GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00059001		
Field of study	Materials Engineering, Materials Engineering, Materials Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
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	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Materials Science and Technology -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Grzegorz Gajowiec	
	Teachers		

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

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	10.0	35.0	75

Subject objectives

The aim of the course is to acquire knowledge about iron alloys, their heat treatment, and the ability to recognize and interpret microstructures in these alloys.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U01	Is able to determine the scope of research necessary to solve a specific problem.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
K6_U02	He is able to prepare metallographic specimens. He is able to use an optical microscope and hardness testers.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
K6_K01	He is aware of the difficulties associated with the analysis of microstructures.	[SK3] Assessment of ability to organize work [SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice
K6_W03	Based on the observation of the microstructure, he can determine what treatment the steel has undergone.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge

Subject contents

Two-component phase equilibrium systems. Diagram of the iron-cementite phase equilibrium system. Iron alloys and their heat treatment. Preparation of metallographic specimens. Macroscopic and microscopic metallographic examinations. Hardness measurements.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Tests and reports	100.0%	100.0%

Recommended reading	Basic literature	-
	Supplementary literature	-
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1) Diagram of the Fe-Fe3C phase equilibrium system - phase and structural description 2) Definition of steel; influence of carbon on the mechanical properties of steel 3) Selection of steel heat treatment parameters 4) Influence of alloying elements on steel properties	
Work placement	Not applicable	

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