



## Subject card

Subject name and code	Industrial chemometrics, PG_00035170						
Field of study	Engineering and Technologies of Energy Carriers						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group			Obligatory subject group 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			2.0		
Learning profile	practical profile	Assessment form			assessment		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Tomasz Laskowski				
	Teachers		dr hab. inż. Tomasz Laskowski dr inż. Julia Borzyszkowska-Bukowska dr inż. Paweł Szczeblewski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	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		2.0		18.0	50
Subject objectives	The aim of this course is to familiarize Student with experimental planning and multidimensional data analysis.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_W03	Student is familiar with advanced chemometric techniques and applies a method of choice to solve a given scientific problem, which is preceded by conducting planned measurements and experiments.			[SW1] Assessment of factual knowledge		
	K7_U07	Student is able to optimise a process of physico-chemical experiments and measurements.			[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task		
Subject contents	1. Introduction to chemometrics, data acquisition and documentation 2. Data control 3. Data processing, visual analysis 4. Principal Component Analysis 5. Experimental planning 6. Dependence modelling 7. Classification						
Prerequisites and co-requisites	1. Basic knowledge on statistics. 2. Advanced usage of spreadsheets.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final project	60.0%	50.0%
	test	60.0%	50.0%
Recommended reading	Basic literature	1. Practical Guide to Chemometrics, edited by Paul Gemperline, Taylor & Francis, 2006. 2. Statistics and Chemometrics for Analytical Chemistry, J.N. Miller & J.C. Miller, Pearson Education Limited, 2005	
	Supplementary literature	-	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed	Student will be asked to prepare an experimental dataset, to state a problem for these data and then solve it using chemometric techniques. Moreover, Students will acquire additional data to learn some further techniques.		
Work placement	Not applicable		