BIALYSTOK UNIVERSITY OF TECHN	OLOG'	Υ				Faculty of Engineering	Management		
Field of study	Eras	mus				Level and form of study	first degree/seco	and degree	
A group of modules /specialty						Education profile	acedemic		
Course name	Meth	ods of artificia	l intelliger	ice		Course code Course type	IS-FM-00119S		
Course form(s) and number of hours	L	C LC 15	P S	W FW	S	Semester ECTS credits	summer		
The programme is valid from						2025/2026			
Introductory courses Course objectives	netw	orks and expe	rt system	s, that sup	port	a selected artificial intelliger business decision-making. lels and applying them to s	Throughout the	course, students	s will develop
Framework programme content	Conc	cept of an artificial neural netw	cial neura vorks. The	ıl network. e backpro	MPL pagat	nce. Structure and operati ,, RBF and recurrent netwo tion algorithm. The structur Knowledge representation	orks. Supervised are and operation of	and unsupervise of expert system	ed training of s. The concept o
Other information about the course			the	course is	relate	ed to the scientific activity c	onducted at the U	Jniversity	
	Stud	Student workload related to:					Total number of hours	including contact	including practical
	partio	cipation in lecti	ıres				15	15	
		cipation in clas					15	15	15
		ture studying		_			20	20	
Calculation:	partio	cipation in con	sultations				5	5	3
		aration for pas					20	0	0
		aration for prac		ses			30		
		ng practical pr					25		25
	final	report elabora	tion			Tatal mumbas of basses	20		20
					otal r	Total number of hours: number of ECTS credits:	150 6	55 2,2	63
					otai i	iumber of EC13 credits:	6	2,2	2,5
Expected discipline learning outcom	nes						Knowledge	Skills	Social competence
Objectives and framework content prepared by	Julia	Siderska, Ph)				Date:		13.03.202
Implementation in the academic year						2025/2026			
		Interdication	to the control			Lecture		l Pt t	Definition of
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	15	Presentation of the results of solving problem tasks in the field of neural networks, public discussion.			
Teaching methods	methods L Problem-based lecture, lecture with multimedia presentation				
(on-site classes)	С	Practical and activating methods (individual work and working in small groups)			
Teaching methods	L	Problem-based lecture, lecture with multimedia presentation			
(online classes)	С	Practical and activating methods (individual work and working in small groups)			
Forms of crediting	L	Written test			
Forms of crediting	С	Assessment of tasks solved by students in small groups			
	L	Written test in the form of open questions. The grade is given according to the following scheme: 51%-60% of the total number of points - 3.0; 61%-70% of the total number of points - 4.0; 81%-90% of the total number of points - 4.5; 91%-100% of the total number of points - 5.0.			
Conditions of crediting	С	Point evaluation of the developed artificial intelligence tool. The condition for passing is obtaining more than 50% of the possible points. 51-60% ograde 3.0; 61-70% grade 3.5; 71-80% grade 4.0; 81-90% grade 4.5; 91-100% grade 5.0.			

Outcome symbols	Expected learning outcomes	Expected learning outcomes defined for the field of study			
		Knowlegde	Skills	Social competence	
	Knowledge: the student knows and understands	Ţ.		•	
E1	the construction and operation of neural networks and algorithms for training them, and the areas of using neural networks in business practice				
E2	principles of operation and construction of expert systems and inference algorithms, as well as possibilities of using them in business practice				
	Skills: the student can				
E3	design a neural network model, select its architecture, assess its quality and train it using an appropriate training algorithm				
E4	draw conclusions regarding digital business practice and make business decisions using developed artificial intelligence tools				
	Social competence: the student is ready to				
E5	critically evaluate developed skills in designing artificial intelligence tools and demonstrate openness to cooperation in this area				
Outcome symbols	Methods of verification of learning outcomes	Course fo	orm subje	ect to verification	
E1	Written test		L		
E2	Written test		L		
E3	Assessment of tasks solved by students in small groups		С		
E4	Assessment of tasks solved by students in small groups		C		
E5	Assessment of tasks solved by students in small groups		C	1	
Basic references	 Surma J., Business Intelligence. Making Decisions Through Da Tuffery S., Data mining and statistics for decision making, Wile 		ness Exp	ert Press, 2011.	
	Unal, Muhammet; Ak, Ayça; Topuz, Vedat; Erdal, Hasan, Artificial Neural Networks, Studies in Computational Intelligence, Optimization of PID Controllers Using Ant Colony and Genetic Algorithms, 2013, pp.5-17				
Supplementary references	1 Rutkowski L., Computational Intelligence: Methods and technic Parkes, D. C., and M. P. Wellman. 2015. "Economic Reasonin (July 16): 267–272.			Science 349 (6245)	
Course coordinator	Julia Siderska, PhD	Date:		13.03.202	