COURSE DESCRIPTION CARD

NOTE: If the course includes lectures and classes, the Course Description Card applies to both types of instruction.

1. Course title: LIMITATIONS AND APPLICATIONS OF MACHINE LEARNING METHODS	**2.** Course code: Number of ECTS credits: 3.0 Course completion mode: --- Course commenced / Year: 2022/2023

3. Major: masters: AG, IE, INF (discipline: science/data science)

4. Department of major coordinator: Kolegium Studiów

5. Name of course instructor: Lecture: Tomasz Jach, PhD
Examiner Tomasz Jach, PhD

6. Department of course instructor: Faculty of Machine Learning

7. Number of contact hours with students:

Type of instruction	Full-time study	Part-time study
lectures	15	9
classes		
foreign language classes		
lab classes		
seminars		
e-learning		
other		
Total hours	15	9
examination (hours)		

8. Course timeframe - no. of semesters: 1

Course commencement / Year 2022/2023

Course commencement / Semester 4

9. Level of tertiary education: …	**10.** Course status □ Compulsory for the major… □ Compulsory for the specialization … □ Elective …

11. Course prerequisites
Compulsory: English B2
Recommended: ---

12. Course objectives:

The development of computer science and its branches, such as artificial intelligence or machine learning, has led to a situation in which machines are starting to be better at performing certain tasks. During the lecture, we will answer the question in which areas of life the use of artificial intelligence methods means a huge competitive advantage over manual solutions. We will discuss topics related to predicting the future using time series analysis and methods of computer-aided decision support. Students will gain knowledge about the fields of science in which the use of machine methods gives the greatest benefits and will be aware of the limitations of artificial intelligence given the current state of knowledge.

13. Teaching and learning methods:

A. Direct student-instructor contact:

No.	Teaching methods	Description	Number of hours	
			Full-time study	Part-time study
1.	Lecture with the use of multimedia techniques		15	9
2.				
3.				
…				
Total			AS: 15	AN: 9

B. Self-study:

No.	Learning methods	Description	Number of hours	
			Full-time study	Part-time study
1.	Self-study using computer aided techniques		35	41
2.	Self-study using lecture notes		25	25
3.				
…				
Total			BS: 60	BN:66

Total AS+BS = 75
Examination (E) = 0
Total AS+BS+E= 75

Total AN+BN = 75
Examination (E) 0
Total AN+BN+E = 75

14. Key words: machine learning, artificial intelligence,

15. Course content:

1. The evolution of artificial intelligence methods.
2. Predictive algorithms.
3. Time series analysis.
4. Modern problems solved by machine learning.
5. Promising innovative methods of artificial intelligence.

16. Course learning outcomes as related to the learning outcomes of the major and methods for assessing student attainment

Intended learning outcomes of the major / Symbols	Intended learning outcomes of the course	Methods for assessing student learning outcomes	Documentation
<u>Knowledge</u>			
INF1_W01# INF1_W04#	1. Knows and understands the range of applications of AI methods and their limitations.	Activity in the classroom	

Skills			
INF1_U01#	1. One can apply the acquired knowledge in solving complex problems of building systems using machine learning methods.	Activity in the classroom	
Social competences			
INF1_K01#	One is ready to critically evaluate the applied solutions using ML methods.	Activity in the classroom	

17. Method for determining the final course grade:

No.	Methods for awarding credits and course completion requirements	Description	Percentage of the final course grade*
1.	Activity in the classroom		100
2.			
3.			

* If students are required to obtain both a class grade and an exam grade, the class grade constitutes at least 30% of the final course grade.

18. Reading list

Mandatory readings:

- Sharda R., Delen D., Turban E.: Analytics, Data Science, & Artificial Intelligence. Systems for Decision Support. 11th ed.. Wyd. Pearson, Harlow, England, 2021.
- Current case study descriptions and current source materials provided by the lecturer.

Suggested readings:

19. Language of instruction: English

20. Course instructors' recommendations: