



Subject card

Subject name and code	, PG_00059971						
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 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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Environmental Engineering Technology -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Aneta Łuczkiwicz					
	Teachers	dr inż. Filip Gamoń					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	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 subject is to analyze legal standards, monitoring and analysis of environmental pollution related to energy sector. Determining the impact of pollution on the occurrence of specific diseases. Possibility of reducing emissions in the context of improving environmental quality and ensuring indoor comfort.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_U07	The student is able to plan and conduct field and laboratory research leading to the assessment of the effectiveness of the solutions used in environmental engineering			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
	[K7_U08] is able to assess risks in the implementation of engineering projects and implement appropriate safety rules	The student is able to assess threats when implementing engineering projects and implement appropriate mitigation strategy and safety rules.			[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment		
	K7_W05	The student has knowledge of the impact of construction investments on the environment			[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		
	K7_W03	The student has in-depth, structured and theoretically based knowledge related to measurement, management and environmental monitoring			[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>Lectures</p> <p>Trends in emissions of industrial pollutants related to energy sector. Legal acts referring to monitoring indoor and out-door environmental quality in energy systems. Division of sources depending on the pollutants emission and spread. Characterization of pollutants and their persistence in the environment. Costs of industrial air pollution - the impact of pollution on the occurrence of specific diseases. Ways to mitigate and eliminate pollutants emissions. Reducing industrial pollution - assessment, legislation and implementation. Public accountability - access to industrial emissions data</p> <p>Laboratories: Quality of water used in energy systems. Analysis of hygienic and sanitary conditions and the possibility of spreading microbiological factors in areas occupied by people. Methods for maintaining ventilation and air conditioning installations. Methods confirming the cleanliness of the installation</p>											
Prerequisites and co-requisites	Basis of environmental microbiology and chemistry as well as of environmental engineering											
Assessment methods and criteria	<table border="1" data-bbox="450 548 1489 651"> <thead> <tr> <th data-bbox="450 548 794 584">Subject passing criteria</th> <th data-bbox="794 548 1139 584">Passing threshold</th> <th data-bbox="1139 548 1489 584">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="450 584 794 620">laboratories - presentation</td> <td data-bbox="794 584 1139 620">40.0%</td> <td data-bbox="1139 584 1489 620">40.0%</td> </tr> <tr> <td data-bbox="450 620 794 651">Lecture - test</td> <td data-bbox="794 620 1139 651">60.0%</td> <td data-bbox="1139 620 1489 651">60.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	laboratories - presentation	40.0%	40.0%	Lecture - test	60.0%	60.0%
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Lecture - test	60.0%	60.0%										
Recommended reading	Basic literature	Wykonawczy Program Państwowego Monitoringu Środowiska										
		Informacje dotyczące systemu monitoringu jakości powietrza w Polsce										
	Supplementary literature	-										
	eResources addresses	Adresy na platformie eNauczanie:										
Example issues/ example questions/ tasks being completed	-											
Work placement	Not applicable											