GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Geology and Hydrology, PG_00048784		
Field of study	Green Technologies		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2022/2023
Education level	first-cycle studies	Subject group	Obligatory subject group 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	4	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Microbiology -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Rafał Piątek	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	0.0	15.0	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	10.0	35.0	75

Subject objectives

The aim of the course is to learn the basic geological and hydrological processes that determine the Earth's environment.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W03] has a basic knowledge of soil, air and water pollutants, design and supervision of environmentally friendly technologies and technologies which do not produce waste, knows technology of cleaning and neutralization of industrial waste and wastewater management, has a basic understanding of the theoretical basis of methods and types of apparatus used in chemical analysis of environmental pollutants	The student has basic knowledge of the impact of natural geological processes on climate and air pollution. The student has a basic knowledge of the use of hydrology in environmental protection.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation
[K6_U05] can formulate and solve engineering tasks analytical methods, simulation as well as experimental, able to apply knowledge of basic physics and mathematics to analyze the results of experiments, is able to analyze and assess existing technical solutions	The student is able to use the knowledge of the basics of physics and mathematics to analyze issues in the field of geology and hydrology, in particular the impact of these fields on the environment.	[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task

<table>
<tr><td>Subject contents</td><td>Lectures:

• Basic concepts in hydrology.
• Catchment - its types, characteristics and role in environmental engineering.
• Processes determining the basin outflow. Water balance in the catchment.
• Specificity of urban catchments. The impact of urbanization on the basin.
• Quantitative estimation of water outflow from the uncontrolled catchments.
• Quantitative estimation of water outflow from the controlled basins. Hydrometric measurements and their meaning.
• Chemical and physical structure of minerals as an indicator of the properties of rocks that build the Earth.
• Rock types and the structure of the Earth.
• The main elements of the surface of the Earth and their genesis.
• The theory of plate tectonics: spreding, subduction, transformation faults, continental rifftogenesis, hot spots, cratonons, terranes.
• Young oceans and old continents.
• Island types depending on the mechanism of formation.
• Impact of continent distribution on Earth's climate.
• Climate changes in the geological history of the Earth.

The topics of seminars are agreed with students based on their interest in the Earth and its environment.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></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>Seminar grade</td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>Earth System History, S.M. Stamley, Freeman 1999

New views on an old planet - A history of global change, T.H. van Andel,Cambridge University Press 1994</td></tr><tr><td>Supplementary literature</td><td>No need.</td></tr><tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Examples of seminar topics:

Hydrology:

• Meteorological measurements and observations
• About problems with excess rainfall in cities.
• Green roofs in urban space
• Hydrophyte objects in cities
• Polish water resources - quantity, quality, distribution and what results from it ...
• Floods as an example of hydrological and economic phenomena
• Drought as an example of hydrological and economic phenomena
• Narew as an example of a unique river system in the world

Geology:

• Regional geology of the world e.g. New Caledonia, New Zealand, Indonesian islands, North America etc.
• Regional geology of Poland
• Causes of glaciation in the Quaternary
• Ocean Tethys - the impact of the distribution of oceans and continents on the climate
• Earth's environment - forecasts in the context of geological history
• Climate change in geological history - research methods</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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