



Subject card

Subject name and code	, PG_00069285						
Field of study	Konstrukcje metalowe III						
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	7		ECTS credits		1.0		
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 hab. inż. Piotr Iwicki				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
	eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=2266						
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	15		1.0		9.0	25
Subject objectives	The aim of the course is to familiarize students with current issues in numerical analysis of metal structures, with particular emphasis on spatial static analysis, linear bifurcational analysis (LBA), and dimensioning. Issues related to the calculation of the statics of spatial steel hall models will be presented.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[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 build a numerical model of a spatial steel bar structure in the ARSA program and perform static calculations and dimensioning of its elements.		[SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU1] Ocena realizacji zadania		
	[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 has knowledge of the need for economical structural design.		[SW1] Ocena wiedzy faktograficznej		
	[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 has knowledge of the limitations in the construction of structural models.		[SW1] Ocena wiedzy faktograficznej		
	[K6_U07] Design and build engineering structures in a sustainable manner, with care for the natural environment and a minimum carbon footprint		The student has knowledge of the need for economical structural design.		[SU1] Ocena realizacji zadania		
	[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 has knowledge related to structural safety risks.		[SK2] Ocena postępów pracy		

Subject contents	Course content – lecture Lecture: Selected examples of spatial modeling of metal engineering structures. Use of ARSA software for linear static analysis and structural dimensioning. Examples of static calculations, stability and dimensioning of metal structures. Project: Construction of a spatial calculation model of a steel hall, performing static calculations and dimensioning of selected elements.		
Prerequisites and co-requisites	knowledge of the basics of metal structure design: metal structures I and II		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	60.0%	50.0%
	project completion	60.0%	50.0%
Recommended reading	Basic literature	1. Rykaluk K.: <i>Zagadnienia stateczności konstrukcji metalowych</i> , DWE, Wrocław, 2012 2. Pałkowski Sz.: <i>Konstrukcje stalowe. Wybrane zagadnienia obliczania i projektowania</i> . PWN, Warszawa 2010. 3. Pałkowski Sz.: <i>Podstawy stateczności stalowych konstrukcji prętowych</i> . Wydawnictwo Uczelniane Politechniki Koszalińskiej, Koszalin 2016. 4. Falborski T., Knabe W., Perliński A., Urbańska-Galewska E.: <i>Wybrane zagadnienia projektowania stalowych konstrukcji prętowych z wykorzystaniem programu Autodesk Robot Structural Analysis</i> . Wydawnictwo PG, Gdańsk 2019. 5. PN-EN 1993-1-1 <i>Eurokod 3: Projektowanie konstrukcji stalowych. Część 1-1: Reguły ogólne i reguły dla budynków</i> 6. PN-EN 1993-1-6 <i>Eurokod 3: Projektowanie konstrukcji stalowych. Część 1-6: Wytrzymałość i stateczność konstrukcji powłokowych</i> 7. PN-EN 1993-1-8 <i>Eurokod 3: Projektowanie konstrukcji stalowych. Część 1-8: Projektowanie węzłów</i> 8. PN-90/B-03200 <i>Konstrukcje stalowe. Obliczenia statyczne i projektowanie</i>	
	Supplementary literature	Current research issues concerning the load-bearing capacity of steel hall structural elements on the website of the Gdańsk University of Technology library	
	eResources addresses	Supplementary https://pg.edu.pl/biblioteka-pg - database of scientific articles	
Example issues/ example questions/ tasks being completed	1. present the deformation and internal forces of a computer model of a steel hall 2. compare the results of static calculations for 2D and spatial models 3. How to determine the buckling lengths of steel hall elements		
Practical activities within the subject	Not applicable		

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