GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Soil mechanics and soil science, PG_00042879		
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	Obligatory subject group 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	2.0
Learning profile	general academic profile	Assessment form	assessment
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 inż. Krzysztof Szarf	
	Teachers	dr inż. Krzysztof Szarf dr inż. Witold Tisler mgr inż. Mateusz Wiszniewski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	0.0	0.0	30

E-learning hours included: 0.0

Adresy na platformie eNauczanie:
Mechanika Gruntów i Gruntoznawstwo - stacjonarne zima 2021/2022 - Moodle ID: 13589
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=13589

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	30	5.0	20.0	55

Subject objectives

The aim of the class is to tech the students basics of soil mechanics and soil classification.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	Student learnt soil mechanics in the scope of the course Student learnt soil classification in the scope of the course Student is knowledgeable about geotechnical problems	
[K6_K01] can think and act in a creative and enterprising way; can set priorities for the implementation of an individual or group task; understands the need for continuous training and professional responsibility for their activities and team	Student is aware of the role of soil in the engineering tasks Student is able to work in the laboratory in a team	

Subject contents	Lectures: 1. Introduction to soil mechanics 2. Water in soil 3. Filtration. Freezing of soils 4. Stresses in soil 5. Compressability of soil 6. Strength of soils -- shear strength 7. Bearing capacity of shallow foundations 8. Consolidation 9. Lateral stresses in soil: earth pressure 10. Geotechnical failures. Soil reinforcement 11. Stability of slopes Laboratory classes: 1. Macroscopic tests on coarse soils and on fine soils 2. Physical quantities of coarse soils 3. State of coarse soils -- density index 4. State of fine soils -- consistency limits 5. Filtration 6. Granulometric curve of a coarse soil 7. Experiment with the Proctor apparatus 8. Experiments with the oedometer 9. Soil strength testing using the triaxial apparatus and the direct shear apparatus
Prerequisites and co-requisites	Basic knowledge of classical mechanics, mathematics, geology

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
laboratory work passed	100.0%	50.0%
test	45.0%	50.0%

Recommended reading

Basic literature	Arnold Verruijt, Soil Mechanics, TU Delft, 2012
Supplementary literature	Braja M. Das, Fundamentals of Geotechnical Engineering, Cengage Learning, 2012
eResources addresses	Mechanika Gruntów i Gruntoznawstwo - stacjonarne zima 2021/2022 - Moodle ID: 13589 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=13589

Example issues/ example questions/ tasks being completed	Lectures: Give a typical value of particle density of soil Name the basic law describing the shear strength of soil What quantities are used in Darcy's Law? Laboratory: To perform every test in the laboratory. Prepare a lab report for each test. Test.
Work placement	Not applicable