University of Gdańsk

Subject card

Subject name and code	Introduction to chemical kinetics, PG_00080771						
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	4.0	0.0	0.0	0.0	0.0	4
	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	4		1.0		20.0	25
Subject objectives	The aim of the course is to familiarize students with the field of chemical kinetics.						

Learning outcomes			
	Course outcome	Subject outcome	Method of verification
	[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_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.	[SU4] 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_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_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.	[SK4] test/exam - oral or written
	[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
	[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.	[SW4] test/exam - oral or written
Subject contents	Introduction to Chemical Kinetics, the rate of reaction, stoichiometry and order, zero order reactions, first order reactions, second order reactions, determination of reaction order, and effect of factors on the rate of chemical reactions. Practical chemical kinetics in solution. The material that will be covered in this subject is intended to provide you with the tools and understanding to handle basic problems involving chemical systems of simple chemical reactions		
Prerequisites and co-requisites	Basic knowledge of general and inorganic chemistry. Completed general chemistry course i inorganic.		

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>written or test examination and z open questions</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>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</td></tr>
<tr><td>Supplementary literature</td><td>1. Marin, Guy B., Kinetics of Chemical Reactions, Wiley-VCH GmbH

2. Turányi, Tamás, Analysis of Kinetic Reaction Mechanisms, Springer-Verlag GmbH</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">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.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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