



Subject card

Subject name and code	Concrete Structures III, PG_00069431						
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	Part-time studies		Mode of delivery		at the university		
Year of study	4		Language of instruction		Polish		
Semester of study	7		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		exam		
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	20.0	0.0	0.0	25.0	0.0	45
	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	45		5.0		50.0	100
Subject objectives	The student understands the principles of dimensioning and designing reinforcement for reinforced concrete frames, short column and beam supports, and single-chamber liquid tanks. The student understands the methods for calculating and designing reinforcement. The student understands the stress state causing punching shear in foundations, including foundation slabs, based on the model adopted in the European standard. The student understands the principles of shaping reinforcement in reinforced concrete frames, column and beam supports.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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.	The student knows the limitations resulting from the subsequent conduct of engineering activities.	[SK5] Assessment of ability to solve problems that arise in practice
	[K6_W07] Understand the investment's impact on the environment and the interrelationships and dependencies between the building structure and the natural environment	The student knows the principles of design based on applicable regulations and standards related to construction investments.	[SW3] Assessment of knowledge contained in written work and projects
	[K6_W06] Demonstrates practical knowledge and understanding of materials, devices and tools, processes and technologies in the field of civil engineering (and their limitations).	The student is able to solve individual tasks, including design tasks, using standards and engineering tools and knowing the process of building a structure.	[SW3] Assessment of knowledge contained in written work and projects
	[K6_U06] Conduct engineering activities in civil engineering subject area, using and applying practical knowledge and understanding of materials, equipment and tools, processes and technologies.	The student is able to solve individual tasks and problems related to the specificity of concrete structures in relation to the content, regulations and construction standards provided during classes.	[SU3] Assessment of ability to use knowledge gained from the subject
Subject contents	Course content – lecture Slabs two-way; calculation and construction. Flat slabs, capped and headless ceilings; calculation methods and construction. punching mechanisms, checking the punching load capacity of ceilings without and with transverse reinforcement. 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.		
	Course content – project Project tasks related to lecture content		
Prerequisites and co-requisites	It is recommended that the student has knowledge and skills in the recommended subject, i.e. Concrete Structures I and the mechanical basics of structures and strength of materials.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	exam	60.0%	50.0%
	project	60.0%	50.0%

Recommended reading	Basic literature	M. Knauff, Obliczanie konstrukcji żelbetowych według Eurokodu 2, PWN Warszawa 2012 W. Starosolski, Konstrukcje żelbetowe według Eurokodu 2 i norm związanych , tom 1,2,3, 4, 5 Wydawnictwo Naukowe PWN, Warszawa 2010-2024 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	Calculation tasks to be solved during the exam along with questions relating to the lecture content.	

Practical activities within the subject	Not applicable
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