GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Standardization and quality assessment, PG_00039627		
Field of study	Materials Engineering, Materials Engineering, Materials Engineering		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2023/2024
Education level	second-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	blended-learning
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	Zakład Technologii Materiałów Konstrukcyjnych i Spajania -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Jerzy Łabanowski	
	Teachers	dr inż. Jacek Haras prof. dr hab. inż. Jerzy Łabanowski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	0.0	0.0	0.0	30

E-learning hours included: 15.0

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	5.0	15.0	50

Subject objectives

To acquaint students with the principles of normalization and classification of construction materials included in the standards and technical industry regulations.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_W05	Recognizes the indication of steel and non-ferrous alloys. Presents the terminology of metal products and semi-finished	[SW1] Assessment of factual knowledge
K7_U01	The student knows the rules of presenting the results of control tests of metalic materials	[SU3] Assessment of ability to use knowledge gained from the subject
K7_K01	The student is able to evaluate the content and prepare documents regarding the quality of metal products and semi-finished products. He can plan and carry out control tests of steel products	[SK5] Assessment of ability to solve problems that arise in practice

Subject contents

LECTURE Classfication of steel, cast steel, cast iron, non-ferrous metals and their alloys, division into classes and categories. Rules for marking grades of ferrous and non-ferrous metal alloys according to Polish and European standards, ISO and American AISI, UNS. Semi-finished and metallurgical products - terminology, forms and classification states, stamping, packing, transport. Steel products and metallurgical products of non-ferrous metals - rolled products, forgings, drawn and extruded products, castings, metal powders and sintered products metal powders. Unification and standardization of marking of steel products. Review of groups and requirements for metal materials used in various branches of the economy: materials for the energy sector conventional and nuclear, materials for marine structures, materials for the automotive industry and aviation, materials for the chemical and petrochemical industries, materials for construction. Recipes specifying acceptance requirements for steel products (standards, regulations of Ship Companies Classification regulations, UDT regulations). Principles of selecting substitutes for steel and non-ferrous metal alloys.TUTORIALS Practical use of regulations and standards specifying requirements for products metallurgical. Determining the acceptance requirements for rolled, forged, drawn, and steel products steel castings. Setting criteria and selecting materials for specific industrial applications automotive, aviation, petrochemical, shipbuilding in nuclear and conventional energy and construction. Selection of substitutes for steel, cast steel and cast iron according to Polish and foreign standards - exercise in using a computer database. .

Prerequisites and co-requisites		
Assessment methods and criteria		

Subject passing criteria	Passing threshold	Percentage of the final grade
sprawozdania	50.0%	40.0%
kol. zaliczeniowe	50.0%	60.0%

Recommended reading	Basic literature	1. Blicharski M.: Inżynieria materiałowa. Stal. WNT Warszawa, 2004 2. Dobrzański L.: Podstawy nauki o materiałach i metaloznawstwo. WNT, Warszawa 2002. 3. Łabanowski J.: Ocena jakości wyrobów hutniczych. Wyd. PWSZ w Elblagu, Elbląg 2012 4. Adamczyk J.: Inżynieria materiałów metalowych, cz I i II. Wyd. Politechniki Śląskiej, Gliwice 2004.
	Supplementary literature	1. Dobrzański L.A.: Materiały inżynierskie i projektowanie materiałowe. WNT, Warszawa, 2005. 2. Standards; PN, PN-EN, ISO, ASTM, przepisy UDT. 3. Ship Classification Society rules: PRS, DNV, LR, GL.
	eResources addresses	Adresy na platformie eNauczanie: Normalizacja i ocena jakości, W, Inż. Mater., sem 2 zimowy23/24, PG_00039627 - Moodle ID: 31063 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=31063
Example issues/ example questions/ tasks being completed	What is the form and qualification condition of a steel product? General classification of non-ferrous metals and their alloys Provide a scheme for classifying steel into groups, What is the basic division of steel according to the current standards What are the strength categories and ductility varieties of weldable structural steels? Classification of stainless steels due to their structure, Principles of marking steel for heavy plates for shipbuilding Explain the given metallurgical terms: What types of marks are used in the guild hallmarking of steel products? What normative documents may regulate the receipt of metallurgical products or semi-finished products? Explain the given designations of steels and non-ferrous alloys	
Work placement	Not applicable	