



Subject card

Subject name and code	Metallurgy and welding of metals, PG_00033404						
Field of study	Medical and Mechanical Engineering, Mechanical and Medical Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2020/2021		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study 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	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Materials Engineering and Bonding -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Aleksandra Świerczyńska				
	Teachers		dr inż. Aleksandra Świerczyńska				
			mgr inż. Adrian Wolski				
			mgr inż. Anna Janeczek				
			dr inż. Michał Landowski				
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						
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=13493 Adresy na platformie eNauczanie:						
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	The aim of the course is to provide students with basic knowledge about welding and metal technology						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_U07		Evaluate the functioning of technical solutions		[SU2] Assessment of ability to analyse information		
	K6_U09		Selects materials for selected constructions		[SU3] Assessment of ability to use knowledge gained from the subject		
	K6_W10		Describes the metallurgical processes of ferrous alloys and non-ferrous metals. Presents the casting process. Classifies and recognizes plastic forming processes. Defines welding processes. Distinguishes methods of welding and cutting metals.		[SW1] Assessment of factual knowledge		
Subject contents	Preparation of metals and alloys. Casting of ferrous alloys and non-ferrous metals. Basic plastic forming processes; rolling, forging and pressing, drawing, extrusion and pressing.						
	Welding heat sources. Thermal field. Basic arc welding methods; shielded metal arc welding, gas metal ac welding, gas tungsten arc welding, submerged arc welding, laser beam welding. Thermal cutting methods. Resistance welding. Construction and properties of welded joints						

Prerequisites and co-requisites	Basic knowledge of physics, chemistry, electrotechnics and mechanics		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test on the laboratory	56.0%	20.0%
	Test	56.0%	80.0%
Recommended reading	Basic literature	1. Klimpel A.: Technologia spawania i cięcia metali. WNT. Warszawa 1999. 2. Walczak W. (red.): Spawalnictwo. Ćwiczenia laboratoryjne. Wydawnictwo Politechniki Gdańskiej. Gdańsk, 2000. 3. Butnicki S.: Spawalność i kruchość stali. Wydawnictwo WNT. Warszawa 1991. 4. Pilarczyk J., Pilarczyk J.: Spawanie i napawanie elektryczne metali. Wydawnictwo Śląsk, Katowice 1996. 5. Skoblik R., Wilczewski L.: Technologia metali. Laboratorium. 2006. www.wbss.pg.gda.pl 6. Murza-Mucha. K.: Techniki wytwarzania. Odlewnictwo. PWN. Warszawa 1978.	
	Supplementary literature	1. Poradnik inżyniera - Spawalnictwo. WNT Warszawa 2003. 2. Dobrucki W.: Zarys obróbki plastycznej metali. Wyd. Śląsk 1992.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Describe the welding method. Describe the casting method. Describe the method of forming.		
Work placement	Not applicable		