GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Surface processing of materials, PG_00040077		
Field of study	Mechanical Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Artur Sitko	
	Teachers	dr inż. Artur Sitko	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	22.0	0.0	15.0	0.0	0.0	37

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	37	11.0	77.0	125

Subject objectives

Knowledge of surface treatments of materials.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W03] possesses and is able to practically apply the knowledge on the construction, properties and testing methods of construction materials	The student knows the advantages and disadvantages of various manufacturing methods and their impact on the structure, as well as the properties of surface layers and coatings; research methods for surface layers and coatings.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation
[K6_U08] is able to design a technological manufacturing process for typical elements of machines or devices, using analytical and numerical calculating tools	The student is able to link the parameters used during surface treatments with the layers obtained.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information

Subject contents

Top layer, coating, surface treatment. Description of various forms of degradation (for example: abrasive-corrosive wear, corrosive wear, abrasive wear, fatigue wear, adhesive wear). Description of various types of methods for producing surface layers and coatings: - mechanical, - thermal - mechanical, - thermal, - thermo-chemical, - chemical, - physical, - electrochemicalCopper and copper alloys; Aluminum and Aluminum alloys; Electrolytic, dip and spray coatings; Welded and clad coatings; Diffusion layers

Prerequisites and co-requisites

Basic knowledge of: Materials science. Equilibrium diagrams.

Assessment methods and criteria

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

Recommended reading

Basic literature	1. Łabanowski, Głowacka: Surface engineering. Scientific and Technical Publishing House, Elbląg, 2014.2. Burakowski, Roliński, Wierzchoń: Surface engineering. Scientific and Technical Publishing House, Warsaw, 1992.3. Blicharski: Surface engineering. Scientific and Technical Publishing House, Warsaw, 2009.
Supplementary literature	Głowacka, Zieliński: Materials science. Scientific and Technical Publishing House, Gdańsk University of Technology, 2011.

	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	