GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00070567						
Field of study	Civil Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject	2025/2026			
Education level	first-cycle studies		Subject group	Optional 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	8		ECTS credits	2.0			
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. Paweł Piotrkowski					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	0.0	30
	E-learning hours included: 0.0						
	eNauczanie source addresses: Moodle ID: 5155 Konstrukcje płytowo-słupowe 2026 https://enauczanie.pg.edu.pl/2025/course/view.php?id=5155						
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		0.0	0.0	30	
Subject objectives	The student will understand the types of beamless floors, methods for determining internal forces, transverse distribution, and reinforcement design. The student will understand the stress state that causes punching shear in flat floors, will be able to determine the load-bearing capacity of a slab-to-column connection based on the model adopted in the European standard, and will be able to design and design punching shear reinforcement.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U05] Conducts research (obtaining information, simulations, experimental methods) in the field of construction in order to solve specific tasks and report research results.	-	[SU1] Assessment of task fulfilment
[K6_W03] Demonstrate knowledge and understanding of the processes, established standards and design methods in the civil engineering subject area and of their limitations.	-	[SW3] Assessment of knowledge contained in written work and projects
[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.	-	[SK2] Assessment of progress of work
[K6_K04] Engages in independent lifelong learning and individually follows the development of science and technology in the field of civil engineering.	-	[SK1] Assessment of group work skills
[K6_K01] Is aware of the key aspects of professional, ethical and social responsibility related to management, business operation, decision making and opinion formulation in civil engineering.	-	[SK5] Assessment of ability to solve problems that arise in practice

Subject contents

Course content – lecture
Flat, head, and headless floors; calculation methods and design. Punching shear in reinforced concrete flat floors; punching shear mechanisms, verifying the punching shear capacity of floors without and with transverse reinforcement.

Course content – project
Design tasks for a flat ceiling in terms of bending and checking the joint for punching shear.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
project	60.0%	50.0%
assessment	60.0%	50.0%

Recommended reading

Basic literature

M. Knauff, Obliczanie konstrukcji żelbetowych według Eurokodu 2, PWN Warszawa 2012

W. Starosolski, Kosntrukcje żelbetowe według Eurokodu 2 i norm związanych , tom 1,2,3 Wydawnictwo Naukowe PWN, Warszawa 2011-2012

Konstrukcje betonowe, żelbetowe i sprężone, Komentarz naukowy do normy PN-B-03264 t.I i II, ITB Warszawa 2005

Podstawy projektowania konstrukcji żelbetowych i sprężonych wg Eurokodu 2 praca zbiorowa pod red. M. Knauffa, Dolnośląskie Wydawnictwo Edukacyjne, 2006

A. Łapko, B.Ch. Jensen, Podstawy projektowania i algorytmy obliczeń konstrukcji żelbetowych, Arkady 2005

Żelbetowa norma europejska EN-1992-1-1:2004, oraz wersja polska PN-EN-1992-1-1:2008, Projektowanie konstrukcji z betonu . Reguły ogólne i reguły dla budynków

	Supplementary literature	J. Kobiak W.Stachurski, *Konstrukcje żelbetowe*, t.1, Arkady, Warszawa 1984 J.Kobiak W.Stachurski, *Konstrukcje żelbetowe*, t.2, Arkady, Warszawa 1987 J.Kobiak W.Stachurski, *Konstrukcje żelbetowe*, t.3, Arkady, Warszawa 1989 T. Godycki-Ćwirko, *Mechanika betonu*, Arkady, Warszawa 1982 T. Godycki-Ćwirko, *Ścinanie w żelbecie*, Arkady, Warszawa 1968 W. Starosolski, Komputerowe modelowanie betonowych ustrojów inżynierskich-wybrane zagadnienia, Wydawnictwo Politechniki Śląskiej, Gliwice 2009, tom i i II A.Ajdukiewicz, W.Starosolski, *Żelbetowe ustroje płytowo-słupowe*, Arkady, Warszawa 1981 A. Ajdukiewicz, Eurokod 2 -Podręczny skrót dla projektantów konstrukcji żelbetowych, Stowarzyszenie Producentów Cementu - Polski Cement, Kraków 2009 K. Nagrodzka-Godycka, *Badanie właściwości betonu i żelbetu w warunkach laboratoryjnych*, Arkady, W-wa 1999, Ł. Drobiec, R. Jasiński, A. Piekarczyk Diagnostyka Konstrukcji Żelbetowych, Metodologia, Badania polowe, badania laboratoryjne betonu i stali, Wydawnictwo Naukowe PWN, tom 1, 2010 PN-B-03264:2002, Konstrukcje betonowe, żelbetowe i sprężone
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Practical activites within the subject	Not applicable	

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