



Subject card

Subject name and code	Foundation Engineering, PG_00044006						
Field of study	Civil Engineering						
Date of commencement of studies	October 2021		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	Full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	4		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Adam Krasieński				
	Teachers		dr hab. inż. Adam Krasieński dr inż. Witold Tisler dr inż. Paweł Więclawski dr inż. Krzysztof Szarf dr inż. Marzena Wójcik dr inż. Jakub Konkol dr inż. Rafał Ossowski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	15.0	0.0	75
	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	75		7.0		43.0	125
Subject objectives	Knowledge and skills in the field of construction and design of the foundations of shallow and on piles. Knowledge of modern methods of foundation design using computer methods. Acquiring the ability to identify the relevant geotechnical problems.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_K01] is aware of necessity of professional and personal competences improvement; complements and broadens his knowledge about modern processes and technologies	Student is aware of the need to study current specialist literature in the field of geotechnics and foundations, as well as become familiar with new calculation methods and techniques of geotechnical constructions.	[SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work [SK2] Assessment of progress of work
	[K6_U07] Can design and properly dimension basic elements of construction or basic foundations of general, hydrotechnical and bridge constructions	Student can design a typical foundations for objects of general construction, sited on shallow and on pile foundations.	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject
	[K6_U09] can read architectural, geodetical and construction drawings, is able to prepare engineering drawing using selected CAD software	Student has knowledge in the field of reading, analyzing and using engineering documentation. He knows modern methods of foundation design using computer techniques for creating drawings.	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [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	The student is able to examine and assess soil conditions and select the appropriate method of foundation of the object, strengthening the soil, design typical foundations for objects of general civil engineering and other geotechnical structures.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
Subject contents	Fundamentals of geotechnical design geotechnical categories. The division and classification of foundations. Foundations Direct: benches, foot plates, grates, calculating the bearing capacity, the equilibrium conditions, the stability of the overall design and construction. Retaining walls: types, principles calculations. Pile Foundations: technology, capacity and settlement calculations, methods of control. Determination of internal forces in a large-size foundations and piling regimes. Sheet piling and diaphragm, technology, static diagrams, calculations, anchorage. Execution of direct foundations, securing excavation, dewatering trenches base fundamentowych. Wybrane amplification of the ground.		
Prerequisites and co-requisites	Completion of the course: -Soil Mechanics -general mechanics -technical drawing -basis of general construction, construction of reinforced concrete and steel.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written exam	55.0%	30.0%
	Project	60.0%	30.0%
	Activity during lectures	0.0%	10.0%
	Exercises	55.0%	30.0%
Recommended reading	Basic literature	1. Witun Z., Geotechnics, WKŁ, Warsaw, 2004 2. Jarominiak A.,: Light retaining structures, Warsaw, Arkady 2002 3. Gwizdała K., Pile foundations. T1. 2011, T2. 2013, PWN Warsaw	
	Supplementary literature	1. Puła O., Rybak C., Sarniak W.: Foundation. Design of foundations. DWE, Wrocław 1999 2. Starosolski W., Reinforced concrete structures, T2., PWN, Warsaw 1996 3. Magazines "Marine Engineering and Geotechnics" 4. Magazines "Engineering and Construction" 5. Materials prepared as part of the didactic innovation "Consult the project with an industry specialist".	
	eResources addresses	Adresy na platformie eNauczanie:	

<p>Example issues/ example questions/ tasks being completed</p>	<ul style="list-style-type: none"> • Definition of the ground according to EC7, national experiences? • Load capacity of the ground in terms of the drain and undrain? • The use of geotechnical parameters of strength and deformation? • Calculating of retaining walls, various? • Piling - static diagrams, calculation? • Modern technologies of deep foundations (piles, baret)
<p>Work placement</p>	<p>Not applicable</p>