



Subject card

Subject name and code	Soil Mechanics, PG_00044004						
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	3		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Adam Szymkiewicz				
	Teachers		dr inż. Katarzyna Staszewska dr inż. Witold Tisler dr inż. Paweł Więclawski dr inż. Jakub Konkol prof. dr hab. inż. Adam Szymkiewicz dr inż. Rafał Ossowski mgr inż. Mateusz Wiszniewski dr inż. Kamila Mikina				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	15.0	0.0	0.0	60
	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	60		5.0		35.0	100
Subject objectives	Presentation of the basics of the mechanical behaviour of soils, acting as a base for engineering structures and as a construction material.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W07] has basic knowlede on natural processes (hydrological, hydraulical or geological) and its influence on building subsoil; understands specific aspects of surface and underground water, which constraints the design and exploitation of buildings and engineering objects	Student is familiar with various forms of groundwater and their influence on the physical and mechanical properties of soils. Student is able to asses the hazards to engineering structures, caused by water seepage and pore pressure in soils.	[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
	[K6_U03] can analyze simple rod constructions in scope of: calculations of constructions statically determined and undetermined; determining of modal frequencies; calculations of linear stability and bearing capacity in critical and boundary states	Student is able to perform basic assessments of slope stability, ground stability below foundation and the interaction between ground and retaining walls in a limit state.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
	[K6_U02] is able to define basic calculation models used in computer calculations	Student is able to define the basic mechanical models describing soil behavior (elastic and plastic models)	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
	[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 knows the basics of bearing capacity and settlement calculations under shallow footings. Student knows the basic methods of ground investigations.	[SW2] Assessment of knowledge contained in presentation
Subject contents	Origin and classification of soils. Physical properties. Water in soils. Stress in soils. Compressibility, consolidation, settlement. Shear strength of soils. Stability of slopes. Earth pressure. Bearing capacity of shallow foundations. Ground investigation.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	evaluation tests including calculations and theoretical questions	55.0%	100.0%
	laboratory exercises and reports	100.0%	0.0%
Recommended reading	Basic literature	Lecture notes available on eNauczenie webpage	
	Supplementary literature	Z. Witun: Zarys geotechniki, multiple editions S. Pisarczyk: Mechanika gruntów, multiple editions An application that includes three-dimensional models of laboratory equipment.	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed	Calculating the distribution of geostatic stress and stress from external loads. Calculation of the settlement of embankments or foundations and its evolution in time. Calculation of the earth pressure acting on retaining structures. Calculating bearing capacity of shallow foundation.		
Work placement	Not applicable		