

Subject card

Subject name and code	Diploma lecture - Why are chemical reactions running?, PG_00081849						
Field of study	Chemistry						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Elżbieta Jankowska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	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		5.0		15.0	50
Subject objectives	The lecture aims to: - explaining to students why chemical reactions take place; - familiarizing students with the importance of electronic and steric effects in the course of chemical reactions; - explaining to students what factors affect the reactivity of molecules and determine the course of the reaction as well as its spontaneity, reversibility and irreversibility; - familiarizing students with the role of the solvent in chemical reactions						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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: - knows the basic types of reaction mechanisms and methods of their determination	[SW5] implementation of a problem task
	[CHEML3_W03] Explains the relationship between the structure of matter and its observed properties.	The student: - lists and characterizes the factors deciding about the course of the reaction and its speed and emerging products; - defines the equilibrium constant of the reaction and determines the factors influencing it; - uses the terms 'electronic effect', 'steric effect' for explanation reactivity of particles and the course of a chemical reaction	[SW5] implementation of a problem task
	[CHEML3_U08] Presents in an understandable way the basic facts about chemistry using a scientific language typical of chemical sciences.	Student: - discusses the factors determining the possibility of a chemical reaction; - uses chemical terminology, which makes it possible to discuss the content of the lecture	[SU1] oral statement/conversation/discussion
	[CHEML3_K01] Identifies the level of her/his own knowledge and skills and the need for continuous learning and personal development.	The student: - shows creativity in independent work and the ability to cooperate during group work; - knows how to discuss and support his/her theses with substantive arguments - independently searches for information in scientific literature	[SK1] oral statement/conversation/discussion
Subject contents	Atomic and molecular orbitals. Interactions leading to the formation of chemical bonds. Equilibrium of a chemical reaction, reactions reversible and irreversible. Addition, substitution and elimination reactions. The influence of the solvent on the course of the reaction. The role of the group departing in chemical reactions. Competing reactions.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	51.0%	30.0%
	problem tasks	51.0%	70.0%
Recommended reading	Basic literature	J. Keeler, P. Wothers, Why chemical reactions happen, Oxford University Press 2003	
	Supplementary literature	M. Jones Jr., S.A. Fleming, Organic chemistry J. Clayden, N. Greeves, S. Warren, Organic chemistry	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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