



Subject card

Subject name and code	, PG_00061708						
Field of study	Environmental Engineering						
Date of commencement of studies	October 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	Part-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			3.0		
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 inż. Karolina Fitobór					
	Teachers	dr inż. Karolina Fitobór					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	10.0	0.0	0.0	0.0	25
	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	25	3.0		52.0		80
Subject objectives	Presentation of issues and processes related to the sustainable development of environmental elements (soil, water, air, landscape), their protection, monitoring and restoration.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_U07	Student is able to plan and conduct a laboratory test, field research or computer simulations leading to the assessment of the effectiveness of the solutions used in environmental engineering.			[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task		
	[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 comprehensively justify the opinions	Student is able to obtain information from literature, databases and other sources; can combine the obtained information, interpret it and critically evaluate it, as well as draw conclusions, formulate opinions and fully justify them.			[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task		
	K7_W03	Student has in-depth, well-structured and theoretically based knowledge related to measurement, management, monitoring of the environment, as well as methods of protection and remediation of its elements.			[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		
	K7_W07	Student has in-depth, well-structured, theoretically based knowledge of municipal management, including water and wastewater treatment processes, air protection technologies and land reclamation.			[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>Presentation of the characteristics and methods of protection of particular environmental elements (protection of soil, water, air).</p> <p>Presentation of problems and challenges in monitoring and micropollutants removal from the environment emitted as a result of civilization development.</p>											
Prerequisites and co-requisites	knowledge in the field of environmental chemistry, environmental protection, green technologies, environmental monitoring, water and wastewater technology, air protection and monitoring											
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Subject passing criteria</th> <th style="width: 33%;">Passing threshold</th> <th style="width: 33%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>lectures</td> <td>60.0%</td> <td>60.0%</td> </tr> <tr> <td>tutorials</td> <td>60.0%</td> <td>40.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	lectures	60.0%	60.0%	tutorials	60.0%	40.0%
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Recommended reading	<p>Basic literature</p> <p>Bukowski Z., Malina G.: Praktyczne aspekty rekultywacji, rewitalizacji i remediacji. Wydawnictwo Uniwersytetu Kazimierza Wielkiego w Bydgoszczy, Bydgoszcz 2019.</p> <p>Lewandowski W., Aranowski R.: Technologie ochrony środowiska w przemyśle i energetyce. Wydawnictwo Naukowe PWN, Warszawa 2016.</p> <p>Dobrzańska B., Dobrzański G., Kiełczewski D.: Ochrona środowiska przyrodniczego. Wydawnictwo Naukowe PWN, Warszawa 2012.</p>											
	<p>Supplementary literature</p> <p>Wójcik J.: Antropogeniczne zmiany środowiska przyrodniczego Ziemi. Wydawnictwo Naukowe PWN, Warszawa 2021.</p> <p>Naumczyk J.: Chemia środowiska. Wydawnictwo Naukowe PWN, Warszawa 2017</p> <p>Chełmicki W.: Woda. Zasoby, degradacja, ochrona. Wydawnictwo Naukowe PWN, Warszawa 2012.</p> <p>Wielgosiński G., Zarzycki R.: Technologie i procesy ochrony powietrza. Wydawnictwo Naukowe PWN, Warszawa 2018.</p>											
	<p>eResources addresses</p> <p>Adresy na platformie eNauczanie: Technologie w ochronie środowiska - Moodle ID: 34265 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=34265</p>											
Example issues/ example questions/ tasks being completed	<p>Lectures:</p> <p>List the main components and pollutants of air.</p> <p>List the anthropogenic factors that cause soil erosion and suggest methods of protecting soil against erosion.</p> <p>Tutorials:</p> <p>Present/discuss the technology enabling active protection of a selected element of the environment.</p>											
Work placement	Not applicable											