



## Subject card

Subject name and code	Data Mining, PG_00047885						
Field of study	Informatics						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2025/2026		
Education level	first-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
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			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Software Engineering -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Waloszek					
	Teachers	dr inż. Wojciech Waloszek					
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	3.0		42.0		75
Subject objectives	The goal of the course is to familiarize students with methods of data mining and to present a basic wireframe for data mining process. The main task of data mining, like prediction, classification and segmentation, are discussed and algorithms used for the tasks are presented. CRISP-DM is shown as an example of a data mining process.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W03] Knows and understands, to an advanced extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	A Student presents the structure of an data mining process (basing on CRISP-DM example). A Student enlists basic tasks of data mining process. A Student demonstrates data mining models. A Student assesses created data mining models			[SW1] Assessment of factual knowledge		
	[K6_W04] Knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	A student enlists and presents algorithms and data structures used in the data mining process.			[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation		
Subject contents	1. Data Mining Basics 2. Data Mining Process and Its Role within an Organisation 3. Representations of Data and Knowledge 4. Review of Basic Classifiers 5. Decision Trees 6. Classification Rules 7. Association Rules 8. Clustering 9. Examples of Numerical Prediction in Data Mining 10. Sources of Bias and Errors in the Data Mining Process 11. Engineering Input and Output 12. Other Data Mining Techniques						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test after lectures	50.0%	50.0%
	Practical exercise	50.0%	50.0%
Recommended reading	Basic literature	Daniel T. Larose: "Metody i modele eksploracji danych", PWN 2008. Ian H. Witten, Eibe Frank: "Data Mining: Practical Machine Learning Tools and Techniques", Morgan Kaufmann 2005. David J. Hand, Padhraic Smyth, Heikki Mannila: "Principles of Data Mining", The MIT Press 2001.	
	Supplementary literature	No requirements	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<p>Exploratory Data Analysis.</p> <p>Generating decision trees.</p> <p>Segmentation of data sets.</p>		
Work placement	Not applicable		