



Subject card

Subject name and code	Steel Structures III, PG_00069290						
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	Full-time studies		Mode of delivery		at the university		
Year of study	4		Language of instruction		Polish		
Semester of study	7		ECTS credits		2.0		
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	0.0	0.0	0.0	30.0	0.0	30
	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	30		2.0		18.0	50
Subject objectives	The aim of the course is to perform static calculations and spatial dimensioning of the hall model. The construction drawing will be created in AutoCAD and then exported to the ROBOT Autodesk Structural Analysis program. In this program, a geometric model (bars, supports, releases) as well as cladding and structural loads will be created. The structure will then be dimensioned. Selected structural nodes will also be dimensioned. After these analyses, the stiffness of selected nodes will be verified or corrected. Finally, the results of the calculations and dimensioning will be compared with the corresponding results for flat models.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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] Assessment of task fulfilment
	[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] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment
	[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] Assessment of progress of work
	[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] Assessment of factual knowledge
	[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] Assessment of factual knowledge
Subject contents	Course content – project Construction of a spatial calculation model of a steel hall, performing static calculations and dimensioning of selected elements: construction of a spatial structural system, defining supports, exemptions, loads and their combinations, and dimensioning of hall members.		
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
	defense of the project	60.0%	100.0%
Recommended reading	Basic literature 1. Rykaluk K.: Zagadnienia stateczności konstrukcji metalowych, DWE, Wrocław, 2012 2. Pałkowski Sz.: Konstrukcje stalowe. Wybrane zagadnienia obliczania i projektowania. PWN, Warszawa 2010. 3. Pałkowski Sz.: Podstawy stateczności stalowych konstrukcji prętowych. Wydawnictwo Uczelniane Politechniki Koszalińskiej, Koszalin 2016. 4. Falborski T., Knabe W., Perliński A., Urbańska-Galewska E.: Wybrane zagadnienia projektowania stalowych konstrukcji prętowych z wykorzystaniem programu Autodesk Robot Structural Analysis. Wydawnictwo PG, Gdańsk 2019. 5. PN-EN 1993-1-1 Eurokod 3: Projektowanie konstrukcji stalowych. Część 1-1: Reguły ogólne i reguły dla budynków 6. PN-EN 1993-1-6 Eurokod 3: Projektowanie konstrukcji stalowych. Część 1-6: Wytrzymałość i stateczność konstrukcji powłokowych 7. PN-EN 1993-1-8 Eurokod 3: Projektowanie konstrukcji stalowych. Część 1-8: Projektowanie węzłów 8. PN-90/B-03200 Konstrukcje stalowe. Obliczenia statyczne i projektowanie		

	Supplementary literature	Current research issues concerning the load-bearing capacity of steel hall structure elements on the website of the Gdańsk University of Technology library
	eResources addresses	
Example issues/ example questions/ tasks being completed	Present a comparison of internal forces in a spatial and 2D model of a hall. Present a comparison of the load-bearing coefficient of the basic elements of a hall in a spatial and 2D model.	
Practical activities within the subject	Not applicable	

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