



Subject card

Subject name and code	Metallurgy and welding of metals, PG_00033404						
Field of study	Medical and Mechanical Engineering, Medical and Mechanical 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						
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 arc 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	<p>1. Klimpel A.: Technologia spawania i cięcia metali. WNT. Warszawa 1999.</p> <p>2. Walczak W. (red.): Spawalnictwo. Ćwiczenia laboratoryjne. Wydawnictwo Politechniki Gdańskiej. Gdańsk, 2000.</p> <p>3. Butnicki S.: Spawalność i kruchość stali. Wydawnictwo WNT. Warszawa 1991.</p> <p>4. Pilarczyk J., Pilarczyk J.: Spawanie i napawanie elektryczne metali. Wydawnictwo Śląsk, Katowice 1996.</p> <p>5. Skoblik R., Wilczewski L.: Technologia metali. Laboratorium. 2006. www.wbss.pg.gda.pl</p> <p>6. Murza-Mucha. K.: Techniki wytwarzania. Odlewnictwo. PWN. Warszawa 1978.</p>
	Supplementary literature	<p>1. Poradnik inżyniera - Spawalnictwo. WNT Warszawa 2003.</p> <p>2. Dobrucki W.: Zarys obróbki plastycznej metali. Wyd. Śląsk 1992.</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	<p>Describe the welding method.</p> <p>Describe the casting method.</p> <p>Describe the method of forming.</p>	
Work placement	Not applicable	