



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 2023	Academic year of realisation of subject			2026/2027		
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	Department of Electrical Engineering -> Faculty of Electrical and Control Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Paweł Kowalski				
	Teachers						
Lesson types	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		Prepares and presents a presentation on developed AI-controlled agents.		[SU5] Assessment of ability to present the results of task [SU1] Assessment of task fulfilment		
	[K6_U01] can obtain information from literature, databases and other sources; integrate the information obtained, interpret it and draw conclusions, formulate and justify opinions		Gathers information from literature, databases, and other sources, and uses it to design artificial intelligence algorithms.		[SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task [SU1] Assessment of task fulfilment		
	[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		Designs an agent to play a selected computer game.		[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		
	[K6_W10] has basic knowledge related to mechatronics and robotics systems		Designs an agent to control a robot.		[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation		
Subject contents	<p>Course content – lecture</p> <p>Lecture:</p> <ul style="list-style-type: none"> • Markov Decision Process. • Reinforcement Learning. <p>Project:</p> <ul style="list-style-type: none"> • Designing agents to play computer games. 						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lecture assignment	50.0%	40.0%
	Project	50.0%	60.0%
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		
Example issues/ example questions/ tasks being completed	Development of a bot playing a selected computer game.		
Practical activities within the subject	Not applicable		

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