POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name

Machine learning for the Internet of Things

Course

Field of study	Year/Semester
Computing	2/3
Area of study (specialization)	Profile of study
Mobile and embedded applications for the Internet of Things	general academic
Level of study	Course offered in
Second-cycle studies	Polish
Form of study	Requirements
part-time	elective

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
16	16	
Tutorials	Projects/seminars	

Number of credit points

3

Lecturers

Responsible for the course/lecturer:	Responsible for the course/lecturer:
dr inż. Tomasz Łukaszewski	

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

Providing students with knowledge and skills in the field of data analysis using machine learning techniques: classification with data pre-processing.

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

POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

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 during the lecture is verified with a passing test. Passing threshold: 50% of points. The completion of the questions on the basis of which the questions are developed will be given to the students before the completion of the exam. The skills acquired during the laboratory classes are verified on the basis of tasks related to the analysis of the identified problems

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

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	3,0
Classes requiring direct contact with the teacher	32	1,3
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	43	1,7

---

[1] delete or add other activities as appropriate