GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Environmetrics, PG_00057706					
Field of study	Green Technologies					
Date of commencement of studies	October 2022		Academic year of realisation of subject		2023/2024	
Education level	first-cycle studies		Subject group		Optional subject group	
Mode of study	Full-time studies		Mode of delivery		at the university	
Year of study	2		Language of instruction		Polish	
Semester of study	4		ECTS credits		4.0	
Learning profile	general academic 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 inż. Julia Borzyszkowska-Bukowska dr hab. inż. Tomasz Laskowski 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	30.0	0.0	0.0	45
	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	45	5.0	50.0	100

Subject objectives	The aim of this course is to familiarize Student with major chemometric techniques and the use of thereof in environmetal monitoring and widely considered environmental sciences.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W01] has a basic knowledge from some branches of mathematics and physics useful for formulating and solving simple problems in the field of environmental technologies and modern analytical methods	Student is familiar with advanced chemometric techniques and applies a method of choice to solve a given scientific problem.	[SW1] Assessment of factual knowledge
	[K6_U03] is able to use information and communication technologies relevant to the common tasks of engineering, is able to use known methods and mathematical-physical models to describe and explain phenomena and chemical processes	Student is able to use a spreadsheet and/or R programming langiage to solve complex mathematic problem given for a multidimensional dataset.	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment

Subject contents	1. Introduction to chemometrics in environmental sciences, data documentation and storage. 2. Data control. 3. Data processing, visual analysis. 4. Exploratory analysis. 5. Classification. 6. Dependence modelling and experimental planning.

Prerequisites and co-requisites	1. Knowledge on the basics of statistics. 2. Advanced usage of a spreadsheet.		

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test exam	60.0%	50.0%
	final project	60.0%	50.0%

Recommended reading	Basic literature	1. Chemometria praktyczna, Jan Mazerski, Malamut Press. 2. Practical Guide to Chemometrics, edited by Paul Gemperline, Taylor & Francis, 2006.
	Supplementary literature	- none -
	eResources addresses	Adresy na platformie eNauczanie: Chemometria w naukach o środowisku - Zielone technologie - letni 23/24 - Moodle ID: 37189 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37189

Example issues/ example questions/ tasks being completed	A Student is asked to prepare his/her own dataset, state a scientific problem and solve this problem using chemometric techniques.

Work placement	Not applicable