

於。GDAŃSK UNIVERSITY 奶 OF TECHNOLOGY

Subject card

Subject name and code	, PG_00048185								
Field of study	Civil Engineering								
Date of commencement of studies	October 2020		Academic year of realisation of subject			2022/2023			
Education level	first-cycle studies		Subject group			Obligatory subject group in the field of study			
						Subject group related to scientific research in the field of study			
Mode of study	Part-time studies		Mode of delivery			at the university			
Year of study	3		Language of instruction			Polish			
Semester of study	5		ECTS credits			4.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Department of Geotechnics, Geology and Marine Civil Engineering -> Faculty of Civil and Environmental Engineering								
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Adam Krasiński							
	Teachers		dr inż. Paweł Więcławski						
		dr hab. inż. Adam Krasiński							
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	:t	Seminar	SUM	
of instruction	Number of study hours	15.0	5.0	0.0	10.0		0.0	30	
	E-learning hours included: 0.0								
	Address on the e-lear	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=15167							
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	n didactic ed in study	Participation i consultation h	Participation in consultation hours		udy	SUM	
	Number of study hours	30		7.0		63.0		100	
Subject objectives	Knowledge and skills in the field of construction and design of the foundations of shalow and on piles. Knowledge of methods of foundation design and ground improvement. Preparation for independent work as an engineer and education at the second level of study.								
Learning outcomes	Course out	Subject outcome			Method of verification				
	[K6_U07] Can design and properly dimension basic elements of construction or basic foundations of general, hydrotechnical and bridge constructions		Student is able to design typical shallow and pile foundations, retaining structures and sheet pile walls.			[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools			
	[K6_K01] is aware of necessity of professional and personal competences improvement; complements and broadens his knowlege about modern processes and technologies		Student is aware of the need to raise qualifications and knowledge in the field of foundation and geotechnical engineering.			[SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work			
	[K6_U09] can read architectural, geodetical and construction drawings, is able do prepare engineering drawing using selected CAD software		Student is able to make and read drawings of typical foundations and geotechnical constructions; can use the documentation of ground investigations.			[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject			
	[K6_W08] knows the codes of modern geotechnical investigations and technologies, knows the principles of foundations and safe design of foundations of typical buildings		Student has knowledge of the field performance and design shallow and deep foundations; has skills of significant geotechnical problems identification.			[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects			

Subject contents	LECTURE: Introduction to geotechnical design, geotechnical categories. The division and classification of foundations. Shallow foundations: strip, foot, grid, plate foundations. Ultimate limit states(ULS) and serviceability limit states (SLS). Retaining walls: types, principles calculations. Pile foundation: technologies, bearing capacity and settlement calculations, control methods. Determination of internal forces in the largesized and pile foundations systems. Sheet piling and diaphragm walls, technology, static scheme, calculations, anchorage. Construction of the shallow foundations, protection of excavations, drainage base of foundations. EXERCISES: Determination of loads and static calculations of foundations and retaining structures.							
	PROJECT: Retaining wall based on shallow or piles. Sheet piling once anchored.							
Prerequisites and co-requisites	Knowledge of the Soil Mechanics, Basic Mechanics, Building Materials							
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade					
	Exam	55.0%	40.0%					
	Activity at lectures	0.0%	10.0%					
	Projects	60.0%	50.0%					
Recommended reading	Basic literature	 Wiłun Z.: Zarys geotechniki, WKŁ, Warszawa. Dembicki E. i inni: Fundamentowanie, t. I i II, Arkady, Warszawa 1988. Puła O., Rybak C., Sarniak W.: Fundamentowani e. Projektowanie posadowień. DWE, Wrocław 1999. Motak E.: Fundamenty bezpośrednie. Wzory, tablice, przykłady. Arkady, Warszawa 1988. Jarominiak: Lekkie konstrukcje oporowe. WKŁ, Warszawa 2000. Kobiak J., Stachurski W.: Konstrukcje żelbetowe. Arkady, Warszawa 1989. 						
	Supplementary literature	PN-EN 1997-1:2008, Eurokod 7. Projektowanie geotechniczne. Zasady ogólne. Czasopisma: Inżynieria Morska i Geotechnika, Inżynieria i Budownictwo, Geoinżynieria i Tunelowanie"						
	eResources addresses	Podstawowe https://enauczanie.pg.edu.pl/moodle/course/view.php?id=15167 - Materials and teaching aids for lectures and projects. Uzupełniające Adresy na platformie eNauczanie: Fundamentowanie - niestacjonarne - 22_23 - Moodle ID: 24003 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=24003						
Example issues/ example questions/ tasks being completed	Types of soil conditions and geotechnical categories. Geotechnical documentation. Classification of shallow and deep foundations and retaining structures. Bearing capacity and settlement of subsoil under shallow foundations. Static calculation of retaining walls and sheet pile-walls. Pile technologies. Calculation and design of pile foundations. Methods for lowering the groundwater table. Methods of reinforcing the soil foundation and existing foundations. The use of geosynthetics in geotechnics and foundation technology. Design a retaining wall. Design a sheet piling.							
Work placement	Not applicable							