



## Subject card

Subject name and code	Geology and Hydrology, PG_00048784						
Field of study	Green Technologies						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2021/2022		
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	dr hab. inż. Rafał Piątek dr hab. inż. Katarzyna Weinerowska-Bords					
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						
	Address on the e-learning platform: <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=9295">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=9295</a> Adresy na platformie eNauczanie: Geologia i Hidrologia - Nowy - Nowy - Moodle ID: 22436 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22436">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22436</a>						
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_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 mathematics and physics to formulate engineering tasks related to hydrology and geology.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task				
	[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 is able to use knowledge of geology and hydrology to determine the impact of human interference on the Earth's environment. The student acquires knowledge of the impact of natural geological processes and human activity on the state of the environment.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects				

Subject contents	<p>Lectures:</p> <ul style="list-style-type: none"> <li>• Basic concepts in hydrology.</li> <li>• Catchment - its types, characteristics and role in environmental engineering.</li> <li>• Processes determining the basin outflow. Water balance in the catchment.</li> <li>• Specificity of urban catchments. The impact of urbanization on the basin.</li> <li>• Quantitative estimation of water outflow from the uncontrolled catchments.</li> <li>• Quantitative estimation of water outflow from the controlled basins. Hydrometric measurements and their meaning.</li> <li>• Chemical and physical structure of minerals as an indicator of the properties of rocks that build the Earth.</li> <li>• Rock types and the structure of the Earth.</li> <li>• The main elements of the surface of the Earth and their genesis.</li> <li>• The theory of plate tectonics: spreading, subduction, transformation faults, continental riftingogenesis, hot spots, cratonons, terranes.</li> <li>• Young oceans and old continents.</li> <li>• Island types depending on the mechanism of formation.</li> <li>• Impact of continent distribution on Earth's climate.</li> <li>• Climate changes in the geological history of the Earth.</li> </ul> <p>The topics of seminars are agreed with students based on their interest in the Earth and its environment.</p>											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Subject passing criteria</th> <th style="width: 30%;">Passing threshold</th> <th style="width: 30%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Lecture grade</td> <td style="text-align: center;">60.0%</td> <td style="text-align: center;">50.0%</td> </tr> <tr> <td>Seminar grade</td> <td style="text-align: center;">60.0%</td> <td style="text-align: center;">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Lecture grade	60.0%	50.0%	Seminar grade	60.0%	50.0%
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Recommended reading	Basic literature	<p>Earth System History, S.M. Stanley, Freeman 1999</p> <p>New views on an old planet - A history of global change, T.H. van Andel, Cambridge University Press 1994</p> <p>Materiały zawarte na kursach dołączonych do przedmiotu na platformie eNauczenie.</p>										
	Supplementary literature	No need.										
	eResources addresses	<p>Geologia i Hidrologia - Nowy - Nowy - Moodle ID: 22436  <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=22436">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=22436</a></p>										
Example issues/ example questions/ tasks being completed	<p>Examples of seminar topics:</p> <p>Hydrology:</p> <ul style="list-style-type: none"> <li>• Meteorological measurements and observations</li> <li>• About problems with excess rainfall in cities.</li> <li>• Green roofs in urban space</li> <li>• Hydrophyte objects in cities</li> <li>• Polish water resources - quantity, quality, distribution and what results from it ...</li> <li>• Floods as an example of hydrological and economic phenomena</li> <li>• Drought as an example of hydrological and economic phenomena</li> <li>• Narew as an example of a unique river system in the world</li> </ul> <p>Geology:</p> <ul style="list-style-type: none"> <li>• Regional geology of the world e.g. New Caledonia, New Zealand, Indonesian islands, North America etc.</li> <li>• Regional geology of Poland</li> <li>• Causes of glaciation in the Quaternary</li> <li>• Ocean Tethys - the impact of the distribution of oceans and continents on the climate</li> <li>• Earth's environment - forecasts in the context of geological history</li> <li>• Climate change in geological history - research methods</li> </ul>											
Work placement	Not applicable											