GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Concrete Structures II, PG_00048195		
Field of study	Civil Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	10.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Engineering Structures -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Piotrkowski	
	Teachers	mgr inż. Maciej Solarczyk dr inż. Patryk Ziółkowski dr inż. Paweł Piotrkowski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	40.0	0.0	0.0	30.0	0.0	70

E-learning hours included: 0.0

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	70	7.0	173.0	250

Subject objectives

The student knows the principles of dimensioning and constructing reinforcement of reinforced concrete stairs, arches and cross-reinforced slabs, knows the types of beamless ceilings (flat and mushroom), methods of calculating and constructing reinforcement. The student knows the state of stress causing punching in flat ceilings, is able to determine the load-bearing capacity of the slab-column connection based on the model adopted in the European standard, is able to dimension punching reinforcement and construct it.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W06] knows the rules of constructing and dimensioning of building elements of: steel, reinforced concrete, wood, masonry.	The student knows the principles of construction and dimensioning of reinforced concrete structure elements.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K6_U12] knows rules of manufacturing and application of building materials, is able to properly choose tchem; is able to make simple laboratory experiments for judging quality of building materials	The student knows the principles of construction and dimensioning of reinforced concrete structure elements.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
[K6_W09] knows the principles of determining of loads acting on basic constructions (e.g. general, industrial, bridge, water, marine, transport objects) and rules of its constructing	The student knows the principles of construction and dimensioning of reinforced concrete structure elements.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Stairs: types, calculation and construction. Reinforced concrete arches - design principles. Reinforced concrete halls with frame structure - corners subjected to negative or positive moment, nodes, connections. Design and construction of joints in reinforced concrete structures. Pressure. Short column and beam supports; design and construction. Cross-reinforced slabs; calculation and construction. Flat, capped and headless ceilings; calculation methods and construction. Penetration in reinforced concrete flat ceilings; punching mechanisms, checking the punching load capacity of ceilings without and with transverse reinforcement.

Prerequisites and co-requisites		
Assessment methods and criteria		

Subject passing criteria	Passing threshold	Percentage of the final grade
exam	60.0%	60.0%
project	60.0%	40.0%

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	Adresy na platformie eNauczanie: Konstrukcje Betonowe 2 - KB2_BOs7_N_2024/25 - Moodle ID: 42167 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=42167
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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