



Subject card

Subject name and code	Introduction to environmental science , PG_00048776						
Field of study	Green Technologies						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study Humanistic-social subject group		
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 Analytical Chemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Kubica					
	Teachers	dr inż. Paweł Kubica					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	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		15.0	50
Subject objectives	Students are familiarized with the fundamentals about environmental issues.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W03] has a basic knowledge of soil, air and water pollutants, design and supervision of environmentally friendly technologies and technologies which do not produce waste, knows technology of cleaning and neutralization of industrial waste and wastewater management, has a basic understanding of the theoretical basis of methods and types of apparatus used in chemical analysis of environmental pollutants	The student knows issues related to environmental protection against pollution. He is able to identify sources of pollution and knows how they affect the environment. The student knows and distinguishes technologies that have an impact on the environment.			[SW1] Assessment of factual knowledge		
	[K6_K06] has awareness of the importance of non-technical aspects and effects of engineering activities, including its impact on the environment and the associated responsibility for decisions.	The student is aware of the significance of decisions made during non-technical and engineering activities on the environment.			[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice		
	[K6_U04] capable of formulating and solving design tasks in the field of environmental technology to recognize their non-technical aspects, including environmental, economic and legal. Is capable of applying the principles of occupational health and safety. Is able to make initial assessment of engineering solutions and actions	The student understands the impact of the undertaken activities on the environment and notices their environmental, economic and legal aspects. The student knows the basic principles of health and safety.			[SU2] Assessment of ability to analyse information		

Subject contents	Basic information about the environment and its components. Classifications sources of emissions to the environment due to: - Sources of emissions: - Nature of human activity - The range of the impact of emission sources. Classification of processes due to: - Degree of impact to the environment - How to eliminate the impact of technological systems on the environment. Basic information on how to waste gas, waste water treatment and utilization of by-products and waste. Presentation of the basic processes and responses, which are subject to contamination at the stage of environmental emissions. Discussion of the basic techniques of environmental protection against pollution (protection of restoration, remediation and prevention technologies, emissions). The importance of the various elements of the environment for technological processes.		
Prerequisites and co-requisites	Knowledge of the fundamentals of chemistry		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam	60.0%	100.0%
Recommended reading	Basic literature	1. J. H. Rule, Problemy nauki o środowisku, Wydawnictwo UMCS, Lublin 1994 2. B. J. Alloway, D. C. Ayres, Chemiczne podstawy zanieczyszczenia środowiska, Wydawnictwo Naukowe PWN, Warszawa, 1999 3. E. U. von Weizsacker, A. B. Lowins, L. H. Lovins, mnożnik cztery (podwojony dobrobyt – dwukrotnie mniejsze zużycie zasobów naturalnych), Wydawnictwo „Rolewski”, Toruń, 1999 4. P. O'Neill, Chemia środowiska, Wydawnictwo Naukowe PWN, Warszawa, 1997 5. A. Johansson, Czysta technologia, Środowisko- Technika- Przyszłość, WNT, Warszawa, 1997	
	Supplementary literature	1. S. F. Zakrzewski, Podstawy toksykologii środowiska, Wydawnictwo Naukowe PWN, Warszawa, 1995	
	eResources addresses	Adresy na platformie eNauczanie: Wstęp do Wiedzy o Środowisku ZT 2023/2024 - Moodle ID: 31675 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=31675	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		