GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Materials Science , PG_00055041		
Field of study	Management and Production Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
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	1	ECTS credits	4.0
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. Artur Sitko	
	Teachers	dr inż. Artur Sitko dr inż. Marcin Wekwejt dr inż. Beata Majkowska-Marzec dr inż. Magdalena Jażdżewska	

Lesson types and methods of instruction							
	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	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	60	4.0	36.0	100

Subject objectives	Transmition of basic knowledge regarding widely understanding materials science. Student learns about components of matter, chemical bonds, material microstructures. Student learns about chosen material properties and methods of theirs investigations. Student knows the important role of equilibrium diagrams on cristallization processes of alloys. Student can read theirs microstructures by using equilibrium diagrams. Student learns about manufacturing processes of materials, different types of heat treatments and also aspects connected with plastic working.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W02] has knowledge of materials, their properties and research methods, including construction materials used in the machinery industry, has ordered, theoretically founded knowledge of mechanics including modeling of mechanical systems in the field of statics, kinematics and dynamics, and has an ordered, theoretically founded knowledge in the field of strength analysis materials and products		[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [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		[SK5] Assessment of ability to solve problems that arise in practice
	[K6_U01] can find the necessary information in professional literature, databases and other sources, knows basic scientific and technical journals in the field of production management, quality and operation management, can integrate the obtained information, formulate conclusions and justify opinions		[SU1] Assessment of task fulfilment
Subject contents	General programme of subject involves: Characterization of engineering materials; Defects and microstructure of materials; Structure of metallic alloys; Equilibrium diagram of Fe-Fe3C; Mechanical properties of materials; Manufacturing processes of materials; Heat treatments of metallic materials; Plastic working of metallic materials; Iron alloys; Non-iron metallic alloys; Non-metallic materials; Degradation of materials.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		50.0%	50.0%
		50.0%	50.0%
Recommended reading	Basic literature	W. Callister Jr., D. G. Rethwisch: Materials Science and Engineering: An Introduction, 10th Edition, 2018. M. Ashby: Materials Selection in Mechanical Design. Second edition, Department of Engineering, Cambridge University, England, 1999.	
	Supplementary literature	W. Callister Jr , D. G. Rethwisch: Callister's Materials Science and Engineering, 2020	
	eResources addresses	Adresy na platformie eNauczanie: Materiałoznawstwo, ZiIP, I-st., 2022/23 - Moodle ID: 26303 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26303	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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