



Subject card

Subject name and code	Steel Structures III, PG_00069432						
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		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. Tomasz Heizig				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	0.0	0.0	20.0	0.0	40
	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	40		5.0		55.0	100
Subject objectives	To familiarize students with advanced methods supporting the design of steel structures.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W06] Demonstrates practical knowledge and understanding of materials, devices and tools, processes and technologies in the field of civil engineering (and their limitations).		Able to use modern software to analyze spatial steel structures.		[SW3] Assessment of knowledge contained in written work and projects		
	[K6_W07] Understand the investment's impact on the environment and the interrelationships and dependencies between the building structure and the natural environment		Understands the environmental impact of optimal steel structure design.		[SW3] Assessment of knowledge contained in written work and projects		
	[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.		Knows the impact of their own actions and decisions on the work being carried out. Is aware of the responsibilities of a structural engineer in the construction process.		[SK5] Assessment of ability to solve problems that arise in practice		
	[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.		Is able to properly select design tools and methods.		[SU4] Assessment of ability to use methods and tools		
	[K6_U07] Design and build engineering structures in a sustainable manner, with care for the natural environment and a minimum carbon footprint		Knows and is able to apply advanced design techniques that support optimal design.		[SU4] Assessment of ability to use methods and tools		

Subject contents	Course content – lecture Defining of 3D numerical model. Stability analyses (torsional buckling, buckling) using member and shell elements. FEM calculations for metal structures based on LA, LBA, GNA, and GNMiA standards, along with examples.		
	Course content – project Creating a spatial computational model using CAD software. Validating the model. Creating load combinations while taking into account standard requirements. Dimensioning elements and their connections using modern software.		
Prerequisites and co-requisites	Student knows the basic principles of design and is able to create 2D computational models (2D) using engineering software.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		60.0%	50.0%
		60.0%	50.0%
Recommended reading	Basic literature	1. EN 1993-1-14. Eurocode 3. Design of steel structures. Design assisted by finite element analysis/ 2. Program ARSA - podręcznik użytkownika.	
	Supplementary literature	1. Modelowanie konstrukcji budowlanych. Kacprzyk Zbigniew, Dudziak Sławomir, Czumaj Przemysław.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Preparation of a spatial computational model of the steel hall structure using a computational program. Creation of load combinations and dimensioning of elements and their connections.		
Practical activities within the subject	Not applicable		

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