



## Subject card

Subject name and code	, PG_00039371						
Field of study	Automation, Robotics and Control Systems						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Controlled Electric Drives -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Daniel Wachowiak					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	0.0	0.0	0.0	10.0	20
	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	20	20.0		60.0	100	
Subject objectives	The goal of the subject is to familiarize students with algorithms used in data mining.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_U04	Students can find uses of data mining in fields of automatic control and robotics.			[SU5] Assessment of ability to present the results of task		
	K7_W11	Students can create or use existing tools to process data and implement this in advanced control systems.			[SW1] Assessment of factual knowledge		
	K7_W06	Students can create or use existing tools to process data and implement this in advanced control systems.			[SW3] Assessment of knowledge contained in written work and projects		
	K7_U07	Students can find rules and dependencies in data sets. This information can be used in automatic control systems or robotics.			[SU1] Assessment of task fulfillment [SU2] Assessment of ability to analyse information		
Subject contents	<ul style="list-style-type: none"><li>- Introduction to data mining and usage of data mining in the industry.</li><li>- Algorithms for finding binary association rules.</li><li>- Algorithms for finding multilevel and multidimensional association rules.</li><li>- Introduction to data classification algorithms. Forming decision trees using Gini Index and Information gain splits.</li><li>- Introduction to clustering methods. K-means algorithm.</li></ul>						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		60.0%	50.0%
		60.0%	50.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Morzy T.: Eksploracja danych, Wydawnictwo Naukowe PWN, Warszawa 2013.</li> <li>2. Osowski S.: Metody i narzędzia eksploracji danych, Wydawnictwo BTC, Legionowo 2013.</li> </ol>	
	Supplementary literature	<ol style="list-style-type: none"> <li>1. Witten I. H., Frank E.: Data Mining: Practical Machine Learning Tools and Techniques, Second Edition, Morgan Kaufmann Publishers, 2005.</li> <li>2. Han J., Kamber M., Pei J.: Data Mining Concepts and Techniques, Third Edition, Morgan Kaufmann Publishers, 2012</li> </ol>	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Find groups of products that commonly appear together in shopping baskets</li> <li>2. Propose a classifier to determine a risk of car owner causing a damage based on data from insurance company</li> <li>3. Find text documents that relate to similar subjects</li> </ol>		
Work placement	Not applicable		