GDAŃSK UNIVERSITY OF TECHNOLOGY

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

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Basic knowledge of physics, chemistry, electrotechnics and mechanics</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>Test on the laboratory</td><td>56.0%</td><td>20.0%</td></tr><tr><td>Test</td><td>56.0%</td><td>80.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>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.: Spawalnośc 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.</td></tr>
<tr><td>Supplementary literature</td><td>1. Poradnik inżyniera - Spawalnictwo. WNT Warszawa 2003.
2. Dobrucki W.: Zarys obróbki plastycznej metali. Wyd. Śląsk 1992.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Describe the welding method.

Describe the casting method.

Describe the method of forming.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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