

## 关。GDAŃSK UNIVERSITY 创 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 2021		Academic year of realisation of subject			2021/2022			
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. Magda Rościszewska						
			dr inż. Marcin Wekweit						
			dr inż. Gabriel Strugała						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	Number of study hours	30.0	0.0	30.0	0.0		0.0	60	
	E-learning hours included: 0.0								
	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	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_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			
	ING_NUT J teels 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		solve problems that arise in practice			
	[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		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects			
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	Subject passing criteria	Passing threshold	Percentage of the final grade			
and criteria		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					
Example issues/		<u> </u>				
example questions/ tasks being completed						
Work placement	Not applicable					