

Subject card

Subject name and code	Introduction to chemical kinetics, PG_00080773						
Field of study	Chemical Business, Chemistry, Environmental Protection						
Date of commencement of studies	October 2024	Academic year of realisation of subject				2026/2027	
Education level	Bachelor's studies	Subject group				Optional subject group	
Mode of study	full-time studies	Mode of delivery				at the university	
Year of study	3	Language of instruction				English english language	
Semester of study	6	ECTS credits				1.0	
Learning profile	academic	Assessment form				credit	
Conducting unit	Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Dagmara Jacewicz				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	7.0	0.0	0.0	7
	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	7		1.0		17.0	25
Subject objectives	The aim of the course is to familiarize students with the field of chemical kinetics. Practical laboratory work - chemical experiments, analysis of obtained results and discussion.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEML3_U01] Identifies, analyses and solves problems in the field of broadly understood chemistry on the basis of the acquired knowledge.	Assessment of the student's independent conduct of chemical experiments. Assessment of the Student's explanation of the course of chemical experiments, assessment of the correctness of the analysis of results, drawing conclusions from the conducted experiments and preparation of reports.	[SU3] text preparation/written work
	[CHEML3_U09] Is able to learn independently.	Students: - is active in extending knowledge and understands the need for continuous education - undertakes to work with a new topic or technique - engages in scientific discussions - understands the need to read scientific and popular science journals in order to expand and deepen knowledge - understands the need for lifelong learning, recognizing self-education as a standard and condition for success on the labor market and achieving professional success	[SU4] test/exam - oral or written
	[CHEML3_W10] Enumerates and describes the basic aspects of the construction, operation and use of measuring apparatus and equipment used in experimental works in the field of chemistry and related sciences.	Students enumerates and describes the aspects of the construction, operation and use of measuring apparatus and equipment used in experimental works in the field of chemical kinetics	[SW4] test/exam - oral or written
	[CHEML3_U08] Presents in an understandable way the basic facts about chemistry using a scientific language typical of chemical sciences.	Assessment of the Student's explanation of the course of chemical experiments, assessment of the correctness of the analysis of results, drawing conclusions from the conducted experiments and preparation of reports.	[SU4] test/exam - oral or written
	[CHEML3_K06] Raises her/his professional and personal competences by using information provided in various sources.	Method of verifying the acquisition of social competences. Assessment of the Student's ability to solve scientific and research problems on the basis of work student identifies the level of their knowledge and skills as well as the need for updating knowledge, continuous professional training and personal development.	[SK8] observation of student's independent or team work
	[CHEML3_W08] Demonstrates knowledge of basic computational methods to solve problems in chemistry, physics, mathematics.	During the laboratory exercises, the student solves problems in writing (tests) or oral (oral answer) in the field of chemical kinetics.	[SW5] implementation of a problem task
	[CHEML3_W02] Describes the properties of elements and the most important chemical compounds, enumerates the methods of their preparation and methods of analysis.	The student is able to describe the properties of elements and the most important chemical compounds, lists the methods of their preparation and methods of analysis.	[SW4] test/exam - oral or written
Subject contents	Methods of Determining Reaction Order (Zeroth-Order Reactions, First-Order Reactions, Second-Order Reactions. Determining the rate law of a reaction. Laboratory. The effect of the concentration and temperature on reaction rate in simple chemical reactions occurring in aqueous solutions.		

Prerequisites and co-requisites	Basic knowledge of general and inorganic chemistry. Completed general chemistry course i inorganic.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Performing the experiment	51.0%	15.0%
	Reports	51.0%	25.0%
	Test	51.0%	60.0%
Recommended reading	Basic literature	1. Wright Margaret Robson, Introduction to Chemical Kinetics, John Wiley and Sons Ltd 2. Soustelle Michel, An Introduction to Chemical Kinetics, John Wiley and Sons Ltd	
	Supplementary literature	1. Marin, Guy B., Kinetics of Chemical Reactions, Wiley-VCH GmbH 2. Turányi, Tamás, Analysis of Kinetic Reaction Mechanisms, Springer-Verlag GmbH	
	eResources addresses		
Example issues/ example questions/ tasks being completed	How a change in concentration, change in temperature, change in pH or a change in pressure influences the rate of a reaction. Determine the value of the rate constant. Fitting the reaction model to the experimental values.		
Work placement	Not applicable		

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