GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Artificial Intelligence, PG_00057032
Field of study	Mechatronics

Date of commencement of studies	February 2024	Academic year of realisation of subject	2024/2025
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:

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

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 Artifficial Intelligence

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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_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	[SU3] Assessment of ability to use knowledge gained from the subject [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 programing, 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 Evolutionar 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
Written test	51.0%	75.0%
Projects	51.0%	25.0%

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	Adresy na platformie eNauczanie:
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 examplary questions will be presented to students before the test.	
Work placement	Not applicable	