



Subject card

Subject name and code		Air protection , PG_00059096						
Field of study		Environmental Engineering						
Date of commencement of studies		October 2022	Academic year of realisation of subject			2024/2025		
Education level		first-cycle studies	Subject group			Optional subject group 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		3	Language of instruction			Polish		
Semester of study		5	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. Katarzyna KołECKA				
		Teachers						
Lesson types and methods of instruction		Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
		Number of study hours	10.0	5.0	0.0	0.0	0.0	15
		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	15	1.0		34.0	50	
Subject objectives		Student gains the knowledge of the unit processes related to pollutant emissions, their transformations and technologies for their removal.						
Learning outcomes		Course outcome		Subject outcome		Method of verification		
		[K6_W04] possesses elementary knowledge in the field of land mechanics, ground science, land reclamation and geotechnics; has basic knowledge about the composition of air, water and soil, environmental pollution and processes responsible for their formation and ways to reduce them, knows the principles and organization of sustainable water management		The student has an elementary knowledge of the composition of the air, its pollutants and the processes responsible for their formation and methods of reducing them.		[SW2] Assessment of knowledge contained in presentation		
		[K6_K01] can think and act in a creative and enterprising way; can set priorities for the implementation of an individual or group task; understands the need for continuous training and professional responsibility for their activities and team		The student is able to think and act creatively, can set priorities to achieve a task, understands the need for continuous learning, and takes professional responsibility for their own work as well as for the team's activities.		[SK4] Assessment of communication skills, including language correctness		
		[K6_W13] has a structured knowledge of current legal regulations regarding environmental protection, water and construction law; knows the basics of public procurement law, patent law, intellectual property protection and labor protection		The student has knowledge regarding current legal regulations on air protection.		[SW2] Assessment of knowledge contained in presentation		
		K6_W12		The student understands the basic physical and chemical processes occurring within the atmosphere.		[SW2] Assessment of knowledge contained in presentation		

Subject contents	Chemical composition of the atmosphere. Structure of the atmosphere. Earth's energy balance. Importance of the ozone layer and greenhouse gases for Earth's inhabitants. Energy production structure in the European Union and Poland. Energy carriers physical and chemical properties. Processes occurring in the atmosphere. Types of air pollutants and their sources. Characteristics of primary pollutants. Emissions of major pollutants in Poland. Impact of selected pollutants on the environment. Protection of atmospheric air from pollution. Legal acts related to air protection. Renewable energy sources.		
Prerequisites and co-requisites	Good knowledge of subject Chemistry (SNPK07)		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Presentation	60.0%	100.0%
Recommended reading	Basic literature	[1] Falkowska L., Korzeniewski K.: Chemia atmosfery. Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego, 1995. [2] Juda-Rezler K.: Oddziaływanie zanieczyszczeń powietrza na środowisko. Warszawa: Oficyna Wydawnicza Politechniki Warszawskiej 2000. [3] Zarządzanie energią w miastach (red. Zarzycki R.), PAN Oddział w Łodzi. Komisja Ochrony Środowiska, Łódź, 2004.[4] Szklarczyk M.: "Ochrona atmosfery" Olsztyn 2001, Wyd. Uniwersytetu Warmińsko-Mazurskiego., [3] Klimiuk E., Pawłowska M., Pokój T.: "Biopaliwa. Technologie dla zrównoważonego rozwoju." Wydawnictwo Naukowe PWN, 2012	
	Supplementary literature	[1] Koniecznyński J. Ochrona powietrza przed szkodliwymi gazami. Metody, aparatura i instalacje. Wydawnictwo Politechniki Śląskiej. Gliwice, 2004.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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