



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	<p>Kowalczuk Z., (edited by): Charakterystyka Energetyczna Budynków, Gdańsk, 2010.</p> <p>Mikoś J.: Budownictwo ekologiczne. Wydawnictwo Politechniki Śląskiej, Gliwice, 1996.</p> <p>Feist W., Munzenberg U, Thumulla J. Podstawy Budownictwa Pasywnego, 2009.</p>
	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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