



Subject card

Subject name and code	, PG_00060054						
Field of study	Environmental Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Sanitary Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Ewa Zaborowska					
	Teachers	dr hab. inż. Ewa Zaborowska					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	0.0	30
	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	30		5.0		19.0	54
Subject objectives	The aim of the course is to acquaint with the methodology of energy assessment of buildings, optimization of energy demand and activities towards improving the energy efficiency of buildings. Practical calculation exercises.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W11] has knowledge to analyze, evaluate and optimize processes, objects and systems of environmental engineering and knows the principles of rational energy management and resources		Has knowledge to make calculations, analyse, evaluate and optimize the energy performance of a building and knows the principles of rational energy management.		[SW3] Assessment of knowledge contained in written work and projects		
	K7_U12		Is able to analyze, in technical and economical terms, the solutions affecting energy performance of buildings		[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information		
	K7_U04		Is able to prepare and present a presentation on the implementation of the task and lead a discussion on the presentation		[SU5] Assessment of ability to present the results of task		
Subject contents	Legal regulations and policies aimed at improving the energy efficiency of buildings, ways to improve the energy performance of buildings, financial support mechanisms, energy performance certificate. Usable / final / primary energy, indicators, procedures, calculation methodology, sensitivity analysis, optimization. Practical aspects of the energy performance of buildings, preliminary exercises, other than technical conditions (CO2 emission, costs). Implementation of the analysis of the energy performance of a building, study of the impact of selected building parameters and equipment on the results, presentation of results, discussion.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test	50.0%	20.0%
	Presentations and discussion	50.0%	40.0%
	Tutorial	50.0%	40.0%
Recommended reading	Basic literature	1. Acts and regulations regarding the energy performance of buildings. 2. Energy politics of Poland. 3. National energy and climate plan. 4. National plan to increase the number of buildings with low energy consumption. 5. Standards related to the topic, set in the regulations.	
	Supplementary literature	1. Related documents, legal regulations and standards. 2. Articles in scientific and technical journals. 3. Websites of manufacturers and enterprises associated with energy, heat and fuels.	
	eResources addresses	Podstawowe https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20140001200 - Act on the energy performance of buildings Adresy na platformie eNauczanie: Ocena energetyczna budynków_ST 2023/2024 (lato) - Moodle ID: 26467 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26467	
Example issues/ example questions/ tasks being completed	Presentation in the field of theoretical background. Calculations of the energy performance of a building, variant analysis. Presentation in the scope of analysis and evaluation of results.		
Work placement	Not applicable		