



## Subject card

Subject name and code	Environmental technologies, PG_00059939						
Field of study	Environmental Engineering						
Date of commencement of studies	February 2024		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	1		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. Eliza Kulbat				
	Teachers		dr hab. inż. Eliza Kulbat				
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 purpose of the course is to familiarize students with modern technologies used in environmental protection.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K7_W03		The student has in-depth, structured and theoretically underpinned knowledge in related to measurement, management, monitoring of the environment.		[SW1] Assessment of factual knowledge		
	K7_U07		The student is able to plan and carry out an experiment or a laboratory, field or computer simulation study, leading to the evaluation of the effectiveness of applied solutions in environmental engineering.		[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject		
	K7_W07		The student has in-depth, organized, theoretically supported knowledge of municipal management, including water treatment and restoration technologies, treatment of various types of wastewater, sludge treatment.		[SW1] Assessment of factual knowledge		
	[K7_U01] can obtain information from literature, databases and other sources; can integrate the obtained information, interpret and critically evaluate them, draw conclusions, and formulate and comprehesively justify the opinions		The student is able to acquire information from literature, databases and other sources; is able to integrate obtained information, interpret and critically evaluate it, as well as draw conclusions and formulate and fully justify opinions		[SU5] Assessment of ability to present the results of task		
Subject contents	Modern technologies of soil conservation. Reclamation and improvement of degraded land,. Methods of reducing emissions of pollutants into the air and water environment. Problems of micropollution. Environmental protection in the power industry.						

Prerequisites and co-requisites	Basic information from the subjects: environmental protection, water and wastewater technology, waste and sludge management.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	presentation	60.0%	50.0%
	test	60.0%	50.0%
Recommended reading	Basic literature	Naumczyk J., Chemistry of the environment, PWN, Warsaw 2022  Scientific articles in journals related to the subject matter.	
	Supplementary literature	Duffy S.J., Chemistry of the Environment, PWN, Warsaw, 2008	
	eResources addresses	Adresy na platformie eNauczanie: Technologie w ochronie środowiska - wykłady - 2023/24 - Moodle ID: 37485 <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=37485">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=37485</a>	
Example issues/ example questions/ tasks being completed	Air emissions from coal-based power generation. Degradation of industrial sites. Land reclamation projects after the end of the exploitation of the Belchatow KWB.		
Work placement	Not applicable		

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