GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00057778		
Field of study	Green Technologies		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	Optional subject group 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	2	Language of instruction	English
Semester of study	3	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Analytical Chemistry -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Andrzej Wasik	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	30.0	0.0	0.0	60

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	60	10.0	55.0	125

Subject objectives

Familiarize students with the basics of chemical processes occurring in the natural environment, physical chemistry of the atmosphere, water and soil. Presentation of geochemical cycles of the most important elements in the environment. Familiarization with the most important environmental pollutants, their sources and methods of detection.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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 notices non-technical, including environmental, aspects of technologies used in environmental protection. Applies the principles of occupational health and safety.	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
[K6_W02] has a basic knowledge of chemistry including general chemistry, inorganic, organic, physical, analytical, including the knowledge necessary to describe and understand the phenomena and chemical processes occurring in the environment; measurement and the determination of the parameters of these processes.	The student has basic knowledge in the field of chemistry necessary to describe and understand phenomena and chemical processes occurring in the natural environment. Knows the basics of the methods used for measuring the level of environmental pollution.	[SW1] Assessment of factual knowledge
[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 has basic knowledge in the field of soil, air and water protection against pollution and the theoretical basis of methods and types of apparatus used in the analysis of environmental pollution.	[SW1] Assessment of factual knowledge

<table>
<tr><td>Subject contents</td><td colspan="3">Atmospheric chemistry. Aquatic chemistry. Soil chemistry. Persistent organic pollutants in the environment. Carbon cycle. Nitrogen cycle. Phosphorus cycle. Oxygen and sulfur cycle. The role of the chemical elements in living organisms. Heavy metals and micronutrients. Environmental analytics. Methods of measuring the degree of pollution. Remote pollution measurement methods.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Passed course of Inorganic Chemistry</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Written exam</td><td>60.0%</td><td>70.0%</td></tr><tr><td>Laboratory reports</td><td>60.0%</td><td>30.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">1. Gary W vanLoon and Stephen J Duffy, Environmental Chemistry, Oxford University Press</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">1. S. Manahan, Environmental Chemistry, CRC Press, 2009</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3"></td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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