



## Subject card

Subject name and code	Environmental Management and Monitoring , PG_00048021						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2021/2022		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study Humanistic-social subject group Subject group related to scientific research in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			4.0		
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. Alina Wargin				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	20.0	0.0	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	4.0		70.0		104
Subject objectives	Acquainting with the methods of environmental management, principles and contractors of environmental monitoring						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_W08] has knowledge necessary to understand the social, economic, legal and other non-technical determinants of engineering activities and their incorporation in engineering practice	has the knowledge necessary for social understandings, economic, legal and other non-technical business conditions engineering and their put into practice engineering			[SW1] Assessment of factual knowledge		
	[K7_U08] is able to assess risks in the implementation of engineering projects and implement appropriate safety rules	is able to assess threats in the implementation of engineering projects and implement appropriate safety rules			[SU2] Assessment of ability to analyse information		
	[K7_U03] can elaborate detailed documentation presenting results of an experiment, design or research task; can prepare a paper to discuss the results	Can work out the selected ones the issue in the form of a presentation			[SU5] Assessment of ability to present the results of task		
	[K7_W03] has in-depth, structured and theoretical knowledge related to the environmental chemistry, environmental management and monitoring, or the technology and organization of installation works or measurements in environmental engineering	has a deepened, structured and founded theoretically knowledge related to chemistry environment, management and environmental monitoring; measurements in environmental engineering			[SW2] Assessment of knowledge contained in presentation		
	[K7_U01] can obtain information from literature, databases and other sources; can integrate the obtained information, interpret and critically evaluate them, draw conclusions, and formulate and comprehensively justify the opinions	can retrieve information from literature, databases and more sources; can integrate obtained information, make their interpretation and critical evaluation, and draw conclusions and formulate and exhaustively justify opinions			[SU1] Assessment of task fulfilment		

Subject contents	<p>LECTURE Evolution of environmental management methods, the principle of sustainable development, Product Life Time (LCA), Best available techniques and practices, EU Directives and Polish Regulations, Competences in the field of environmental management and monitoring, protection and monitoring of air, water and soil. TUTORIAL The concept of monitoring, types of monitoring, scope and scale of research. Integrated Monitoring Environmental Protection (ZMSP) and the State Environmental Monitoring, Principles of networking conducting water environment monitoring. Interpretation of data on the position of the water table underground and flow (inflow). Interpretation of data on water quality (composition chemical). The use of monitoring data to improve water status and optimize the economy water. Principles of creating air monitoring: measuring stations, level reports pollution. Monitoring of noise levels in urban agglomerations. Reference method calculating the spread of pollutants in the atmosphere. Principles of sustainable development in practice. Ecological home, Ecomiasto, Sustainable development in urban and rural areas. Life time products (LCA) - water and carbon footprint.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	50	50.0%	50.0%
	50	50.0%	50.0%
Recommended reading	Basic literature	<p>Cahill L.B.: Environmental Audits. Government Institutes Inc., Rockville, Maryland, USA. Nowe horyzonty i wyzwania w analityce i monitoringu środowiska. (Red.: Namieśnik J.), Chrzanowski W., Szpinek P.: Centrum Doskonałości Analityki i Monitoringu Środowiska Gdańsk 2003. Institutes Inc., Rockville, Maryland, USA. von Zharen W.M.: ISO 14000 Understanding the Environmental Standards. Government Nowe horyzonty i wyzwania w analityce i monitoringu środowiska. (Red.: Namieśnik J.), Chrzanowski W., Szpinek P.: Centrum Doskonałości Analityki i Monitoringu Środowiska Gdańsk 2003. von Zharen W.M.: ISO 14000 Understanding the Environmental Standards. Government</p>	
	Supplementary literature	regulations and legal acts, publications in the field of environmental protection and management, Reports on the state of the environment	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		