GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00052106		
Field of study	Nanotechnology		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Optional subject group 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	4	Language of instruction	Polish
Semester of study	7	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Zakład Technologii Biomateriałów -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Magdalena Jażdżewska	
	Teachers	dr inż. Magdalena Jażdżewska	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	15.0	30.0	0.0	45

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	45	5.0	50.0	100

Subject objectives

The aim of the course is to prepare a design of a nanocoating or nanolayer for engineering applications or in implantology.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U02	The student is able to use the learned technologies to obtain advanced surface layers.	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
K6_K04	The student is able to work in a group.	[SK1] Assessment of group work skills
K6_U09	The student is able to develop design assumptions any coating/ layer taking into account the area of its application.	[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
K6_W07	The student has knowledge in scope of methods for obtaining coatings based on nanostructures, properties and basic research methods.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge

Subject contents

As part of design classes, students prepare their own proposal for a nanocoating or nanolayer, define the purpose of the proposed project, propose assumptions and design concepts, and prepare a project based on the selected concept.As part of laboratory classes, students prepare a nanohydroxyapatite coating on an anodized titanium alloy substrate and then determine selected properties of the obtained layers.

Prerequisites and co-requisites

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		56.0%	60.0%
		50.0%	40.0%
Recommended reading	Basic literature	1. Burakowski T., Wierzchoń T.: Inżynieria powierzchni metali. WNT Warszawa 1995. 2. Praca zbiorowa pod redakcją Stanisława Tkaczyka.: Powłoki ochronne. Gliwice 1994. 3. Kula P.: Inżynieria warstwy wierzchniej. Wyd. Politechniki Łódzkiej, Łódź 2000. 4. Kusiński J.: Lasery i ich zastosowanie w inżynierii materiałowej. Kraków, Wyd. Naukowe Akapit 2000. 5. Klimpel A.: Napawanie i natryskiwanie cieplne. Technologie. WNT Warszawa 2000 6. Głowacka M., Łabanowski J.: Inżynieria Powierzchni Wybrane Zagadnienia, WPWSZ Elbląg 2014	
	Supplementary literature	1. Dobrzański L.A.: Podstawy nauki o materiałach i metaloznawstwo. Materiały inżynierskie i podstawy projektowania materiałowego. WNT. 2002.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Basic concepts of Surface Engineering: • surface layer, • top layer, • protective coating. Coatings used in biomedical engineering.		
Work placement	Not applicable		