GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Artificial intelligence in computer games, PG_00061799		
Field of study	Automation, Robotics and Control Systems		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Katedra Elektrotechniki i Inżynierii Wysokich Napięć -> Faculty of Electrical and Control Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Kowalski	
	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	20.0	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	5.0	40.0	75

Subject objectives

Exploring the application of artificial intelligence in computer games and developing an agent that plays a chosen computer game.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U03] can prepare and present a presentation on the problems and results of an engineering task	The student is able to gather information from literature, databases, and other sources; integrate the acquired information, interpret it, and draw conclusions; formulate and justify opinions.	[SU5] Assessment of ability to present the results of task [SU2] Assessment of ability to analyse information
[K6_U01] can obtain information from literature, databases and other sources; integrate the information obtained, interpret it and draw conclusions, formulate and justify opinions	The student is capable of preparing and delivering a presentation on the problems and outcomes of an engineering task.	[SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
[K6_W06] knows the structure of computers and microprocessors and the tasks of operating systems, has basic knowledge of the basics of computer software, drivers, microprocessor technology, design of simple algorithms and the operation of information networks	The student has basic knowledge of computer software fundamentals and designing simple algorithms.	[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects

Subject contents

- Markov Decision Process
- Reinforcement learning

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	50.0%	60.0%
Lecture assignment	50.0%	40.0%

Recommended reading

Basic literature	Neural Networks and Deep Learning by Michael A. Nielsen, http://neuralnetworksanddeeplearning.com/

	Supplementary literature	Reinforcement Learning by Richard S. Sutton and Andrew G. Barto, http://incompleteideas.net/book/the-book-2nd.html
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Development of a bot playing a selected computer game.	
Work placement	Not applicable	