



Subject card

Subject name and code	DIPLOMA LABORATORY WORK, PG_00048972						
Field of study	Green Technologies						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group			Obligatory subject group 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	3	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Energy Conversion and Storage -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor						
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	75.0	0.0	0.0	75
	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	75		15.0		40.0	130
Subject objectives	The aim of the course is to carry out the research needed to write a master's thesis.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W01] a broader and deeper knowledge of certain branches of mathematics, including elements of applied mathematics and optimization methods including mathematical methods, useful to formulate and solve complex tasks in the field of environmental technologies and modern analytical methods		Has the knowledge to create a research plan and solve existing problems.				
	[K7_K02] is ready to work together as a team, taking in the different roles, can properly identify priorities for implementation specified by you or other tasks, is able to think and act in a creative and enterprising, has the ability to negotiate, is aware of its own limitations and know when to ask the experts		The graduate student is able to work in a group and assess his skills in terms of the tasks performed. He asks for help in case of problems in the implementation of the entrusted functions.				
	[K7_K03] can consciously and supported by the experience to present your work, provide information in a manner commonly understood, to communicate, to make self-assessment and constructive criticism of the work of others, the reasons for different points of view		The graduate student is able to present the effects of his work in an understandable and clear manner. Can critically evaluate his / her work and formulate proposals for solving existing problems.				

Subject contents	<ul style="list-style-type: none"> - preparation of a research plan - preparation of the stand and samples - carrying out research - analysing the results 		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Implementation of the research plan	60.0%	100.0%
Recommended reading	Basic literature	<p>- Fthenakis, V. M., DUBY, P., Wang, W., Graves, C., & Belova, A. (2006). Recycling of CdTe Photovoltaic Modules: Recovery of Cadmium and Tellurium. 21st European Photovoltaic Solar Energy Conference, 25392541.</p> <p>- Sinha, P. (2013). Life cycle materials and water management for CdTe photovoltaics. Solar Energy Materials and Solar Cells, 119, 271275.</p> <p>- Menezes, S. (2001). Electrochemical approach for removal, separation and retrieval of CdTe and CdS films from PV module waste. Thin Solid Films, 387(12), 175178.</p> <p>(pozostałe pozycje do ustalenia z promotorem)</p>	
	Supplementary literature	additional publications	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		