

Subject card

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October 2023		realisation of subject			2024/2025		
first-cycle studies		Subject group					
Full-time studies		Mode of delivery		at the university			
2		Language of instruction		Polish			
4		ECTS credits		3.0			
general academic profile		Assessment form		assessment			
Department of Engineering Structures -> Faculty of Civil and Environmental Engineering							
Subject supervisor dr inż. Dariusz Kowalski							
Teachers							
Lesson type	Lecture	Tutorial	Laboratory	Project		Seminar	SUM
Number of study hours	0.0	0.0	0.0	30.0		0.0	30
	ıded: 0.0		<u> </u>			l	
Practical Projects and Calculations: During classes, students can work on structural projects using steel as the material. They can design and calculate steel elements such as beams, columns, and girders, as well as entire structures. This will help them understand how constructions evolve from the idea stage to final realization. 2. Laboratories and Workshops: Organize practical labs and workshops where students work with real steel elements. They can learn techniques like welding, cutting, bending, assembly, and joining. Understanding corrosion phenomena is also essential. This hands-on experience will equip them with manual skills and insights into steel processing. 3. Computer Simulations: Introduce students to software tools for simulating steel structures. They can model different scenarios, analyze their impact on strength and behavior, and explore various load conditions. 4. Construction Site Visits: Arrange visits to construction sites where students can observe steel utilization in practice. They can witness the assembly process, quality control, and other aspects related to steel structures.							
Learning activity	classes includ		consultation h	nours		udy	SUM
Number of study hours	30		0.0		0.0		30
The subject is intended to provide students with practical knowledge of metal structures. Cognitive aspects of the subject include: material tests, corrosion tests, issues of assembly and disassembly of structures, implementation of a structural design, destructive analysis, computer simulations, safety and standards. Students develop the ability to work in teams on posed problems and verbally present their thoughts and ideas to the group. They acquire manual skills in using the material and tools for its processing as well as basic experimental research.							
	Full-time studies 2 4 general academic production of the subject is intended implementation of a subject is intended of the subject is intended implementation of a subject is develop the ideas to the group. The	Civil Engineering October 2023 first-cycle studies Full-time studies 2 4 general academic profile Department of Engineering Structure Subject supervisor Teachers Lesson type Lecture Number of study hours E-learning hours included: 0.0 Additional information: 1. Practical Projects and Calculating as the material. They can design well as entire structures. This with final realization. 2. Laboratories and Workshops: Constructions and insights into service elements. They can learn Understanding corrosion phenomanual skills and insights into service. They can witness the structures. 4. Construction Site Visits: Arrangin practice. They can witness the structures. 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Civil Engineering October 2023 Academic year of realisation of subject first-cycle studies Subject group Full-time studies Mode of delivery Language of instructio ECTS credits general academic profile Assessment form Department of Engineering Structures -> Faculty of Civil and Env Subject supervisor Teachers Lesson type Lecture Tutorial Laboratory Number of study hours E-learning hours included: 0.0 Additional information: 1. Practical Projects and Calculations: During classes, students as the material. They can design and calculate steel element well as entire structures. This will help them understand how final realization. 2. Laboratories and Workshops: Organize practical labs and we steel elements. They can learn techniques like welding, cutting Understanding corrosion phenomena is also essential. This is manual skills and insights into steel processing. 3. 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Learning outcomes	Course outcome	Subject outcome	Method of verification				
	[K6_K03] Can effectively, clearly and unambiguously convey information, describe activities and communicate their results/ outcomes to engineers or a wider audience using appropriate communication methods and tools.	The student is able to plan work and prepare a simple executive project containing: a description and a graphic part. Uses appropriate methods of presenting data and requirements.	[SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness [SK3] Assessment of ability to organize work				
	[K6_U05] Conducts research (obtaining information, simulations, experimental methods) in the field of construction in order to solve specific tasks and report research results.	The student performs practical issues in the field of metal structures based on real materials. Able to use basic research equipment. He can use metal processing tools.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools				
	[K6_W05] Demonstrate knowledge and understanding of research methods (obtaining information, simulations, experimental methods) in the field of civil engineering.	The student is able to identify an engineering problem and propose a way to solve it. Knows what parameters are needed to describe the issue.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge				
	[K6_K02] Can work effectively in a group, as well as function in teams, which may consist of representatives of various branches and levels.	The student performs tasks assigned as part of a project implemented by the team. Performs and/or coordinates assigned tasks together with members of the implementation team.	[SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness [SK3] Assessment of ability to organize work [SK2] Assessment of progress of work [SK1] Assessment of group work skills				
Subject contents	Practical classes in the "Hands on Engineering" module of the subject: "Experimentation in metal structures" The main goal of the course is teamwork in conducting experimental tasks related to metal materials. The classes include the following thematic modules:						
	 Corrosion of metals. Stability of bar elements under load. Designing a simple volume structure. Creation of a real structure using available materials and a group-developed project Lift the weight. Getting to know the problems of assembling steel structures - simple machines and modern assembly devices Implementation of screwed and welded connections in metal elements. Construction of a composite ceiling/beam/column structure Construction of spatial models of hall facilities. 						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade				
	Participation in classes	80.0%	20.0%				
	Experimental classes - Lift the weight	60.0%	10.0%				
	Experimental study - member stability	60.0%	10.0%				
	Experimental study - Corrosion	60.0%	10.0%				
	Construction of a cubature facility	80.0%	30.0%				
		80.0%	20.0%				

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Recommended reading	Basic literature	Structure design standards of the Eurocode 3 series - Metal Structures Literature on metal building structures			
	Supplementary literature	Thematic film materials available on online platforms			
	eResources addresses	Adresy na platformie eNauczanie:			
Example issues/ example questions/ tasks being completed	1. Preparation of an executive design for a simple and small structure consisting of bar elements and typical cladding materials 2. Implementation of a large-scale structure based on bar and cladding elements. 3. Testing of elements subjected to corrosion 4. Experiments with bar compression elements 5. Construction of a composite structure				
Work placement	Not applicable				

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