GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Welding repair technologies, PG_00055249		
Field of study	Management and Production Engineering		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Optional subject group 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	6	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	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	15.0	0.0	15.0	0.0	0.0	30

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	30	3.0	17.0	50

Subject objectives

Students learn basic welding techniques used in the repair and regeneration of metal structures. They perform practical experiments showing how to use the learned techniques. Students choose methods useful for the repairs and regenerations of particular structures and materials.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U02] has the ability of self-learning and expanding knowledge in a specialized field of engineering production	The student selects the appropriate repair and regeneration techniques for individual construction materials, and different structures.	[SU3] Assessment of ability to use knowledge gained from the subject
[K6_W06] has knowledge of the life cycle of products and mechanical devices and systems, in the field of machine parts manufacturing techniques, as well as the possibilities and trends in the development of machines and production devices and process control	The student learns about various repair and regeneration methods used in various structures made of different materials.	[SW1] Assessment of factual knowledge
[K6_K01] feels the need for self-realization by learning throughout life, is looking for modern and innovative solutions in their actions, is able to think creatively and act in an entrepreneurial way	The student is able to recognize structural damage that requires repair and regeneration.	[SK5] Assessment of ability to solve problems that arise in practice

Subject contents

Lectures:

Failure and wear of materials, pad welding, thermal spraying, welding of cast iron, repairs of different structures (e.g. marine and energy industry, offshore structures), temper bead welding technique, underwater welding.

Laboratories:
Surfacing with various methods (MMA, MIG / MAG, TIG), thermal spraying, repairing methods for cast irons, temper bead welding technique, underwater welding.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3"></td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Laoratories</td><td>51.0%</td><td>50.0%</td></tr>
<tr><td>Tests</td><td>51.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">1. Jan Pilarczyk "Poradnik inżyniera Tom 1 Spawalnictwo".

2. Jan Pilarczyk "Poradnik inżyniera Tom 2 Spawalnictwo".</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">1. Zenon Aleksander "Spawalnicze metody napraw warstw powierzchniowych".</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">1. Description of surfacing processes.
2. Characteristics of thermal spraying.
3. Methodss of repairing cast iron.
4. Temper bead welding technique</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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