



Subject card

Subject name and code	, PG_00069777						
Field of study	Transport						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
Education level	second-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Geotechnical and Hydraulic Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Angelika Duszyńska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	15.0	0.0	45
	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	45		0.0		0.0	45
Subject objectives	Acquiring knowledge, skills and competencies related to solving geotechnical problems in transport engineering.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K101] acknowledges the importance of knowledge related to the field of study in solving cognitive and practical problems, critically assessing the information obtained		The student recognizes the importance of geotechnical knowledge in transportation engineering.		[SK5] Assessment of ability to solve problems that arise in practice		
	[K7_W101] is able to make an in-depth identification of key objects and phenomena related to the field of study, as well as theories that describe them and applicable analytical and design methods		The student identifies areas of difficult geotechnical situations and selects appropriate techniques for the safe foundation of transport infrastructure facilities.		[SW3] Assessment of knowledge contained in written work and projects		
	[K7_U101] is able to formulate complex research problems and adopts appropriate methods, obtaining innovative solutions, cooperating with other people, both as a leader and a team member		Student formułuje problemy geotechniczne i dobiera właściwe metody ich rozwiązywania (wzmacnianie gruntu, zabezpieczanie stateczności skarp, wykorzystanie geosyntetyków).		[SU2] Assessment of ability to analyse information		
Subject contents	Course content – lecture						
	Identification of water and soil conditions. Stability of slopes and embankments. Subgrade reinforcement. Fundamentals of geotechnical design. Geosynthetics in earth structures. Underground construction.						
	Course content – exercises						
	Identification of rocks, soils, and geosynthetics. Geotechnical calculations - SLS and ULS analyses.						
	Course content – project						
	Soil reinforced structure with geosynthetics - calculation of external and internal stability - according to EBGEO and BS8006 recommendations						
Prerequisites and co-requisites	Basics of civil engineering (including soil mechanics).						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	lecture test	60.0%	30.0%
	exercise report	60.0%	30.0%
	project	60.0%	40.0%
Recommended reading	Basic literature	- Bzówka J. i inni: Geotechnika komunikacyjna. Wydawnictwo Politechniki Śląskiej. 2015. - Eurokod 7. Projektowanie geotechniczne. - Wiłun Z.: Zarys geotechniki. Wydawnictwo Komunikacji i Łączności, Warszawa 2013. - Gonet A., Stryczek S.: Podstawy geoinżynierii. Wydawnictwo AGH. Kraków 2021 - Urbański (red.): Podstawy projektowania geotechnicznego. Wprowadzenie do nowych technologii w geotechnice, Wyd. Politechniki Krakowskiej, 2016	
	Supplementary literature	- AGH, PG, PIG-PIB, IBDIM: Wytyczne doboru rozwiązań geotechnicznych wzmacniania podłoża gruntowego w budownictwie drogowym. RID II. 2025 - BS 8006:2010. Code of practice for strengthened/ reinforced soils and other fills. - EBGEO: Recommendations for Design and Analysis of Earth Structures using Geosynthetic Reinforcements, Ernst W. & Sohn Verlag. 2011 - Duszyńska A.: Wymiarowanie konstrukcji oporowych z gruntu zbrojonego geosyntetykami. Materiały dydaktyczne dla studentów. Politechnika Gdańska. 2025	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Identification of water and soil conditions. Subsoil investigations (laboratory and insitu). Identification of difficult geotechnical situations. Landslide processes. Slope and embankment stability (calculation, protection). Selection of techniques for soft soil improvement. Geotechnical design. Earth structures. Geosynthetics in transportation engineering. Underground construction. Excavation and trenchless technologies.		
Practical activities within the subject	Not applicable		

Document generated electronically. Does not require a seal or signature.