University of Gdańsk

Subject card

Subject name and code	Environmental Monitoring in Company, PG_00081035		
Field of study	Business and Environmental Technology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	Master's studies	Subject group	
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	Weronika Rozpędowska	
	Teachers	Weronika Rozpędowska	

Lesson types							
	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	8.0	0.0	0.0	8
	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	8	0.0	0.0	8

Subject objectives	
	Familiarizing students with basic information about environmental monitoring systems, in particular in Poland, the types of water, atmosphere and soil pollution, their sources and chemical methods of measuring their amounts using reference methods. Introducing students to the basics of calculations necessary for the correct interpretation of results. Developing the ability to design the analysis process and solve measurement-related problems.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BiTEMU2_U06] uses advanced methods, techniques, and tools to assess the quality of the environment and the effectiveness of the technological processes used	The student follows established analytical procedures for measurements.	[SU5] implementation of a problem task
[BiTEMU2_K02] understands the need to cooperate and work in a group, assuming responsible roles within it	The student demonstrates creativity in independent and team work.	[SK8] observation of student's independent or team work
[BiTEMU2_W11] applies safety and hygiene rules when working independently at a research or measurement station in the laboratory or in the field at an advanced level	Is responsible for the safety of his own work and that of others: he knows how to act in emergency situations, is careful when dealing with chemical substances, and is prudent when dealing with measuring equipment.	[SW5] implementation of a problem task
[BiTEMU2_W10] explains the mechanisms of unit processes used in remediation and environmental protection as well as waste management methods at an advanced level	The student identifies and recognizes the types and types of main chemical pollutants. Describes the purpose, meaning and content of environmental quality standards. Defines basic methods of environmental monitoring	[SW4] test/exam - oral or written
[BiTEMU2_K03] understands the need to properly set priorities, plan and organize tasks related to their implementation, as well as monitor and evaluate progress	Understands the need for further education.	[SK5] implementation of a problem task
[BiTEMU2_W01] describes the relationship between economics and ecological technology, their place in the system of social and exact sciences at an advanced level	The student defines basic methods of environmental monitoring.	[SW1] oral statement/ conversation/discussion
[BiTEMU2_U09] plans and performs research tasks in the field or laboratory and interprets research results on environmental protection issues	Applies basic techniques and research tools for environmental monitoring. Conducts simple measurements of selected environmental pollutants.	[SU4] test/exam - oral or written
[BiTEMU2_W09] predicts the effects of human interference in the natural environment and analyzes the impact of human activity on the quality of the environment on a local, regional and global scale at an advanced level	Describes the purpose, meaning and content of environmental quality standards. Lists the basic legal acts relevant to environmental monitoring in the enterprise	[SW2] presentation/project/paper/ report
[BiTEMU2_U08] searches, selects and analyzes the literature on environmental sciences, including scientific journals and databases, reading and understanding scientific texts in the native language and English	Uses literature and legal acts regarding environmental monitoring. Evaluates the obtained results using basic statistical tools.	[SU2] presentation/project/paper/ report
[BiTEMU2_W02] distinguishes legal and administrative mechanisms and procedures in environmental protection and interprets its international dimension at an advanced level	The student illustrates the assumptions of monitoring and interprets the research results.	[SW2] presentation/project/paper/ report
[BiTEMU2_U05] is able to give a presentation and independently prepare various specialized written works appropriate for the field studied or in the area on the border of various scientific disciplines, using basic theoretical approaches, collecting various sources of data, their description and interpretation, and drawing conclusions based on scientific literature and the results of own research work	Describes environmental monitoring issues in understandable language. Formulates opinions on basic environmental monitoring issues. Prepares a documented study of measurement results in the field of environmental monitoring in Polish.	[SU2] presentation/project/paper/ report

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<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[BiTEMU2_K07] demonstrates responsibility for the safety of one's own work and that of others, taking into account the risks resulting from the research techniques used, and creates conditions for safe work in the laboratory or in the field</td><td>The student is responsible for the safety of his own work and that of others: he knows how to act in hazardous situations, is careful when dealing with chemical substances, and is prudent when dealing with measuring equipment.</td><td>[SK8] observation of student's independent or team work</td></tr>
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<tr><td>Subject contents</td><td>preparation of samples for analysis, analysis of environmental pollution using selected techniques, including: analysistitration, UV/Vis spectroscopy, thin layer and gas chromatography</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Theoretical foundations of statistical methods, basics of chemical calculations</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Reports from each class</td><td>51.0%</td><td>50.0%</td></tr>
<tr><td>Short tests after each class</td><td>51.0%</td><td>50.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Stepnowski P., Synak E., Szafranek B., Kaczyński Z. Monitoring i analityka zanieczyszczeń w środowisku, Wydawnictwo UG, Gdańsk 2010</td></tr>
<tr><td>Supplementary literature</td><td>Staszewski R. Kontrola chemicznych zanieczyszczeń środowiska, Podstawy teoretyczne z ćwiczeniami laboratoryjnymi, Poli-technika Gdańska, Gdańsk, 1990. Namieśnik J. Metody instrumentalne w kontroli zanieczyszczeń środowiska, Politechnika Gdańska, Gdańsk, 1992. Kocjan R. Chemia analityczna. Podręcznik dla studentów. Tom 2. PZWL, Warszawa, 2000. Szczepaniak W., Metody instrumentalne w analizie chemicznej, PWN, Warszawa, 1996</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Water monitoring: pH analysis, chloride and nutrient content, quantitative analysis methodsGas chromatography: measurement of selected water contaminantsMethods of calculating pollutant concentrations and comparison to quality standards</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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