



## Subject card

Subject name and code	Artificial Intelligence, PG_00057032						
Field of study	Mechatronics						
Date of commencement of studies	February 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study 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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Zakład Mechatroniki -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marek Galewski					
	Teachers	dr hab. inż. Marek Galewski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	0.0	30
	E-learning hours included: 0.0						
	Sztuczna Inteligencja, WP, MTR II st., sem. 02, zimowy 22/23 (PG_00057032) - Moodle ID: 23100 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23100">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23100</a>						
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	4.0		16.0		50
Subject objectives	Presenting students the most important ideas and algorithms of Artificial Intelligence						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_U06] is able to evaluate feasibility and possibility of application of new achievements (technical and technological) in terms of mechatronics	Student chooses AI algorithms appropriate to solve a given problem			[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_U04] is able to utilise known methods and mathematical models, as well as computer simulations for analysis and evaluation of non-stationary continuous and discrete mechatronic systems and processes	Student processes signals and data using AI methods			[SU1] Assessment of task fulfilment		
	[K7_W05] has detailed, supported by the theory knowledge in terms of control theory, identification methods, concurrent and real time programming, signal and image processing and Artificial Intelligence	Student presents selected AI algorithms			[SW1] Assessment of factual knowledge		
Subject contents	Introduction to AI Graph based method for solution search and optimisation Evolutionary and genetic algorithms Swarm intelligence Artificial Neural Networks Expert Systems Intelligent Agents						
Prerequisites and co-requisites	Programming skills in Matlab, C, C++, Java or Python						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Projects	51.0%	25.0%
	Written test	51.0%	75.0%
Recommended reading	Basic literature	Norvig P, Russel S, Artificial Intelligence: A Modern Approach, Global Edition, 2021	
	Supplementary literature	Any general book on AI, ANN (incl. Deep Learning) and genetic algorithms	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Describe Dijkstra algorithm Describe algorithm for learning artificial neuron Present advantages, disadvantages and limitations of ANN  Full list of exemplary questions will be presented to students before the test.		
Work placement	Not applicable		