University of Gdańsk

Subject card

Subject name and code	Environmental Monitoring in Company, PG_00199739						
Field of study	Business and Environmental Technology						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2027/2028			
Education level	Master's 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	2		Language of instruction	Polish			
Semester of study	3		ECTS credits	4.0			
Learning profile	academic		Assessment form	exam			
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Magda Caban				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	7.0	0.0	8.0	15.0	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		0.0	70.0	100	
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_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	The student identifies and recognizes the types and types of main chemical pollutants. Illustrates the assumptions of monitoring and interprets research results.	[SW4] test/exam - oral or written
[BiTEMU2_U06] uses advanced methods, techniques, and tools to assess the quality of the environment and the effectiveness of the technological processes used	Applies basic techniques and research tools for environmental monitoring.	[SU4] test/exam - oral or written
[BiTEMU2_W02] distinguishes legal and administrative mechanisms and procedures in environmental protection and interprets it in depth manner	Describes the purpose, meaning and content of environmental quality standards.	[SW1] oral statement/ conversation/discussion
[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 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.	[SU1] 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. Follows established analytical procedures for measurements. Evaluates the obtained results using basic statistical tools.	[SU1] oral statement/conversation/ discussion
[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. To a basic extent, it consciously assesses the impact of human activities on the natural environment.	[SK1] oral statement/conversation/ discussion
[BiTEMU2_W10] explains in detail the mechanisms of unit processes used in remediation and environmental protection as well as waste management methods	Describes the purpose, meaning and content of environmental quality standards.	[SW4] test/exam - oral or written
[BiTEMU2_W11] has an in-depth understanding of and 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	Illustrates the assumptions of monitoring and interprets research results.	[SW1] oral statement/ conversation/discussion
[BiTEMU2_K02] understands the need to cooperate and work in a group, assuming responsible roles within it	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.	[SK1] oral statement/conversation/ discussion
[BiTEMU2_W01] provides an in-depth analysis of the relationship between economics and environmental technology, and their place within the social and natural sciences.	Lists the basic legal acts relevant to environmental monitoring in the enterprise. Defines basic methods of environmental monitoring.	[SW4] test/exam - oral or written
[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.	[SU4] test/exam - oral or written

Course outcome	Subject outcome	Method of verification
[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	Demonstrates creativity in working independently and in teams. 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.	[SK4] test/exam - oral or written

Subject contents

General information on the goals and principles of environmental monitoring, quality standards for environmental elements, methods of pollution measurements, processing of analytical data and their statistical evaluation, risk assessment and prevention of pollution

Prerequisites and co-requisites

Theoretical foundations of statistical methods, basics of chemical calculations

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Exam with open and closed questions	51.0%	100.0%

Recommended reading

Basic literature	Stepnowski P., Synak E., Szafranek B., Kaczyński Z. Monitoring i analityka zanieczyszczeń w środowisku, Wydawnictwo UG, Gdańsk 2010.
Supplementary literature	Staszewski R. Kontrola chemicznych zanieczyszczeń środowiska, Podstawy teoretyczne z ćwiczeniami laboratoryjnymi, Politechnika 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.
eResources addresses	

Example issues/ example questions/ tasks being completed

Water monitoring: methods for measuring the main physicochemical, chemical and anthropogenic parameters, water quality standards,Air monitoring: suspended dust, smog, acid rainReports on the state of environmental quality in Poland, State Environmental MonitoringMain causes of deterioration of environmental quality and methods of prevention

Work placement

Not applicable

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