



Subject card

Subject name and code	, PG_00069226						
Field of study	Civil Engineering						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2026/2027		
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						
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] Assessment of ability to solve problems that arise in practice		
	[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.		[SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work		
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 <u>Problems associated with welding large structural components (fatigue)</u>						
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.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Homework		50.0%		100.0%		

Recommended reading	Basic literature	The literature will be presented on an ongoing basis by the instructors during the course.
	Supplementary literature	The literature will be presented on an ongoing basis by the instructors during the course.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Design of prestressed structural sections according to PN and EN standards Calculation of shrinkage reinforcement Selection of formwork systems Assessment of soil bearing capacity	
Practical activities within the subject	Meetings with representatives of companies involved in construction projects.	

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