



Subject card

Subject name and code	Metal Science 1, PG_00043719						
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					
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				1.0	
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		dr inż. Milena Supernak				
	Teachers		dr inż. Milena Supernak				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
Metaloznawstwo - Moodle ID: 2015 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=2015							
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	15		2.0		8.0	25
Subject objectives	Delivery of basic knowledge about structural materials applied in engineering as well as about their processing						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[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 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.			[SU5] Assessment of ability to present the results of task [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment	
	[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 analyzes the relationship between the receipt, structure, properties and functionality of the material.			[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge	
Subject contents	Investigation of properties of constructional materials. Basis of materials sciences. Metals and metals alloys. The arrangement of equilibrium "Fe - Fe ₃ C". Unalloyed steels. Cast steels. Cast iron. Classification and marking of steels. Copper and copper alloys. Aluminum alloys. Corrosion and protection against corrosion. Polymers. Ceramic materials and coal. Composites. The correlation between technology and selection of constructional materials.						
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	
	final credit colloquium of lectures		50.0%			100.0%	

Recommended reading	Basic literature	Basic literature 1. Dobrzański L. A.: Podstawy nauki o materiałach i metaloznawstwo. WNT, Warszawa 2002. 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	
Example issues/ example questions/ tasks being completed	It does not concern	
Work placement	Not applicable	