

**Subject card**

<b>Subject name and code</b>	The basics of drilling - discussion classes, PG_00193003						
<b>Field of study</b>	Geology						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>				2028/2029	
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>				Obligatory subject group in the field of study	
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>				at the university	
<b>Year of study</b>	3	<b>Language of instruction</b>				Polish	
<b>Semester of study</b>	5	<b>ECTS credits</b>				1.0	
<b>Learning profile</b>	academic	<b>Assessment form</b>				credit	
<b>Conducting unit</b>	Department of Geophysics -> Faculty of Oceanography and Geography -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr Robert Sokołowski				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	15		1.0		9.0	25
<b>Subject objectives</b>	Knowledge of basic drilling terms, applied techniques and applications in various aspects of the geologist's work. Knowledge of drilling methods in exploration geology, hydrogeology and engineering geology. Familiarisation with drilling documentation and geological-technical design of a borehole. Knowledge of the main trends in the development of drilling techniques, aspects of environmental protection, prevention of accidents in the drilling process.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GEOLL3_W08] knows the basic principles of occupational health and safety, legal regulations conditioning geological and engineering activities	knows the basic principles of occupational health and safety, legal regulations conditioning the supervision of the drilling process	[SW2] presentation/project/paper/report
	[GEOLL3_W02] knows and understands the terminology appropriate in science and natural sciences	knows and understands terminology appropriate to the drilling industry	[SW2] presentation/project/paper/report
	[GEOLL3_U04] is able to use specialized computer software and mathematical and statistical methods in the analysis of geological data	is able to use specialised computer software and mathematical and statistical methods in the analysis of drilling data	[SU1] oral statement/conversation/discussion
	[GEOLL3_U10] is able to work individually and cooperate in laboratory and field groups performing various functions in them and performing various tasks	is able to work individually as well as collaboratively in laboratory and field groups performing a variety of functions and tasks in the design and supervision of geological boreholes	[SU2] presentation/project/paper/report
	[GEOLL3_W06] knows statistical and IT tools as well as the principles of preparing engineering and geological documentation and cartographic materials	is familiar with statistical and computer tools as well as with the principles of drafting and designing geological boreholes	[SW2] presentation/project/paper/report
	[GEOLL3_U01] is able to apply basic measurement and analytical techniques in the field and in the laboratory, plans to conduct research and measurements	is able to apply basic measuring and analytical techniques during geological drilling, plan geophysical and laboratory research and measurements	[SU2] presentation/project/paper/report
[GEOLL3_K01] is willing to plan and implement, individually or as a team, the next stages of the entrusted task, take responsibility for its results, effectively cooperate in the team by performing various roles in it	is able to plan and carry out, individually or in a team, the successive phases of the design and supervision of a geological drilling, to take responsibility for the results, to work effectively in a team in a variety of roles	[SK2] presentation/project/paper/report	
Subject contents	<p>Subject of research, basic concepts.  Ship, percussion and rotary drilling technology.  Basic types of drilling equipment.  Drilling process, types of drilling mud, hole casing and borehole geophysics.  Design and geological supervision of drilling operations.  Land and offshore drilling, tunnelling.  Protection, operation and rehabilitation of boreholes.  Drilling accidents, protection methods, rescue technologies.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written work	51.0%	100.0%
Recommended reading	Basic literature	<p>Szostak L., 1989. Wiertnictwo . Wydawnictwa geologiczne.</p> <p>Bielewicz D., 2009. Płyny wiertnicze. UWND AGH. Kraków.</p> <p>Gonet A., Stryczek S., Rzyczniak M., 2004. Projektowanie otworów wiertniczych. Zadania z rozwiązaniami. UWND AGH. Kraków.</p> <p>Gonet A., Macuda J., 1995. Wiertnictwo hydrogeologiczne. Wydawnictwo AGH. Kraków.</p> <p>Gonet A., Zięba A., Wójcik M., Pawlikowska J., 2007. Wiercenia rdzeniowe. UWND AGH. Kraków.</p> <p>Stryczek S.,Gonet A., Rzyczniak M., 2017. Projektowanie głębokich otworów wiertniczych. Wydawnictwa AGH. Kraków.</p>	

	Supplementary literature	<p>Stryczek S., Gonet A., Rzyczniak M., 2018. Technologia cieczy wiertniczych. AGH. Wydawnictwa AGH. Kraków.</p> <p>Szostak Ł., Chrząszcz W., Wiśniowski R., 1996. Narzędzia wierzące. Wydawnictwa AGH. Kraków.</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	<p>Types of drilling mud</p> <p>Principles of use of grit and drill bits</p> <p>Types of drill hole protection</p>	
Work placement	Not applicable	

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