



Subject card

Subject name and code	Building Structures and Technologies for Architects, PG_00071467						
Field of study	Architecture						
Date of commencement of studies	October 2026		Academic year of realisation of subject			2026/2027	
Education level	second-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			blended-learning	
Year of study	1		Language of instruction			Polish	
Semester of study	1		ECTS credits			2.0	
Learning profile	general academic profile		Assessment form			assessment	
Conducting unit	Department of Technical Fundamentals of Architectural Design -> Faculty of Architecture -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		mgr inż. Tomasz Zybala				
	Teachers		dr inż. Małgorzata Gordziej-Zagórowska				
			dr inż. Patryk Deniziak				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	15.0	0.0	0.0	0.0	35
	E-learning hours included: 20.0						
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	35		4.0		11.0	50
Subject objectives	introducing students to large-span building structures, familiarising students with simple methods for selecting cross-sections of large-span load-bearing elements, teaching modern timber construction technologies						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_U04] is able to use analytical methods to formulate and solve project tasks, present the theoretical background and justification of the presented solutions in the form of a scientific study	can use analytical methods to formulate and solve design tasks	[SU4] Assessment of ability to use methods and tools
	[K7_W01] knows and understands construction, building and engineering issues related to building design; principles, solutions, constructions and building materials used in performing complex engineering tasks in the field of architectural and urban design	knows and understands advanced issues of construction and engineering, including key, complex issues in architectural, urban and planning design; knows the solution of constructional problems, connected from projecting the buildings the and building; applied the principal,, constructional solutions, in range of possibility of use concrete building materials, near executing of folded building projects	[SW3] Assessment of knowledge contained in written work and projects
	[K7_W05] knows and understands issues related to architecture and urban planning in the context of the multi-discipline nature of architectural and urban design as well as the need to cooperate with other specialists; legal provisions and procedures necessary for the implementation of building designs and the integration of buildings with the overall planning project	he meeting and the understanding of problems relating the constructional systems in context of many-department character the architectural the as well as need projecting of co-operation with constructors	[SW1] Assessment of factual knowledge

Subject contents

Course content – lecture

1. Building foundations in difficult ground conditions foundation piles.
2. Building foundations in difficult ground conditions foundation grids, foundation wells, retaining wall structures.
3. Large-span monolithic reinforced concrete ceilings.
4. Prefabricated reinforced concrete ceilings with large spans.
5. Monolithic-precast reinforced concrete ceilings.
6. Large-span steel ceilings.
7. Large-span steel structures.
8. Composite ceilings.
9. Steel, reinforced concrete and wooden grids.
10. Coatings.
11. Spatial truss structures.
12. Modern timber structures: load-bearing and partition walls.
13. Modern timber structures: timber ceilings.
14. Modern timber structures: roof trusses.
15. Modern timber structures in the world, selected buildings.

Course content – exercises

Passing the exercises (two tasks supplementing the theory from the lectures):

a) one drawing showing the building structure or construction detail specified by the lecturer, including the main dimensions,

- A3 format,

- scale 1:10 / 20 / 25,

- the drawing includes a description of: load-bearing elements + finishing layers,

b) multimedia presentation:

- on any building structure (large span),

- from Poland or abroad,

- contemporary or historical,

- prepared in teams of two or three students,

- time limit for presentation: 10 minutes,

Multimedia presentation plan:

1. Title (name of the building), authors, field of study, semester.

2. Location of the building.

	3. Designers. 4. Function of the building. 5. History of the building. 6. Structure of the object, basic information (foundations, walls, ceilings, roof truss). 7. Description of unusual structural solutions (e.g. a roof with a large span). 8. Finishing materials (main characteristic solutions). 9. Interesting facts about the building. 10. Summary. 11. Bibliography.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	evaluation of the semester project	51.0%	100.0%

Recommended reading	Basic literature	[1] <i>Ajdukiewicz A., Starosolski W.</i>: Żelbetowe ustroje płytowo-słupowe., Arkady, Warszawa 1981. [2] <i>Foster N.</i>: Modeling the Swiss Re Tower. <i>ArchitectureWeek</i>, 5/2005. [3] <i>Kobiak J., Stachurski W.</i>: Konstrukcje Żelbetowe. Tom III. Arkady. Warszawa 1989. [4] <i>Mielczarek Z.</i>: Nowoczesne konstrukcje w budownictwie ogólnym. Arkady, Warszawa 2005. [5] <i>Pawłowski A.Z., Cała I.</i>: Budynki wysokie. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2006. [6] Praca zbiorowa: Budownictwo betonowe. Tom V: Zbrojenie, deskowanie i formy do betonu. Pod kierunkiem <i>W. Danileckiego</i>. [7] Praca zbiorowa: Budownictwo betonowe. Tom VII: Zagadnienia ogólne prefabrykacji. Pod red. <i>T. Kluza</i>, Arkady, Warszawa 1972. [8] Praca zbiorowa: Budownictwo betonowe. Tom IX: Fundamenty. Pod kierunkiem <i>B. Rosińskiego</i>, Arkady, Warszawa 1966. [9] Praca zbiorowa: Budownictwo betonowe. Tom X: Budowle miejskie. Pod kierunkiem <i>J. Nechaya</i>, Arkady, Warszawa 1964. [10] Praca zbiorowa: Budownictwo ogólne. Tom III: Elementy budynków. Podstawy projektowania. Pod kierunkiem <i>L. Lichotai</i>, Arkady, Warszawa 2008.
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	Supplementary literature	[11] Praca zbiorowa: Poradnik inżyniera i technika budowlanego. Tom Arkady, Warszawa 1977 - 1986. [12] Indeborga Kotwica E., Nożyński W., Konstrukcje drewniane przykłady obliczeń. Szczecin 2015. [13] Kaczkowska A., Technologia budowy domów z drewna. Krosno 2012. [14] Neuhaus H., Budownictwo drewniane. Rzeszów 2008. [15] Nitka W., Wymagania techniczno-montażowe dla drewnianego budownictwa szkieletowego. Gdańska 2010. [16] Żenczykowski W.: Budownictwo ogólne. Tom III, Arkady, Warszawa 1967 i 1990. drewniane"
	eResources addresses	
Example issues/ example questions/ tasks being completed	Passing lectures (theory test): 1. Draw a diagram of a large-span steel truss structure. 2. Draw diagrams of glued laminated timber trusses. 3. What does a composite structure consist of?	
Practical activities within the subject	Not applicable	

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