POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name
IT innovations and humanity [S2SI1E>ITH]

Course

Field of study
Artificial Intelligence

Year/Semester
2/3

Area of study (specialization)
–

Profile of study
general academic

Level of study
second-cycle

Course offered in
English

Form of study
full-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
30

Projects/seminars
0

Number of credit points

3,00

Coordinators

dr inż. Agnieszka Mensfelt

Lecturers

Prerequisites

Knowledge of classical and modern artificial intelligence methods, simulation and artificial life.

Course objective

To outline the history of innovation in information technology and possible future developments. To discuss the impact of information technology, especially artificial intelligence, on humanity in sociological, economic and philosophical aspects. To indicate the ethical aspects associated with the spread of artificial intelligence algorithms and methods in everyday life.

Course-related learning outcomes

Knowledge a student:
1. has advanced detailed knowledge regarding selected issues in artificial intelligence and related fields - [K2st_W3].
2. has knowledge about development trends and the most important cutting edge achievements in computer science, artificial intelligence and other selected and related scientific disciplines – [K2st_W4].
3. has knowledge about ethical codes related to scientific research conducted in the field of computer science and artificial intelligence – [K2st_W7].
Skills a student:

1. is able to obtain information from literature, databases and other sources (both in Polish and English), integrate them, interpret and critically evaluate them, draw conclusions and formulate and fully justify opinions - [K2st_U1].
2. can - when formulating and solving engineering tasks - integrate knowledge from different areas of computer science and artificial intelligence (and if necessary also knowledge from other scientific disciplines) and apply a systemic approach, also taking into account non-technical aspects - [K2st_U5].
3. is able to assess the suitability and the possibility of using new achievements (methods and tools) and new IT products, in particular in the field of artificial intelligence - [K2st_U6].
Social competences a student:
1. understands that in the field of IT with particular emphasis on the artificial intelligence, the knowledge and skills quickly become obsolete - [K2st_K1].
2. understands the importance of using the latest knowledge in the field of computer science and artificial intelligence in solving research and practical problems - [K2st_K2].
3. is aware of the need to develop professional achievements and comply with the rules of professional ethics – [K2st_K4].

Methods for verifying learning outcomes and assessment criteria
Learning outcomes presented above are verified as follows:

Students conduct a project on a selected topic from the subject area covered in class. The results are presented at the last class of the semester. The following aspects of the project are evaluated: workload (difficulty of the task), quality of execution, obtained results, and demonstration of the results.

Programme content

Outline of the history of innovation in information technology in technological and algorithmic aspects. Key figures, milestones, factors determining the spread (or not) of technological innovation.
Prospects for further development in computer science and artificial intelligence in the short and long term. History of future forecasting and its effectiveness. The possible impact of further development of artificial intelligence on humanity.
Development of artificial intelligence methods vs. philosophy. The possibility of obtaining consciousness by artificial intelligence. Definition of consciousness and the impact of AI development on this definition. The simulation hypothesis.
The spread of artificial intelligence algorithms in everyday life and their impact on aspects such as perception, cognitive processes, the formation of attitudes, the establishment of relationships. Information bubbles, fake news, discrimination.
Takeover of work done by humans by machines, robots and algorithms, in the past and today; economic and ethical issues. Robots in the role of caregivers. Art generated by algorithms. The problem of explainability of models created by artificial intelligence algorithms.
Monopolization of the market by digital giants, their impact on social life, data collection. Access to digital tools and digital exclusion.

Course topics

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Teaching methods

Presentations using slides, interaction with software illustrating discussed issues, group work, discussions.

Bibliography

Basic 1. R.U. Ayres, The History and Future of Technology: Can Technology Save Humanity from Extinction? Springer Cham, 2021.
2. S.S. Gouveia (editor), The Age of Artificial Intelligence: An Exploration, Vernon Press, 2020.
3. M. Coeckelbergh, The Political Philosophy of AI: An Introduction, John Wiley & Sons, 2022.
4. A. Goldfarb, G. Joshua, i A. Agrawal, The Economics of Artificial Intelligence: An Agenda, University of Chicago Press, 2019.
Additional 1. Presentations slides.
2. S. Russell, Human compatible: Artificial intelligence and the problem of control, Penguin, 2019.3. W. Isaacson, The innovators: How a group of inventors, hackers, geniuses and geeks created the digital revolution, Simon and Schuster, 2014.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	30	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	45	1,50