



Subject card

Subject name and code	BASICS PRESTRESSED STRUCTURES, PG_00044248						
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		
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			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marek Wesolowski					
	Teachers	dr inż. Anna Kopańska mgr inż. Maciej Solarczyk dr inż. Marek Wesolowski					
Lesson types and methods of instruction	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						
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	4.0		50.0		84
Subject objectives	Design the prestressed elements in all load conditions.						
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 has knowledge of the specifics of prestressed structures, distinguishing them from reinforced concrete structures.			[SW1] Assessment of factual knowledge		
	[K6_U06] can design steel, concrete (including reinforced), wood and masonry constructions and its elements	The student has the ability to assess the state of stress in prestressed structures.			[SU2] Assessment of ability to analyse information		
	[K6_W16] Has deeper and adequate knowledge of civil engineering, within offered specialization	The student is able to adopt an appropriate structural arrangement in the field of prestressed structures.			[SW3] Assessment of knowledge contained in written work and projects		
	[K6_K01] is aware of necessity of professional and personal competences improvement; complements and broadens his knowledge about modern processes and technologies	The student acquires skills in critical analysis of design solutions in the field of prestressed structures.			[SK5] Assessment of ability to solve problems that arise in practice		
Subject contents	Introduction. Idea of construction prestressing, historical sketch, classification of prestressed constructions. Concrete (mechanical properties, immediate and rheology deformations, estimation of shrinkage and creep effects). Prestressing steel (mechanical properties, relaxation, corrosion protection). Technology of prestressing, post-tensioned beams, pretensioned beams and other technologies. Loss of prestress force, estimation of immediate and rheology losses. Design of post-tensioned and pretensioned beams in elastic phase. Examples of construction of prestressed structures.						
Prerequisites and co-requisites	No requirements						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Project	50.0%			30.0%		
	Midterm colloquium	50.0%			70.0%		

Recommended reading	Basic literature	<p>A.Ajdukiewicz J.Mames, <i>Betonowe konstrukcje sprężone</i>, Wydawnictwo Polit. Śląskiej, Gliwice 2001</p> <p>A.Ajdukiewicz J.Mames, <i>Konstrukcje z betonu sprężonego</i>, Polski Cement, Kraków 2004</p> <p>T.Godycki-Ćwirko, A.Czkwianianc, <i>Konstrukcje sprężone</i>, Politechnika Łódzka 1984</p> <p><i>Konstrukcje betonowe, żelbetowe i sprężone, Komentarz naukowy do normy PN-B-03264</i>, ITB Warszawa 2005</p>
	Supplementary literature	No requirements
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Podstawy konstrukcji sprężonych 2024 - Moodle ID: 40883 https://enauzanie.pg.edu.pl/moodle/course/view.php?id=40883</p>
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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