.0%	50.0%
Design of an energy-efficient building	60.0%	50.0%

Recommended reading	Basic literature	Kowalczuk Z., (edited by): Charakterystyka Energetyczna Budynków, Gdańsk, 2010. Mikoś J.: Budownictwo ekologiczne. Wydawnictwo Politechniki Śląskiej, Gliwice, 1996. Feist W., Munzenberg U, Thumulla J. Podstawy Budownictwa Pasywnego, 2009.
	Supplementary literature	Klemm P.: Budownictwo Ogólne. Fizyka Budowli, Tom 2, Arkady Warszawa, 2006.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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