



## Subject card

Subject name and code	Engineering Diploma Project, PG_00058322						
Field of study	Green Technologies						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Optional subject group		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	4	Language of instruction			English		
Semester of study	7	ECTS credits			15.0		
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		dr inż. Anna Kuczyńska-Łażewska				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	0.0	30.0	30
	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	30	50.0		295.0		375
Subject objectives	The aim of the course is for the graduate to present a review of the literature and research results needed to write an engineering diploma thesis.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_K03] turns the attention to the prestige associated with the profession and professional solidarity properly understood, shows respect for others and concern for their welfare	While working, the graduate shows respect to all team members and cares about the prestige of the profession.			[SK4] Assessment of communication skills, including language correctness [SK1] Assessment of group work skills		
	[K6_K06] has awareness of the importance of non-technical aspects and effects of engineering activities, including its impact on the environment and the associated responsibility for decisions.	The graduate is aware of the importance of his or her research in terms of its impact on the environment and the responsibility associated with it.			[SK5] Assessment of ability to solve problems that arise in practice		
	[K6_U01] is able to obtain information from literature, databases and other sources, is able to integrate the information obtained, to make their interpretation, as well as draw conclusions and formulate and justify opinions, take part in the discussion	The graduate is able to obtain information from literature sources, including books and publications. Makes interpretations, draws conclusions, and formulates opinions when analyzing literature.			[SU2] Assessment of ability to analyse information		
[K6_U03] is able to use information and communication technologies relevant to the common tasks of engineering, is able to use known methods and mathematical-physical models to describe and explain phenomena and chemical processes	The graduate is able to use communication techniques appropriate to convey engineering assumptions and, using the acquired knowledge, is able to describe and explain phenomena occurring during chemical processes.			[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools			

Subject contents	- Presentation of a literature review  - Presentation of research results  - Drawing final conclusions		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Completing the work	80.0%	100.0%
Recommended reading	Basic literature	<p>[1] R. Dimeska, P. S. Murray, S. F. Ralph, and G. G. Wallace, Electroless recovery of silver by inherently conducting polymer powders, membranes and composite materials, <i>Polymer (Guildf)</i>, vol. 47, no. 13, pp. 45204530, 2006, doi: 10.1016/j.polymer.2006.03.112.</p> <p>[2] A. Kuczyńska-Łażewska, E. Klugmann-Radziemska, Z. Sobczak, and T. Klimczuk, Recovery of silver metallization from damaged silicon cells, <i>Sol. Energy Mater. Sol. Cells</i>, vol. 176, pp. 190195, 2017, doi: 10.1016/j.solmat.2017.12.004.</p> <p>[3] J. Laska and J. Widlarz, One-step polymerization leading to conducting polyaniline, <i>Synth. Met.</i>, vol. 136, pp. 263264, 2003, doi: 10.1016/S0379-6779(02)00675-6.</p> <p>[4] G. M. Neelgund and A. Oki, A facile method for synthesis of polyaniline nanospheres and effect of doping on their electrical conductivity, <i>Polym Int.</i>, vol. 60, no. 9, pp. 12911295, 2011, doi: 10.1002/pi.3068.A.</p>	
	Supplementary literature	additional publications	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		