GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Monitoring and Analytical Environmental Pollution, PG_00019320		
Field of study	Chemistry in Construction Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	6.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Analytical Chemistry -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marek Tobiszewski	
	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	15.0	75

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	75	5.0	70.0	150

Subject objectives

Gaining knowledge of environmental monitoring and analysis

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_K05	understands issues related to environmental quality and environmental analytics	[SK4] Assessment of communication skills, including language correctness
K6_U01	is able to use different sources of knowledge	[SU2] Assessment of ability to analyse information
K6_W08	has knowledge on techniques of monitoring of environmental quality	[SW1] Assessment of factual knowledge

Subject contents

Lecture: Different topics from modern chemical analysis

Laboratory: Application of variety of analytical protocols to determine environmental pollutants

Seminar: Presentation of the main ideas of scientific papers

Prerequisites and co-requisites

Knowledge from Analytical Chemistry

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
examination	60.0%	50.0%
laboratory tests	50.0%	30.0%
presentation assessment	60.0%	20.0%

Recommended reading	Basic literature	Pobieranie próbek środowiskowych do analizy, J. Namieśnik, J. Łukasiak, Z. Jamrógiewicz, PWN, Warszawa 1995 Fizykochemiczne metody kontroli zanieczyszczeń środowiska, praca zbiorowa pod red. J. Namieśnika i Z. Jamrógiewicza, PWN, Warszawa 1998 Przygotowanie próbek środowiskowych do analizy, J. Namieśnik, Z. Jamrógiewicz, M. Pilarczyk, L. Torres, WNT, Warszawa 2000 Pestycydy, występowanie, oznaczanie i unieszkodliwianie, praca zbiorowa pod red. M. Biziuka, WNT, Warszawa 2001 Kontrola i zapewnienie jakości wyników pomiarów analitycznych, praca zbiorowa pod red. P. Konieczki i J. Namieśnika, WNT, Warszawa 2007 Zarys ekotoksykologii, praca zbiorowa pod red. J. Namieśnika i J. Jaśkowskiego, EKO-Pharma, Gdańsk 1995
	Supplementary literature	Przygotowanie próbek środowiskowych do analizy, J. Namieśnik, Z. Jamrógiewicz, M. Pilarczyk, L. Torres, Chem. Inż. Ekol. (zeszyt specjalny), 4, S1, 3-128 (1998) New horizons and challenges in environmental analysis and monitoring, praca zbiorowa pod red. J. Namieśnika, W. Chrzanowskiego, P. Szpinek, wydawca: Centrum Doskonałości Analityki i Monitoringu Środowiskowego (CEEAM), Wydział Chemiczny PG, Gdańsk 2003 Nowe horyzonty i wyzwania w analityce i monitoringu środowiskowym, praca zbiorowa pod red. J. Namieśnika, W. Chrzanowskiego, P. Szpinek, wydawca: Centrum Doskonałości Analityki i Monitoringu Środowiskowego (CEEAM), Wydział Chemiczny PG, Gdańsk 2003 Ocena i kontrola jakości wyników analitycznych, P. Konieczka, J. Namieśnik, B. Zygmunt, E. Bulska, A. Świtaj-Zawadka, A. Naganowska, E. Kremer, M. Rompa, wydawca: Centrum Doskonałości Analityki i Monitoringu Środowiskowego (CEEAM), Wydział Chemiczny PG, Gdańsk 2004 Bioanalityka w ocenie zanieczyszczenia środowiska, praca zbiorowa pod red. W. Wardenckiego, wydawca: Centrum Doskonałości Analityki i Monitoringu Środowiskowego (CEEAM), Wydział Chemiczny PG, Gdańsk 2004
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Why extraction is performed before final determination? What is the goal of environmental tracers application? Give examples of environmental tracers. What requirements should it meet? What are processes that lead to loss of liquid sample representativeness. What are the measures to avoid them? What is speciation analysis? Explain terms: group speciation, individual speciation, screening speciation and physical speciation. Give examples. What are advantages of total parameters application over more traditional approach to monitoring? What are advantages of biomonitoring over more traditional approach to monitoring?	

Work placement	Not applicable

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