



Subject card

Subject name and code	Steel Structures I, PG_00048194						
Field of study	Civil Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish Polish		
Semester of study	6	ECTS credits			7.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Engineering Structures -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tomasz Heizig					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	10.0	15.0	0.0	55
	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	55	6.0		114.0	175	
Subject objectives	Acquiring knowledge on issues related to the design and execution of elements and connections of steel structures.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W11] Knows selected software supporting the calculation and design of construction as well as construction management	The student expands knowledge of the organization of works related to the production of basic steel elements.			[SW2] Assessment of knowledge contained in presentation		
	[K6_W06] knows the rules of constructing and dimensioning of building elements of: steel, reinforced concrete, wood, masonry.	Knows the rules of constructing and designing of the steel elements in tension, bending and compression.			[SW2] Assessment of knowledge contained in presentation		
	[K6_U01] can evaluate and list the loads acting on constructions	Is able to calculate loads on selected steel elements.			[SU3] Assessment of ability to use knowledge gained from the subject		
Subject contents	LECTURE Bolted connections: shear and pressure load-bearing capacity of bolts, load-bearing capacity of lap joints. Welded joints: fillet and butt welds. Steel properties. Steel products. Design of steel structures according to the principles of limit states. Rolled and plate beams. TUTORIAL EXERCISES Determining the size of static steel cross-sections. Calculation of bolted connections. Calculation of welded joints and steel elements. LABORATORY Metallurgy of welding processes, weldability of steel, welding techniques.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test of design knowledge	60.0%	35.0%
	Test of knowledge from lectures	60.0%	50.0%
	Test of the knowledge from laboratory	60.0%	15.0%
Recommended reading	Basic literature	1. Łubiński M., Filipowicz A., Żółtowski W.: Konstrukcje metalowe. Część 1. Arkady, Warszawa 2000. 2. red. A. Kozłowski.: Konstrukcje stalowe, Przykłady obliczeń według PN-EN 1993-1, Rzeszów 2010. 3. J. Goczek, Ł. Supeł, M. Gajdzicki.: Przykłady obliczeń konstrukcji stalowych, Politechnika Łódzka 2011. 4. Rykaluk K. Konstrukcje stalowe. Podstawy i elementy. D.W.E., Wrocław 2001. 5. PN-EN 1993-1-1. Eurokod 3. Projektowanie konstrukcji stalowych, część 1-1: Regoły ogólne i regoły dla budynków,. 6. Pn-EN 1993-1-8, Eurokod 3: Projektowanie konstrukcji stalowych, część 1-8: projektowanie węzłów.	
	Supplementary literature	7. Bogucki W., Żybertowicz M.: Tablice do projektowania konstrukcji metalowych. Arkady, Warszawa.	
	eResources addresses	Adresy na platformie eNauzanie: KONSTRUKCJE METALOWE I - Moodle ID: 37723 https://enauzanie.pg.edu.pl/moodle/course/view.php?id=37723	
Example issues/ example questions/ tasks being completed	<p>Check the ULS and SLS of the steel beam Check the load-bearing capacity of the welded connection. Check the load-bearing capacity of the bolted connection. Provide the strength parameters of a class 8.8 bolt. Specify the types of bolted connections. Determine possible ways to destroy the bolted lap joint. Mark on the drawing the circumferential fillet weld made on site.</p>		
Work placement	Not applicable		