



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Machine learning for the Internet of Things [N2Inf1-AMiWdIP>UMASZ]

Course

Field of study

Computing

Year/Semester

2/3

Area of study (specialization)

Mobile and Embedded Applications for the Internet of Things

Profile of study

general academic

Level of study

second-cycle

Course offered in

polish

Form of study

part-time

Requirements

elective

Number of hours

Lecture

16

Laboratory classes

16

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

3,00

Coordinators

dr inż. Tomasz Łukaszewski

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Lecturers

Prerequisites

The student starting this course should have basic knowledge of Internet technologies, basics of logic and databases, and programming in Python. He should also have the ability to obtain information from the indicated sources and be ready to cooperate as part of the team.

Course objective

Provide students with knowledge and skills in the field of data analysis using machine learning techniques: classification, managing unknown feature values, mapping feature values, scaling feature values. Machine learning will be emphasized.

Course-related learning outcomes

Knowledge:

1. Has advanced detailed knowledge of data classification and pre-processing
2. Has knowledge of development trends and new achievements in machine learning
3. Knows advanced methods, techniques and tools used to solve complex engineering tasks in the field of computer science related to machine learning

Skills:

1. He can plan and carry out experiments in the area of machine learning
2. Can assess the usefulness of machine learning methods and tools in the Internet of Things

Social competences:

Understands that in computer science, knowledge and skills very quickly become obsolete.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired in the lecture will be tested in a credit test. Pass mark: 50% of the mark.

Optionally, the mark can be increased by an oral examination. A list of topics will be given to students in advance.

The skills acquired in the laboratory classes are verified on the basis of mini-projects resulting from the analysis of a designated problem related to machine learning.

Programme content

The lecture program includes: the classifier of the closest neighbors, decision trees, managing the values of unknown features, mapping and scaling the values of features, discovering and selection of features

The laboratory program covers the issues discussed during the lectures: machine learning with the use of Python modules and sample programs.

Summary of the acquired knowledge and skills within the miniprojects.

Teaching methods

lecture: multimedia presentation

laboratory exercises: practical exercises, discussion, team work

Bibliography

Basic

1. Python. Uczenie maszynowe, Wydanie II, Sebastian Raschka, Vahid Mirjalili, Helion 2019

Additional

1. Naczelny algorytm. Jak jego odkrycie zmieni nasz świat. Pedro Domingos. Helion 2016

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	32	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	43	1,50