



Subject card

Subject name and code	, PG_00064562						
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			Obligatory subject group 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		
Semester of study	5	ECTS credits			6.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Engineering Structures -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Aleksander Perliński					
	Teachers	mgr inż. Paweł Pieczka dr inż. Aleksander Perliński dr inż. Witold Knabe					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	10.0	0.0	10.0	0.0	40
	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	40	0.0		0.0	40	
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] Demonstrates practical knowledge and understanding of materials, devices and tools, processes and technologies in the field of civil engineering (and their limitations).	Knows the fields of application of steel in civil engineering.			[SW1] Assessment of factual knowledge		
	[K6_U03] Design engineering objects and details, processes and engineering systems by applying appropriate standards and methods of design.	Can design simple steel members (beams and columns) and their joints using EC3 codes.			[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		
	[K6_W03] Demonstrate knowledge and understanding of the processes, established standards and design methods in the civil engineering subject area and of their limitations.	Knows the methods relating to simple steel members and joints design.			[SW3] Assessment of knowledge contained in written work and projects		
	[K6_U04] Reads and prepares construction documentation (including drawings, graphic documentation in the CAD environment), efficiently uses maps as well as architectural, construction and geodetic drawings.	Can perform static calculations and dimensioning of the simple steel members and joints.			[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		

Subject contents	<p>Lectures: Production and properties of steel. Steel grades and its designations. Production of steel profiles and other steel materials. Bolted and riveted joints. Welded joints. Steel sections classification. Tension members design. Uniaxial and biaxial bending of steel elements. Axially and eccentrically compressed columns.</p> <p>Tutorials: Section classes. Steel tension members. Axially compressed steel members. Bending of steel member. Shearing of steel member. Bolt joints. Welded joints.</p> <p>Project: One design exercise relating to simple steel members and joints design.</p>														
Prerequisites and co-requisites															
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="451 506 794 539">Subject passing criteria</th> <th data-bbox="794 506 1137 539">Passing threshold</th> <th data-bbox="1137 506 1493 539">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 539 794 573">written tutorial test</td> <td data-bbox="794 539 1137 573">60.0%</td> <td data-bbox="1137 539 1493 573">30.0%</td> </tr> <tr> <td data-bbox="451 573 794 607">written lecture examination</td> <td data-bbox="794 573 1137 607">60.0%</td> <td data-bbox="1137 573 1493 607">50.0%</td> </tr> <tr> <td data-bbox="451 607 794 633">design exercise</td> <td data-bbox="794 607 1137 633">60.0%</td> <td data-bbox="1137 607 1493 633">20.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	written tutorial test	60.0%	30.0%	written lecture examination	60.0%	50.0%	design exercise	60.0%	20.0%
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Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<p>1. Praca zbiorowa: Budownictwo ogólne. Tom 5, Arkady, Warszawa 2010</p> <p>2. Łubiński M., Filipowicz A., Żółtowski W.: Konstrukcje metalowe. Część 1. Arkady, Warszawa 2000.</p> <p>3. Rykaluk K.: Konstrukcje stalowe. Dolnośląskie Wydawnictwo Pedagogiczne, Wrocław 2001.</p> <p>4. Goczek J., Supel Ł., Gajdzicki M.: Przykłady obliczeń konstrukcji stalowych, Wydawnictwo PŁ, Łódź 2010</p> <p>5. Praca zbiorowa pod red. A. Kozłowskiego: Konstrukcje stalowe. Przykłady obliczeń według PN-EN 1993-1. Część pierwsza. Wybrane elementy i połączenia, Oficyna Wydawnicza PRz, Rzeszów 2009</p> <p>6. Praca zbiorowa pod red. A. Kozłowskiego: Konstrukcje stalowe. Przykłady obliczeń według PN-EN 1993-1. Część druga. Stropy i pomosty, Oficyna Wydawnicza PRz, Rzeszów 2011</p> <p>7. PN-EN 1993-1-1 Eurocode 3: Design of steel structures. Part 1-1: General rules and rules for buildings</p> <p>8. PN-EN 1993-1-8 Eurocode 3: Design of steel structures. Part 1-8: Design of joints</p> <p>1. Bogucki W., Żybertowicz M.: Tablice do projektowania konstrukcji metalowych. Arkady, Warszawa 2007.</p> <p>Adresy na platformie eNauczanie: Konstrukcje Metalowe I - studia niestacjonarne (2024/25) - Moodle ID: 42308 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=42308</p>													
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> 1. ULS and SLS verification of the simply supported beam made of hot-rolled I-section. 2. ULS verification of the axially 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														

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