GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Design of welded structures, PG_00058894		
Field of study	Mechanical Engineering		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	English
Semester of study	3	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Zakład Technologii Materiałów Konstrukcyjnych i Spajania -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jacek Tomków	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	15.0	0.0	45

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	45	0.0	0.0	45

Subject objectives

The aim of the course is to familiarize students with the principles of designing welded structures, including significant variables affecting the weldability of structural materials, welding stresses and distortions, and ways to minimize the adverse effects of the welding process.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U01] is able to acquire information from specialist literary sources and other sources regarding the construction and operation of machines and related disciplines in polish and in a foreign language, is able to conduct a self-learning process, is able to synthesize the information, form conclusions and justify opinions	The student is able to expand knowledge in the field of welded structures on the basis of available information and tools.	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
[K7_W11] possesses organized knowledge useful in understanding ex-technical conditioning connected with performing the profession of an engineer and taking it into consideration in engineering practice; possesses well-established knowledge within the range of intellectual property, management and organization of manufacturing processes, including the management and life-cycle of a product	On the basis of the information obtained, the student is able to adapt the existing tools and acquired skills to solve the construction problem.	[SW1] Assessment of factual knowledge
[K7_W06] possesses organized, profound knowledge necessary for designing and optimization of complex technological processes, modelling and calculations using numerical methods, knows modern manufacturing methods and tools for designing manufacturing processes of machines, devices, their elements and components	The student is able to design a structure with welded joints, taking into account existing standards and requirements.	[SW3] Assessment of knowledge contained in written work and projects

<table>
<tr><td>Subject contents</td><td>As part of the course, students learn about the factors determining the weldability of construction materials along with their indexes, types of cracks and ways to prevent them, the effect of the welding thermal cycle on the properties of joints as well as welding deformations and stresses, the rules for performing joints, including calculations.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Basic knowledge in the field of materials science, and the machine construction.</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Laboratories</td><td>51.0%</td><td>49.0%</td></tr>
<tr><td>Project</td><td>51.0%</td><td>51.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Hicks J: Welded design. Theory and practise. WOODHEAD PUB. London, 2000.</td></tr>
<tr><td>Supplementary literature</td><td>Siwek B.: Połączenia spawane, zgrzewane, lutowane i klejone, Wydawnictwo Politechniki Gdańskiej, 2002</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
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</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>1. Cracking mechanisms in welded joints.
2. Weldability.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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