GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00069226		
Field of study	Technologie budowy obiektów wielogabarytowych		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Engineering Structures -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Arkadiusz Sitarski	
	Teachers	dr inż. Arkadiusz Sitarski dr inż. Paweł Piotrkowski mgr inż. Maciej Malinowski	

Lesson types

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

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=2186

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	10.0	70.0	125

Subject objectives

The goal of the course is to provide fundamental knowledge on the construction of large-scale building structures. It covers, among other things: tunnels, dams, high-rise buildings, bridges, wind farms, including offshore wind farms.
The creation of structures whose size and internal forces are significantly greater than those in general construction requires a specific approach to design and the use of appropriate techniques for their creation, often involving the use of specialized materials for their implementation. The course aims to present several examples of such structures and a few areas with which engineers must contend, both during the design phase and the construction process.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K04] Engages in independent lifelong learning and individually follows the development of science and technology in the field of civil engineering.	Able to identify challenges in the construction of large-scale structures.	[SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce
[K6_K03] Can effectively, clearly and unambiguously convey information, describe activities and communicate their results/ outcomes to engineers or a wider audience using appropriate communication methods and tools.	Familiarization with structures constructed from large-scale elements, as well as structures made from smaller components whose final dimensions are significant.	[SK2] Ocena postępów pracy [SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce

Subject contents

Course content – lecture
Construction of tunnel and dam structures
Implementation of bridge structures in difficult terrain conditions
High-rise buildings
Challenges in the construction of onshore and offshore wind farms
Soil strengthening and consolidation for temporary works
Course content – exercises
Introduction to prestressed structures
Issues related to shrinkage and heat dissipation from the hydration of massive concrete elements
Problems associated with welding large structural components (fatigue)

Prerequisites and co-requisites

The student should have basic knowledge of reinforced concrete and steel structures, as well as in analyzing the bearing capacity of soil foundations.

<table>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Homework</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">The literature will be presented on an ongoing basis by the instructors during the course.</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">The literature will be presented on an ongoing basis by the instructors during the course.</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Design of prestressed structural sections according to PN and EN standards
Calculation of shrinkage reinforcement
Selection of formwork systems
Assessment of soil bearing capacity</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="3">Meetings with representatives of companies involved in construction projects.</td></tr>
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