



## Subject card

Subject name and code	Geotechnics, PG_00042897						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2021/2022		
Education level	first-cycle studies		Subject group		Optional subject group Subject group related to scientific research 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	Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Angelika Duszyńska				
	Teachers		dr inż. Angelika Duszyńska				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	15.0	0.0	45
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie:						
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	45		5.0		35.0	85
Subject objectives	The aim of the course is to familiarize students with geotechnical design.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_K02] understands the need to formulate and communicate to the public information and opinions on the achievements of environmental engineering and other aspects of the sanitary industry engineer's activity; is aware of the importance and understands the non-technical aspects and effects of engineering activities; makes efforts to provide such information and opinions in a widely understandable way, presenting different points of view		The student understands the non-technical aspects and effects of activities in the field of geotechnical engineering, sanitary structures foundations		[SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work		
	[K6_W04] possesses elementary knowledge in the field of land mechanics, ground science, land reclamation and geotechnics; has basic knowledge about the composition of air, water and soil, environmental pollution and processes responsible for their formation and ways to reduce them, knows the principles and organization of sustainable water management		Students using the knowledge of soil mechanics distinguishes types of subsoil. He knows how to improve soft soils. He knows the principles of sustainable management of ground resources.		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	[K6_U16] can, when formulating and solving engineering tasks in environmental engineering, evaluate, select and apply appropriate methods and tools, recognize their non-technical aspects, including environmental, economic and legal aspects		The student is able to solve geotechnical problems in environmental engineering, select and apply appropriate methods of design and construction of objects		[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject		

Subject contents	Geotechnical conditions of building foundation. Excavations – construction, walls, drainage. Slope stability – landslides, retaining structures. Geosynthetics in civil and environmental engineering. Direct foundations – types, design principles, construction. Pile foundations – types of piles, design principles, construction. Soil improvement – methods and range of applications. Non-excavation technologies of underground pipes. Landfills - construction and reclamation. Foundation problems of selected sanitary structures		
Prerequisites and co-requisites	Knowledge of soil mechanics		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test on lectures	55.0%	40.0%
	project	60.0%	60.0%
Recommended reading	Basic literature	EN 1997-1 Eurocode 7: Geotechnical design. Part 1: General rules.	
	Supplementary literature	-	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>- Checking the Limit States: UPL and GEO,</p> <p>- Checking the serviceability limit state (SLS)</p> <p>and pipeline in cohesive soil, checking the slopes stability in construction stage</p>		
Work placement	Not applicable		