

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Welding Processes Equipment, PG_00055491								
Field of study	Mechanical Engineering								
Date of commencement of studies	October 2022		Academic year of realisation of subject			2024/2025			
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	5		ECTS credits			4.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology						Ship		
Name and surname	Subject supervisor dr hab. inż. Dariusz Fydrych								
of lecturer (lecturers)	Teachers	dr hab. inż. Jacek Tomków							
			dr hab. inż. Dariusz Fydrych						
			dr inż. Aleksandra Świerczyńska						
			mgr inż. Adria						
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
of instruction	Number of study hours	30.0	0.0	15.0	15.0 (0.0	60	
	E-learning hours included: 0.0								
Learning activity and number of study hours	earning activity Participation ir classes include plan		ı didactic Participation in ed in study consultation hours		Self-study		SUM		
	Number of study hours	60		4.0		36.0		100	
Subject objectives	The aim of the course is to familiarize students with the processes of bonding and cutting construction materials. They will also learn about the construction of devices used in joining processes and the elements of electrical engineering related to this area.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_U10] is able to formulate the principles of selecting a material for a construction, ensuring the correct operation of a device		The student is able to choose the right bonding and cutting process in relation to the required application, which takes into account various groups of construction materials			[SU5] Assessment of ability to present the results of task [SU3] Assessment of ability to use knowledge gained from the subject			
	[K6_W03] possesses and is able to practically apply the knowledge on the construction, properties and testing methods of construction materials		Based on the input data of the actual bonding and cutting process, the student is able to analyze it properly in order to solve a practical application problem.			[SW3] Assessment of knowledge contained in written work and projects			
Subject contents	As part of the course, students learn the basic welding and cutting processes such as: MMA, TIG, MIG / MAG, SAW, OAW, brazing and soldering, oxygen cutting, plasma cutting, laser cutting. They learn about the construction of bonding devices and the main fundamental variables of the discussed processes together with elements of electrical engineering.								
Prerequisites and co-requisites	Basic knowledge of materials science and electrical engineering is required								
Assessment methods and criteria	Subject passing criteria		Passing threshold			Percentage of the final grade			
	Lecture		56.0%			40.0%			
	Project		56.0%		30.0%				
	Laboratory		56.0%			30.0%			

Recommended reading	Basic literature	Klimpel A.: Spawanie zgrzewanie i cięcie metali, Wydawnictwo WNT, 2009					
		Walczak W. i inni: Spawalnictwo ćwiczenia laboratoryjne. Wyd. Politechniki Gdańskiej, Gdańsk, 2000					
		Ferenc K.: Spawalnictwo. WNT Warszawa 2007.					
		Ferenc K.: Podręcznik spawania. Zagadnienia ogólne. Agencja Wydawnicza SIMP, 2018					
		Dobaj E.: Maszyny i urządzenia spawalnicze, WNT Wydawnictwa Naukowo-Techniczne, 2014					
		Pilarczyk J.: Poradnik inżyniera Spawalnictwo Tom 1, Tom 2 Wydanie II, Wydawnictwo: Naukowe PWN, 2017					
	Supplementary literature	Tomasz Chmielewski: Projektowanie procesów technologicznych spawalnictwo, Oficyna Wydawnicza Politechniki Warszawskiej, 2013					
		Jarosław Ferenc, Kazimierz Ferenc: Spawalnicze gazy osłonowe i palne, WNT, Warszawa, 2013					
	eResources addresses	Adresy na platformie eNauczanie:					
Example issues/ example questions/ tasks being completed	1. Explain the concept of static characteristics of an arc						
5	2. What is electric arc self-regulation						
	 3. Explain the differences between the various bonding processes (welding, fusing, soldering) 4. What do the abbreviations SAW, TIG, MMA mean? 5. What type of device should be selected for plasma cutting of 5 mm thick stainless steel elements? 						
	6. provide the main fundamental variables for the MIG / MAG welding process.7. What is the distance of the electric contact to the base material and what is its influence on the welding process.						
	8. Explain the role of shielding gases.						
Work placement	Not applicable						

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