

GDAŃSK UNIVERSITY

Subject card

Subject name and code	, PG_00061829							
Field of study	Management and Production Engineering							
Date of commencement of studies	February 2023		Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies		Subject group					
Mode of study	Full-time studies		Mode of delivery			at the university		
Year of study	2		Language of instruction			Polish		
Semester of study	3	ECTS of		dits		4.0		
Learning profile	general academic pro	ofile	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. Michał Bartmański					
	Teachers		·					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	Project Seminar		SUM
	Number of study hours	30.0	0.0	15.0	0.0		0.0	45
	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	45		0.0		0.0		45
Subject objectives	Getting knowledge on application of materials engineering and nanotechnology in developing of advanced structural materials for manufacturing engineering.							

Learning outcomes	Course outcome	Subject outcome	Method of verification				
	[K7_K02] is aware of the importance and understanding of non-technical aspects and effects of engineering activities, including its impact on the environment, and the related responsibility for decisions made demonstrates knowledge of actions to reduce risk and anticipate the social impact of engineering and manufacturing activities	The student is able to assess the risks and environmental and safety impacts of the materials used in production engineering.	[SK5] Assessment of ability to solve problems that arise in practice				
	[K7_K01] is aware of the need to expand knowledge and verify the methods of solving problems by consulting experts	The student is able to identify the advantages and disadvantages of the material solution used in the field of production engineering and, on this basis, propose his own.	[SK5] Assessment of ability to solve problems that arise in practice				
	[K7_U01] can obtain information from literature, databases and others sources, also in English or another foreign language recognized as the language of international communication in a given engineering discipline; is able to integrate the obtained information, interpret it, as well as draw conclusions and formulate and justify opinions.	The student is able to independently, using literature databases, find in scientific sources of information in the field of materials engineering.	[SU1] Assessment of task fulfilment				
	[K7_W01] knows and understands to a greater extent selected issues in the field of management and quality sciences and mechanical engineering, their location in the field of social sciences and engineering and technical sciences, as well as relationships with related disciplines, and sees the possibility of applying the knowledge in practice.	The student is able to properly select the material for the tool / machine component.	[SW3] Assessment of knowledge contained in written work and projects				
Subject contents	Groups of engineering materials. Use of materials engineering in manufacturing engineering. Selection of engineering materials. Genesis of nanotechnology and basic concepts. Different ways of perceiving nanotechnology, Forecasts of development of nanotechnology of engineering materials. Examples of engineering nanomaterials. Structural nanomaterials. The most important mechanical properties in applications of nanostructured engineering materials.						
Prerequisites and co-requisites	Basic knowledege in the field of materials engineering						
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
and criteria	Laboratory	56.0%	40.0%				
	Colloquium	56.0%	60.0%				
Recommended reading	Basic literature	 K. Kurzydłowski, M. Lewandow inżynierskie, konstrukcyjne i fur PWN, Warszawa, 2011 M. Kaczorowski, A. Krzyńska, k ceramiczne i kompozytowe, Ofi Warszawskiej, Warszawa, 2017 K. Żelechowska (Red), Nanotec Naukowe PWN SA, Warszawa, 	ewandowska (Red), Nanomateriały ccyjne i funkcjonalne, Wydawnictwo Naukowe 11 rzyńska, Konstrukcyjne materiały metalowe, ytowe, Oficyna Wydawnicza Politechniki cawa, 2017. I), Nanotechnologia w praktyce, Wydawnictwo Varszawa, 2016				
	Supplementary literature	 Kelsall R.W., Haley J.W., Geghegan M., Nanotechnologie, Wyd. PWN, Warszawa 2008; Jurczyk M., Nanomateriały: wybrane zagadnienia. Wydaw. Politechniki Poznańskiej, 2001 M.Ashby, H.Shercliff, D.Cebon, Inżynieria materiałowa, T1, T2, Wydawnictwo Galaktyka, Łódź, 2011 Dobrzański L. A., Podstawy nauki o materiałach i metaloznawstwo. Materiały inżynierskie z podstawami projektowania materiałowego., WNT Warszawa, 2002 Blicharski M., Wstęp do inżynierii materiałowej, Wydawnictwo Naukowo Techniczne, Warszawa 2001 Głowacka M., Zieliński A., <i>Podstawy materiałoznawstwa</i> Praca zbiorowa, Politechnika Gdańska 2011 					
	eResources addresses Adresy na platformie eNauczanie:						
Example issues/ example questions/ tasks being completed	 Use of materials engineering in manufacturing engineering. Construction of engineering materials Definition of nanotechnology. Basic properties of engineering nanomaterials. 						
Work placement	Not applicable						