



## Subject card

Subject name and code	Steel Structures I, PG_00044194						
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		Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department of Metal Structures -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Aleksander Perliński				
	Teachers		mgr inż. Arkadiusz Jenta  mgr inż. Paweł Pieczka  dr inż. Tomasz Heizig  dr inż. Aleksander Perliński  dr inż. Witold Knabe  dr inż. Natalia Korcz-Konkol				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	0.0	0.0	60
	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	60		7.0		33.0	100
Subject objectives	Introduction to the production and properties of steel and principles of basic steel members and joints structural design.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W06] knows the rules of constructing and dimensioning of building elements of: steel, reinforced concrete, wood, masonry.		Knows rules related to the simple structural members and joints design according to selected codes from Eurocode 3 series				
	[K6_U07] Can design and properly dimension basic elements of construction or basic foundations of general, hydrotechnical and bridge constructions		Can use the appropriate procedures for ULS and SLS verification related to the simple structural members and joints design according to selected codes from Eurocode 3 series				
Subject contents	<p>Lectures: History of building steel structures development. Production and properties of steel. Steel grades and its designations. Production of steel profiles and other steel materials. Limit States in steel structures design. Bolted and riveted joints. Welded joints. Welding methods, welding defects and NDT. Steel sections classification. Tension members. Uniaxial and biaxial bending of steel. Plate girders. Axially and eccentrically compressed coluns. Joins xeULS and SLS. Bolt and welded connections. Steel beams and columns. Beam and column joints.</p> <p>Tutorials: Section classes. Steel tension member. Hole influence on section capacity. Axially compressed steel members. Bending of steel member. Shearing of steel member. Bolt joints. Welded joints.</p>						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written lecture examination	60.0%	50.0%
	written tutorial test	60.0%	50.0%
Recommended reading	Basic literature	1. Praca zbiorowa: <i>Budownictwo ogólne. Tom 5</i> , Arkady, Warszawa 2010  2. Łubiński M., Filipowicz A., Żółtowski W.: <i>Konstrukcje metalowe. Część 1</i> . Arkady, Warszawa 2000.  3. Rykaluk K.: <i>Konstrukcje stalowe</i> . Dolnośląskie Wydawnictwo Pedagogiczne, Wrocław 2001.  4. Goczek J., Supel Ł., Gajdzicki M.: <i>Przykłady obliczeń konstrukcji stalowych</i> , Wydawnictwo PŁ, Łódź 2010  5. Praca zbiorowa pod red. A. Kozłowskiego: <i>Konstrukcje stalowe. Przykłady obliczeń według PN-EN 1993-1. Część pierwsza. Wybrane elementy i połączenia</i> , Oficyna Wydawnicza PRz, Rzeszów 2009  6. Praca zbiorowa pod red. A. Kozłowskiego: <i>Konstrukcje stalowe. Przykłady obliczeń według PN-EN 1993-1. Część druga.Stropy i pomosty</i> , Oficyna Wydawnicza PRz, Rzeszów 2011  7. PN-EN 1993-1-1 <i>Eurocode 3: Design of steel structures. Part 1-1: General rules and rules for buildings</i>  8. PN-EN 1993-1-8 <i>Eurocode 3: Design of steel structures. Part 1-8: Design of joints</i>	
	Supplementary literature	1. Bogucki W., Żybertowicz M.: <i>Tablice do projektowania konstrukcji metalowych</i> . Arkady, Warszawa 2007.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1. ULS and SLS verification of the simply supported beam made of hot-rolled I-section.  2. ULS verification of the axial compressed RHS column.  3. ULS verification of the overlapping bolted joint of three flat bars.  4. ULS verification of the welded joint between the cantilever beam and column.		
Work placement	Not applicable		