

DESCRIPTION OF THE COURSE OF STUDY

Course code		
Name of the course in	Polish	Głębokie uczenie
	English	Deep learning

1. LOCATION OF THE COURSE OF STUDY within the system of studies

1.1. Field of study	Data engineering
1.2. Mode of study	full-time
1.3. Level of study	first-cycle degree
1.4. Profile of study*	general academic
1.5. Person/s preparing the course description	Agnieszka Łysak
1.6. Contact	agnieszka.lysak@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE course of study

2.1. Language of instruction	polish
2.2. Prerequisites*	Basics of Neural Networks Machine learning

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes			lectures, classes
3.2. Place of classes			classes held in a teaching room at UJK
3.3. Form of assessment			lectures – exam laboratory classes – graded credit
3.4. Teaching methods			lecture using the interactive teaching method classes using problem-based learning
3.5. Bibliography	Required reading	Mitchell, T. M. (1997). Machine learning (Vol. 1). McGraw-hill New York	
	Further reading	1. Russel S., Norvig P. (2023). Sztuczna inteligencja. Nowe spojrzenie. Tom 1. Wydawnictwo Helion Gliwice 2. Russel S., Norvig P. (2023). Sztuczna inteligencja. Nowe spojrzenie. Tom 2. Wydawnictwo Helion Gliwice	

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1.	Course objectives (including form of classes)
	C1. Lecture: Introduction to the basic methods of deep supervised, unsupervised, and reinforcement learning. C2. Classes: Acquiring skills in applying deep learning methods to problems of advanced data processing, detection, segmentation, transfer-learning usage and processing of multimodal data.
4.2.	Detailed syllabus (including form of classes)
	Lecture: Advanced data analysis and processing. Advanced supervised learning. Deep neural networks. Detection and segmentation problems. Advanced unsupervised learning. Deep reinforcement learning. Transfer-learning. Multimodal data (images, sounds, time-series). Laboratory classes: Practical application of the deep learning methods discussed in the lecture on selected examples of real data sets and real-world problems. Project: Students (in teams) carry out a project / task of advanced complexity.

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
	within the scope of KNOWLEDGE:	

W01	Knows deep learning methods	ID1A_W06
within the scope of ABILITIES:		
U01	Is able to apply deep learning methods to practical problems	ID1A_U07 ID1A_U08 ID1A_U09
within the scope of SOCIAL COMPETENCE:		
K01	Is aware of the role of an engineer in providing society with competent information in the field of deep learning	ID1A_K03

4.4. Methods of assessment of the intended learning outcomes

Teaching outcomes (code)	Method of assessment (+/-)											
	Exam oral/written*			Test*			Project*			Effort in class*		
	Form of classes			Form of classes			Form of classes			Form of classes		
	L	C	...	L	C	...	L	C	...	L	C	...
W01				+	+					+		
U01				+	+				+			
+K01									+			

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes

Form of classes	Grade	Criterion of assessment
lecture (L) (including e-learning)	3	Achievement of <50-60% of the requirements applied in the assessment methods
	3,5	Achievement of <60 - 70) % of the requirements applied in the assessment methods
	4	Achievement of <70 - 80) % of the requirements applied in the assessment methods
	4,5	Achievement of <80 - 90) % of the requirements applied in the assessment methods
	5	Achievement of <90 - 100) % of the requirements applied in the assessment methods
classes (C)* (including e-learning)	3	Achievement of <50 - 60) % of the requirements applied in the assessment methods
	3,5	Achievement of <60 - 70) % of the requirements applied in the assessment methods
	4	Achievement of <70 - 80) % of the requirements applied in the assessment methods
	4,5	Achievement of <80 - 90) % of the requirements applied in the assessment methods
	5	Achievement of <90 - 100) % of the requirements applied in the assessment methods
project (P)* (including e-learning)	3	Achievement of <50 - 60) % of the requirements applied in the assessment methods
	3,5	Achievement of <60 - 70) % of the requirements applied in the assessment methods
	4	Achievement of <70 - 80) % of the requirements applied in the assessment methods
	4,5	Achievement of <80 - 90) % of the requirements applied in the assessment methods
	5	Achievement of <90 - 100) % of the requirements applied in the assessment methods

5. BALANCE OF ECTS CREDITS - STUDENT'S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	60	
Participation in lectures*	30	
Participation in classes, seminars, laboratories*	30	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	20	
Preparation for the lecture*	20	
Preparation for the classes, seminars, laboratories*	20	
TOTAL NUMBER OF HOURS	100	
ECTS credits for the course of study	4	

*delete as appropriate

Accepted for execution (date and legible signatures of the teachers running the course in the given academic year)

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