



## Subject card

Subject name and code	Energy Auditing, PG_00055968						
Field of study	Power Engineering, Power Engineering, Power Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group		Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Paweł Bućko				
	Teachers		dr hab. inż. Paweł Bućko				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	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		8.0		37.0	75
Subject objectives	Student achieves the qualifications of an energy auditor.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W08] has basic knowledge in the field of intellectual property protection and patent law, knows and understands the basic processes of energy production and use, knows and understands the principles of modern heating and power systems		The student can assess the heat supply system of the building.		[SW3] Assessment of knowledge contained in written work and projects		
	[K6_U05] is able to formulate and carry out energy balances in devices and energy systems, also perform an energy audit of a simple building object, is able to perform a preliminary profitability analysis of a planned energy investment		The student is able to perform an energy audit.		[SU1] Assessment of task fulfilment		
	[K6_W07] knows the basics of economic calculus in the energy sector; knows the legal, organizational and economic principles of the functioning of energy markets, knows the basic principles of management and running a business		The student is able to calculate and use investment profitability indicators to choose the option of energy-efficient modernization.		[SW3] Assessment of knowledge contained in written work and projects		
Subject contents	Energy audit system. Role and aims of auditor work. Structure of energy audit and organization of its preparation. Organization of data collecting and analyzing processes. Data collection forms. Presentation of energy audits examples. Choosing of energy sources. Criteria of choose. Possibilities of energy source substitution. Calculation of investments costs. Complex analysis of energy conservation modernization program. Non-economic criteria for analysis of modernization effects. Environmental effects of energy conservation programs. Preparation of energy audit of the object. Estimation of energy consumption before the modernization. Proposal of energy conservation modernizations. Effectiveness analysis of implemented modernizations.						
Prerequisites and co-requisites	basis of thermal technic						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	60.0%	100.0%
Recommended reading	Basic literature	1. Górzyński J: Audytyng energetyczny. Warszawa: Fundacja Poszanowania Energii 2002.	
	Supplementary literature	1. Robakiewicz M.: Ocena cech energetycznych budynków. Fundacja Poszanowania Energii 2005.	
	eResources addresses	Adresy na platformie eNauczanie: Audytyng energetyczny [Lato][2023/24] - Moodle ID: 35868 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35868">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35868</a>	
Example issues/ example questions/ tasks being completed	1. Calculation of seasonal energy demand for heating a building.  2. Calculation of energy demand for the hot water.		
Work placement	Not applicable		