GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Metal Science 2, PG_00043724		
Field of study	Transport and Logistics, Transport and Logistics		
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 Ship Manufacturing Technology, Quality Systems and Materials Science -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	mgr inż. Krzysztof Emilianowicz	
	Teachers	mgr inż. Krzysztof Emilianowicz mgr inż. Lech Nadolny	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	30.0	0.0	0.0	30

E-learning hours included: 0.0

Metaloznawstwo II (laboratoria) - Moodle ID: 4127
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=4127

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

Delivery of basic knowledge about structural materials applied in engineering as well as methots of mechnical properties testing and metalgrphic investigation

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W03] has a basic knowledge on hydromechanics, thermodynamics, machine construction, ecology, materials science and electronics necessary to understand the construction and operation principles of means of marine transport	The student defines the properties of materials. Student identifies the basic properties of metallic materials. Student identifies types of crystal structure research: macroscopic and microscopic. Student defines phase and structural components of Fe-C alloys.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
[K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of means and systems of transport	The student analyzes the relationship between the receipt, structure, properties and functionality of the material.	[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information

Subject contents

Investigation of mechanical properties of constructional materials: tensile testing, impact toughness, hardness testing, fatigue crack propagation rate. Iron-Iron carbide equilibrium phaze diagram. Cast Steels. Cast iron. Nonalloyed structural steels. Stainless steels. Copper and Coper alloys. Alumininium alloys. Material used for slide bearings.

Prerequisites and co-requisites

Knowledges of subjects: Physics (O1S.1009.1, O1S.2009.2) , Mathematics (O1S.1008.1, O1S.2008.2, O1S3008.3)

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Reports of laboratory excersises	80.0%	100.0%

Recommended reading	Basic literature	**Basic literature** 1. Dobrzański L. A.: Materiały inżynierskie i projektowanie materiałowe. WNT, Warszawa 2006. 2. Dobrzański L. A.: Metaloznawstwo z podstawami nauki o materiałach. WNT, Warszawa 2002. 3. Metaloznawstwo okrętowe. Ćwiczenia laboratoryjne, Pod redakcją Tadeusza Krzysztofowicza. Wyd. Politechniki Gdańskiej, Gdańsk 2002
	Supplementary literature	**Supplementary literature** 1. Metaloznawstwo okrętowe. Pod redakcją Konstantego Cudnego. Wyd. Politechniki Gdańskiej, Gdańsk 2001. 2. Metaloznawstwo. Pod redakcją Marii Głowackiej. Wyd. Politechniki Gdańskiej, Gdańsk 1996. 3. Metaloznawstwo. Materiały do ćwiczeń laboratoryjnych. Pod redakcją Joanny Hucińskiej. Wyd. Politechniki Gdańskiej, Gdańsk 1995.
	eResources addresses	Podstawowe https://enauczanie.pg.edu.pl/moodle/course/view.php?id=4127 -
Example issues/ example questions/ tasks being completed	It does not concern	
Work placement	Not applicable	