



## Subject card

Subject name and code	, PG_00058749						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
Education level	first-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	2	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 inż. Karolina Fitobór					
	Teachers	dr inż. Karolina Fitobór inż. Krystyna Mierzejewska dr inż. Alina Wargin dr inż. Grażyna Gałęzowska					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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		20.0		55
Subject objectives	Consolidation of general chemistry, building chemistry and environmental chemistry knowledge, acquired during lectures in the first semester of studies. Gaining the ability to identify chemical substances and performing basic chemical analyses, including qualitative tests (through practical learning about the reactivity of selected inorganic substances, i.e. elements, acids, bases and salts) and quantitative research of water and sewage parameters. Acquisition of full competence in logical planning of chemical analyzes and drawing conclusions.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W03] has a structured and theoretically founded knowledge in the field of chemistry and biology, including knowledge necessary to understand the technological processes related to water treatment, wastewater treatment, waste management and sludge management	The student has well structured and theoretically based knowledge in the field of chemistry, including the knowledge necessary to understand the technological processes related to water treatment, wastewater treatment, waste and sludge management			[SW1] Assessment of factual knowledge		
	[K6_U09] is able to use well-chosen methods and measuring devices that enable determination of basic parameters of the water treatment process and wastewater treatment; can perform simple laboratory tests leading to the assessment of water quality, pollutant load in sewage	The student is able to use properly selected methods and devices, and is able to perform simple laboratory tests on his own.			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		

Subject contents	<p>Practical issues in the field of general, inorganic, analytical and environmental chemistry (with particular emphasis on water and wastewater chemistry), which are an important basis for understanding technological processes, useful in all laboratory research. The laboratory classes cover:</p> <p>1) qualitative analysis of selected cations, anions and salts; identification of chemical compounds;</p> <p>2) quantitative analysis of selected parameters of water and sewage.</p>								
Prerequisites and co-requisites	<p>Acquisition of full theoretical knowledge in the field of chemistry (passed lectures from the first semester).</p> <p>Ability to use and apply the knowledge from lectures during practical laboratory classes.</p>								
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 528 798 555">Subject passing criteria</th> <th data-bbox="802 528 1142 555">Passing threshold</th> <th data-bbox="1147 528 1481 555">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 562 798 636">Completion of the course on the basis of pass (passed practical and theoretical parts: tests, reports)</td> <td data-bbox="802 562 1142 636">60.0%</td> <td data-bbox="1147 562 1481 636">100.0%</td> </tr> </tbody> </table>	Subject passing criteria	Passing threshold	Percentage of the final grade	Completion of the course on the basis of pass (passed practical and theoretical parts: tests, reports)	60.0%	100.0%		
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Recommended reading	Basic literature	<p>Prejzner J.: <i>Laboratorium chemii ogólnej i sanitarnej</i>. Wydawnictwo Politechniki Gdańskiej, Gdańsk 1991 /oraz pozostałe wydania/</p> <p>Prejzner J.: <i>Laboratorium chemii</i>. Wydawnictwo Politechniki Gdańskiej, Gdańsk 1994 /oraz pozostałe wydania/</p>							
	Supplementary literature	<p>Prejzner J.: <i>Chemia nieorganiczna - laboratorium</i>. Wydawnictwo Politechniki Gdańskiej, Gdańsk 2004. /oraz pozostałe wydania/</p> <p>Dojlido J., Zerbe J.: <i>Instrumentalne metody badania wody i ścieków</i>. Wydawnictwo Arkady, Warszawa 1997.</p> <p>Kowal A.L., Świdorska Bróż M.: <i>Oczyszczanie Wody. Podstawy teoretyczne i technologiczne, procesy i urządzenia</i>. Wydawnictwo Naukowe PWN, Warszawa 2007.</p>							
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Podstawy chemii - laboratorium (2022/2023) - Moodle ID: 19567  <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=19567">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=19567</a></p>							
Example issues/ example questions/ tasks being completed	Determination of selected basic qualitative and quantitative parameters of water and sewage.								
Work placement	Not applicable								