



Subject card

Subject name and code	, PG_00069969						
Field of study	Zaawansowane technologie modyfikacji powierzchni materiałów						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2025/2026		
Education level	second-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	2		ECTS credits		6.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Magdalena Jażdżewska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	80.0	0.0	0.0	80
	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	80		5.0		65.0	150
Subject objectives	The aim of the course is to familiarize students with advanced methods of surface modification of engineering materials, including techniques for producing surface layers and coatings with specific functional properties. Students will learn the principles of selecting appropriate modification technologies depending on operational requirements and the characteristics of the substrate material.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K82] is equipped to participate actively in lectures, seminars and laboratory classes conducted in foreign language		The student can properly prepare research materials and the materials necessary for conducting experiments.		[SK4] Ocena umiejętności komunikacji, w tym poprawności językowej		
	[K7_W03] demonstrates a well-structured and theoretically grounded knowledge of the key issues in Mechanical Engineering to enable the design and diagnosis of mechanical systems, processes and devices		The student possesses knowledge of techniques, tools, and methods examination within the field of Mechanical Engineering and Machine Design.		[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym		
	[K7_W04] demonstrates knowledge covering selected topics of advanced specific knowledge, in particular methods, techniques, tools specific to Mechanics and Mechanical Engineering processes, systems and equipment		The student knows the structure and operation of equipment used for testing and evaluating surface-modified materials.		[SW1] Ocena wiedzy faktograficznej		

Subject contents	Course content – laboratory The following topics will be covered within the course:: • safety rules for working in a materials laboratory, • characteristics of surface-modified materials, • technologies for surface layer treatment and modification • selection of surface modification methods for engineering and medical applications, • properties and applications of ceramic, polymer, and composite coatings, • methods for evaluating the quality and durability of surface layers.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Report on the work performed.	60.0%	100.0%
Recommended reading	Basic literature	1. Kula P.: Inżynieria warstwy wierzchniej. Wyd. Politechniki Łódzkiej, Łódź 2000. 2. Burakowski T., Wierchoń T.: Inżynieria powierzchni metali. WNT Warszawa 1995. 3. Kula P.: Inżynieria warstwy wierzchniej. Wyd. Politechniki Łódzkiej, Łódź 2000. 4. Głowacka M., Łabanowski J.: Inżynieria Powierzchni Wybrane Zagadnienia, WPWSZ Elbląg 2014	
	Supplementary literature	Current, English-language scientific publications on the surface modification of materials.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Example topics: • Methods of surface modification of engineering materials • Types of layers and coatings used in engineering and medicine • Production and characterization of ceramic coatings on titanium alloys • Selection of surface technologies for specific operating conditions		
Practical activities within the subject	Not applicable		

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