



## Subject card

Subject name and code	Welding repair technologies, PG_00055249						
Field of study	Management and Production Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
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		dr hab. inż. Jacek Tomków  mgr inż. Adrian Wolski				
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	<p>Lectures:</p> <p>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.</p> <p>Laboratories:</p> <p>Surfacing with various methods (MMA, MIG / MAG, TIG), thermal spraying, repairing methods for cast irons, temper bead welding technique, underwater welding.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laoratories	51.0%	50.0%
	Tests	51.0%	50.0%
Recommended reading	Basic literature	1. Jan Pilarczyk "Poradnik inżyniera Tom 1 Spawalnictwo".  2. Jan Pilarczyk "Poradnik inżyniera Tom 2 Spawalnictwo".	
	Supplementary literature	1. Zenon Aleksander "Spawalnictwo metody napraw warstw powierzchniowych".	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1. Description of surfacing processes. 2. Characteristics of thermal spraying. 3. Methodss of repairing cast iron. 4. Temper bead welding technique		
Work placement	Not applicable		