GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Materials selection, PG_00053711						
Field of study	Mechanical Engineering						
Date of commencement of studies	October 2023		Academic year of realisation of subject	2025/2026			
Education level	first-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery	at the university			
Year of study	3		Language of instruction	English			
Semester of study	6		ECTS credits	2.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Institute Of Manufacturing And Materials Technology -> Faculty Of Mechanical Engineering And Ship Technology -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Artur Sitko				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	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	Student knows methods which are used in materials selection. Student knows the role of limited lines, guidelines and Asby's diagrams in materials selection. Student can choose the best material which is used in specified application.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U10	Student can formulate main principles connected with the function/-s, design constraint/-s, objectives as well as free veriables ect. which are important in determining the material indexes used in materials selection.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject
K6_U01	Student can use basic literature and stores information about materials which are necessary in their specified applications.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information
[K6_W12] possesses basic knowledge necessary to understand the ex-technical conditions of engineering activity, possesses basic knowledge on management, including quality management and running commercial enterprise, within the range of protection of intellectual property and patent law; knows general principles of creating and developing forms of individual entrepreneurship and basic HSE rules applicable to machine industry	Student has knowledge regarding correct usage of literature.	[SW1] Assessment of factual knowledge
K6_W03	Student has knownledge in the field of various materials used in industrial practice.	[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Classification of material groups. Material properties. Key issues related to design process. Methods of materials selection in practical applications by using limited line/-es, guideline/-es on Ashby's diagrams. Basic issues connected with materials selection taking into account the shape of elements. Fundamental issues related to manufacturing process in the context of materials selection.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	50.0%	100.0%

Recommended reading

Basic literature	M.F. Ashby, H.R. Shercliff, D. Cebon: Materials: engineering, science, processing and design. 4th edition, Butterworth Heinemann, Oxford, 2019. Mahmoud M. Farag: Materials and Process Selection for Engineering Design. 4th edition. Published December 30, 2020 by CRC Press. M.F. Ashby: Materials Selection in Mechanical Design. 5th edition, Butterworth Heinemann, Oxford, 2016.
Supplementary literature	F.A.A. Crane, J.A. Charles: Selection and use of Engineering Materials. Butterworths. Boston, MA., 1984. Kamaraj M.: Basics of Surface Technology, New Academic Science, 2018. Kutz M. (Ed.): Handbook of Materials Selection. John Wiley & Sons Inc., New York 2002 GRANTA EduPack (www.grantadesign.com/education). Software.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable

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