

Subject card

Subject name and code	Prototyping and elements of technological process design, PG_00134599						
Field of study	Chemistry						
Date of commencement of studies	October 2026		Academic year of realisation of subject			2027/2028	
Education level	Master's studies		Subject group			Obligatory subject group in the field of study 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			Polish	
Semester of study	3		ECTS credits			1.0	
Learning profile	academic		Assessment form			credit	
Conducting unit	Laboratory of Photocatalysis -> Department of Environmental Technology -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Joanna Nadolna				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		2.0		8.0	25
Subject objectives	• Familiarizing students with intellectual property issues, • Introducing students to the process of writing a patent application, including patent claims, • Introducing students to the concept of design thinking, • Familiarizing students with ways of presenting their own ideas, • Familiarizing students with elements of technology design.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.		The student understands the importance of systematically familiarizing themselves with the latest chemical literature (including patents and articles from scientific and popular science journals). They also understand the need for deepening interdisciplinary knowledge.			[SK8] observation of student's independent or team work	
	[CHEMMU2_W06] Applies mathematics to the extent necessary to understand, describe and model chemical processes of medium complexity.		The student is able to perform a material balance for the designed product.			[SW2] presentation/project/paper/report	
	[CHEMMU2_W08] Demonstrates knowledge of theoretical computational and IT methods used to solve problems in chemistry.		The student is able to perform a material balance for the designed product.			[SW2] presentation/project/paper/report	

Subject contents	• Patents and licenses (preparing patent claims, patent search, patent purity, application preparation in Poland and worldwide), • Design thinking, • Prototyping and creative problem-solving, • Teamwork, team management, • Elements of technology design (selection of chemical and technological concepts), • Presenting ideas.		
Prerequisites and co-requisites	Basic knowledge of English.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	51.0%	100.0%
Recommended reading	Basic literature	Unpublished materials provided to students during classes.	
		Patent descriptions of selected technologies. The patent descriptions will be sourced from free patent databases.	
	Supplementary literature	no	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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