

Subject card

Subject name and code	Chemistry IV, PG_00048932								
Field of study	Materials Engineering, Materials Engineering, Materials Engineering, Materials Engineering								
Date of commencement of studies	October 2020		Academic year of realisation of subject			2021/2022			
Education level	first-cycle studies	st-cycle studies		Subject group		Obligatory subject group in the field of study			
						Subject group related to scientific research in the field of study			
Mode of study	Full-time studies		Mode of de	elivery		at the university			
Year of study	2		Language	anguage of instruction			Polish		
Semester of study	4		ECTS credits			4.0			
Learning profile	general academic profile		Assessme	nt form		assessment			
Conducting unit	Department of Polymers Technology -> Faculty of Chemistry								
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Justyna Kucińska-Lipka							
	Teachers		dr hab. inż. Justyna Kucińska-Lipka						
			dr inż. Paulina Parcheta-Szwindowska						
			dr inż. Łukasz Zedler						
			Adam Olszewski						
			dr inż. Marcin Włoch						
			dr inż. Paulina Kosmela						
			dr hab. inż. Michał Strankowski						
		dr inż. Maciej Sienkiewicz							
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	:t	Seminar	SUM	
	Number of study hours	30.0	0.0	15.0	0.0		0.0	45	
	E-learning hours included: 0.0								
	Adresy na platformie eNauczanie:								
	2022 Chemia IV (PG_00048932)-Nowy - Moodle ID: 22619 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22619								
	Additional information:								
Learning activity and number of study hours	Learning activity	rning activity Participation in classes include plan				Self-st	tudy	SUM	
	Number of study hours	45		10.0		45.0		100	
Subject objectives	The aim of the course of polymers of practic								

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Learning outcomes	Course outcome	Subject outcome	Method of verification				
Ü	K6_U01	The student is able to use analytical methods and devices that enable the measurement of basic quantities characterizing materials and synthesis processes.	[SU4] Assessment of ability to use methods and tools				
	K6_W02	The student has knowledge of physics and chemistry useful for solving problems related to the synthesis of polymers and the interpretation of their properties.	[SW1] Assessment of factual knowledge				
	K6_U05	The student prepares theoretically for classes	[SU2] Assessment of ability to analyse information				
	K6_K01	The student knows how to raise his own competences and knows when to turn to experts for help, is able to properly define priorities for the implementation of tasks set by himself or other.	[SK5] Assessment of ability to solve problems that arise in practice				
Subject contents	Basic concepts: monomers, oligomers, homopolymers, copolymers, terpolymers, polymer materials. Division of monomers and polymers. Types of polyreaction. Radical polymerization, initiators and chemical reactions taking place in the processes of chain initiation, growth and termination - kinetics. Polymers produced according to radical polymerization. Anionic polymerization of selected monomers. Polymers produced in anionic polymerization. Condensation polymerization: homopolycondensation, heteropolycondensation, copolycondensation and cross-linking polycondensation. Chemical reactions taking place in polycondensation processes leading to the obtaining of polymers of practical use.						
Prerequisites and co-requisites	There are no requirements.						
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade				
	written colloquium	60.0%	60.0%				
	laboratory	100.0%	40.0%				
Recommended reading	Basic literature Collective work edited by Z. Florjańczyk and S. Penczek: Chemistry of polymers, t1- Macromolecules and methods of their preparation, Oficyna Wydwnicza Politechniki Warszawskiej, Warsaw 1995. Pielichowski J., Puszyński A.: Chemistry of polymers, WNT Kraków 2004						
	Supplementary literature	W. C., Callister, Jr.: Materials Science & Engineering, 3rd Edition, Joh Wiley & Sons, New York 1994					
	eResources addresses	2022 Chemia IV (PG_00048932)-N https://enauczanie.pg.edu.pl/moodl					
Example issues/ example questions/ tasks being completed	1. What are polymers?2. What is the difference between the polycondensation reaction and the polyaddition reaction?						
	3. How are monomers divided?						
	4. Obtain the selected polymer by at least two methods.						
Work placement	Not applicable						

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