GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Fundamentals of buildings, PG_00044590		
Field of study	Transport		
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
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	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Geotechnical and Hydraulic Engineering -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Więcławski	
	Teachers	dr inż. Paweł Więcławski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	15.0	0.0	45

E-learning hours included: 0.0

Additional information:
LECTURE: Distance learning classes in the form of webinars conducted on the PG e-Learning teaching platform.

PROJECT: On-site classes.

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	5.0	25.0	75

Subject objectives

1. To familiarise students with the basic building materials, the main building structures and elements such as foundations, walls, ceilings, floors, roofs.
2. To present design methods in accordance with current regulations and European standards.
3. To show the direct relationship between transport and construction; taking into account the logistics of the construction process.
4. To familiarise students with the specifics of specialised transport infrastructure construction.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W12] has basic knowledge of the design and construction of transport infrastructure	To acquire skills in the design of engineering construction systems for transport infrastructure and to acquire skills in reading and understanding documentation, construction drawings, static-strength calculations, technical description.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K6_U10] able to carry out simple engineering tasks related to the construction and operation of a selected element of the transport system, select the right methods and tools, select the right technical parameters for an object to be designed including economic and environmental aspects	The student will be able to design a simple direct foundation according to current regulations and standards. He/she will check the bearing capacity of the foundation under conditions with and without drainage according to Eurocode 7 and settlement under the service condition of the building. The student will be able to collect the loads acting on the walls of a multi-storey building and check their load-bearing capacity.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject

Subject contents

1. Definition of construction, building, structure, small architecture. Presentation of the main branches of material economy production. Presentation of different branches of construction.
2. Review of laws, regulations and standards used in the design process of various construction objects.
3. Introduction to the issues related to the ground: strength parameters, deformation parameters; physical characteristics of the ground.
4. Types and principles of foundation design. Design procedures according to Eurocode 7.
5. Overview of building materials used in general construction.
6. Characteristics of basic construction elements: roofs, walls, insulation.
7. Characteristics of actions acting on different structures.
8. Verification of the load-bearing capacity condition of selected structural elements.
9. Eco-construction, or the use of waste in transport infrastructure construction.
10. Introduction to hydraulic engineering construction. Types of hydraulic engineering structures.
11. Maritime and coastal construction.
12. Land, water, air transport and the logistics of the construction process.
13. Characteristics and design principles of vertical and horizontal transport for construction.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project of the direct foundation.	50.0%	25.0%
Inter-window pillar design.	50.0%	25.0%
Passing the theoretical part.	50.0%	50.0%

Recommended reading

Basic literature

1. Z. Wiłun, Zarys Geotechniki. Wydawnictwo Komunikacji i Łączności, Warszawa 2013
2. J. Panas, Nowy poradnik majstra budowlanego. Arkady, Warszawa 2003r.
3. PN-EN 1997-1:2008, Eurokod 7: Projektowanie geotechniczne- Część 1: Zasady ogólne.
4. PN-B-03002:2007 Konstrukcje murowe. Projektowanie i obliczanie.

Supplementary literature

1. Gwizdała K.: Fundamenty palowe. Technologie i obliczenie. Wydawnictwo naukowe PWN, 2011.
2. PN-EN 1996-1-1:2005. Eurokod 6 - Projektowanie konstrukcji murowych - Część 1-1: Reguły ogólne dla zbrojonych i niezbrojonych konstrukcji murowych,
3. PN-EN 1996-2:2006. Eurokod 6 - Projektowanie konstrukcji murowych - Część 2: Wymagania konstrukcyjne, dobór materiałów i wykonanie muru,
4. PN-B-12020:1997 Pokrycia dachowe ceramiczne Dachówki i gąsiory dachowe,

eResources addresses

Adresy na platformie eNauczanie:

PODSTAWY BUDOWNICTWA - Transport sem. III, studia stacjonarne I stopnia -inżynierskie. - 2022/23 - Moodle ID: 21845
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21845

Example issues/ example questions/ tasks being completed

1. Technical definition of building.
2. What is a small architecture object?
3. What is the difference between a foundation footing and a foundation slab?
4. What is the dynamic load of piles?
5. List the types of vertical insulation of foundation walls.
6. What is keramzite and what is its use in construction?
7. Give the advantages and disadvantages of ceramic tiles.
8. What is a sheet piles wall and what is its application?
9. List the methods of foundation of offshore wind turbines.

Work placement

Not applicable