

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00058865							
Field of study	Nanotechnology							
Date of commencement of studies	October 2023		Academic year of realisation of subject		2024/2025			
Education level	second-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	2		Language of instruction		English			
Semester of study	4		ECTS credits		25.0			
Learning profile	general academic profile		Assessment form		assessment			
Conducting unit	Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Agnieszka Witkowska					
	Teachers		dr hab. inż. Agnieszka Witkowska					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	165.0		0.0	165
	E-learning hours included: 0.0							
Learning activity and number of study hours	Learning activity	Participation in classes include plan	n didactic led in study	Participation in consultation hours		Self-study		SUM
	Number of study hours	165		30.0		430.0		625
Subject objectives	Preparation of the Student for undertaking and solving scientific and technical problems as well as for elaborating complete and reliable research reports.							

Learning outcomes	Course outcome	Subject outcome	Method of verification
	К7_К04	The student starts working on the diploma project as early as on the third semester of study and implementing it by the end of the fourth semester gains experience and skills related to planning and organizing systematic work on a long-term scientific-technical problem/project.	[SK3] Assessment of ability to organize work
	K7_W06	The student has an extended knowledge needed to work in a physical laboratory, to carry out research, measurements and engineering work related to the diploma project tasks.	[SW1] Assessment of factual knowledge
	К7_W07	By implementing a Master's project in the field of nanomaterials and nanotechnology, the student expands his/her knowledge of the potential negative biological and ecological effects associated with the use of nanostructures, as well as of the related safety principles.	[SW1] Assessment of factual knowledge
	K7_U06	By implementing a master's project and preparing a master's thesis, the student (in accordance with the scope of the project and assigned tasks) acquires the ability to perform theoretical and numerical calculations and simulations of phenomena and processes, as well as critically analyze their results, draw conclusions and formulate reasoned opinions.	[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information
	K7_U01	The student, while preparing the master's project, as part of the assigned tasks, performs a review of scientific literature related to the implemented project and conducts a critical discussion of the obtained results based on available sources and databases. He acquires the ability to critically analyze and select information from properly selected sources (in English).	[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
	К7_К09	Performing the diploma project the Student undertaks various engineering and research activities necessary to perform a physical or numerical experiment, thus the student gains an awareness of the importance and impact of the effects of their activities on the environment and the associated responsibility for decisions.	[SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice
	K7_U10	The master's thesis is completed by presenting the main tasks, the results of one's own research and conclusions resulting from the project during the final diploma exam. Therefore, the student has a deepened ability to prepare such an oral presentation in English.	[SU5] Assessment of ability to present the results of task
	К7_U05	By implementing a master's project and preparing a master's thesis, the student (in accordance with the scope of the project and assigned tasks) acquires the ability to plan and conduct experimental research and critically analyze their results, draw conclusions and formulate reasoned opinions.	[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information

Subject contents	Implementation of research tasks related to the selected topic of the diploma project in the team: student- project supervisor. Preparation of the MSc thesis manuscript in accordance with suitable standards and general guidelines.					
Prerequisites and co-requisites	Completed and passed all courses from semesters 1-3.					
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade			
	Preparation and presentation of the MSc thesis	50.0%	50.0%			
	Realization of laboratory tasks related to the diploma project	100.0%	50.0%			
Recommended reading	Basic literature	 [1] Nicholas Walliman, Research Methods, The Basics, Taylor & Francis Group, London and New York, 2011 [2] Hugh G. Gauch Jr., Scientific Methods in Brief, Cambridge University Press, 2012 				
	Supplementary literature	 [1] Guidelines for Authors of diploma thesis and diploma projects for higher education studies at Gdańsk University of Technology written in polish or english. [2] Scientific literature and specialist reports related to the diploma project 				
	eResources addresses	esources addresses Adresy na platformie eNauczanie:				
Example issues/ example questions/ tasks being completed	 Optimization of dealloying process in the formation of porous nanoparticles of gold Non-stoichiometric electrodes with exsolved catalytically active oxide nanoparticles Optimization of the fuel cell manufacturing process through the use of 3D printing Quantum-chemical investigations of the generations of reactive oxygen species by titanium dioxide 					
Work placement	Not applicable					

Document generated electronically. Does not require a seal or signature.