GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Steel Structures II, PG_00065725		
Field of study	Civil Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department Of Engineering Structures -> Faculty Of Civil And Environmental Engineering -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Aleksander Perliński	
	Teachers	dr hab. inż. Piotr Iwicki dr inż. Natalia Korcz-Konkol dr inż. Aleksander Perliński dr hab. inż. Elżbieta Urbańska-Galewska mgr inż. Paweł Pieczka mgr inż. Arkadiusz Jenta dr inż. Arkadiusz Sitarski dr inż. Marek Szafrański dr inż. Dariusz Kowalski dr inż. Witold Knabe mgr inż. Maciej Malinowski	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	10.0	25.0	0.0	65
	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	65	0.0	0.0	65

Subject objectives	Presentation of the issues related to the building steel structures design, fabrication, assembly, fire and anticorrosion protection. Preparation of design documentation of the simple steel hall structure.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U03] Design engineering objects and details, processes and engineering systems by applying appropriate standards and methods of design.	Designs joints of steel hall elements using relevant standards and procedures.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K6_U07] Design and build engineering structures in a sustainable manner, with care for the natural environment and a minimum carbon footprint	Designs selected elements of steel halls with simple static schemes.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[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 effects of environmental factors on steel buildings.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
[K6_W03] Demonstrate knowledge and understanding of the processes, established standards and design methods in the civil engineering subject area and of their limitations.	Demonstrates basic knowledge of the design, fabrication and assembly of steel structures.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge

Subject contents

Lectures: Truss girders. Hall buildings - structural layouts, loads, joints. Bracings. Clading systems. Steel-concrete composite structures. Fabrication and assembly of steel structures. Corrosion and anticorossion protection. Fire resistance and fire safety solutions for steel structures. steel structures review - tall buildings, masts, toqers, chimneys, tanks, silos and pipelines.

Project and laboratory: Design of a hall consisting of purlin, truss girder, columns - loads and load combinations, static analysis using CAD tools, dimensioning of the main structural elements and joints, preparation of the structural drawings

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written examination (Lecture)	60.0%	50.0%
Written test (Laboratory)	60.0%	25.0%
Hall project (Project)	60.0%	25.0%

Recommended reading

Basic literature	1. Łubiński M., Filipowicz A., Żółtowski W.: Konstrukcje metalowe. Część I. Arkady, Warszawa 2007. 2. Łubiński M., Żółtowski W.: Konstrukcje metalowe. Część II. Arkady, Warszawa 2008. 3. Biegus A.: Stalowe budynki halowe, Arkady, Warszawa 2010 4. Bródka J., Broniewicz M.: Konstrukcje stalowe z rur. Arkady, Warszawa 2001. 5. Rykaluk K.: Konstrukcje stalowe. Podstawy i elementy. DWE, Wrocław 2001. 6. Praca zbiorowa: Budownictwo ogólne, tom 5, Arkady, Warszawa 2010. 7. Praca zbiorowa pod red. A. Kozłowskiego: Konstrukcje stalowe. Przykłady obliczeń według PN-EN 1993-1. Część trzecia. Hale i wiaty, Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów 2015 8. PN-EN 1993-1-1 Eurokod 3: Projektowanie konstrukcji stalowych. Część 1-1: Reguły ogólne i reguły dla budynków 9. PN-EN 1993-1-8 Eurokod 3: Projektowanie konstrukcji stalowych. Część 1-8: Projektowanie węzłów
Supplementary literature	1. Bogucki W., Żyburtowicz M.: Tablice do projektowania konstrukcji metalowych. Arkady, Warszawa 2007. 2. Bogucki W.: Budownictwo stalowe. Arkady, Warszawa 1976. 3. W. Knabe: Przykłady obliczeń połączeń śrubowych i spawanych. Wydawnictwo Politechniki Gdańskiej. Gdańsk 2000.
eResources addresses	Adresy na platformie eNauczanie: Konstrukcje metalowe II - Projektowanie i Laboratorium (2024/25) - Moodle ID: 44838 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=44838 Konstrukcje Metalowe II - Wykład (2024/25) - Moodle ID: 44837 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=44837

Example issues/ example questions/ tasks being completed	Check the ULS and SLS of the roof purlin. Calculate the resistance of the top chord of the truss girder. Check the capacity of the truss girder node. Calculate the tensile force of the bracing tie and check its capacity.
Work placement	Not applicable

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