

Artificial Intelligence (E765009)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size (nominal values; actual values may depend on programme)
Credits 3.0 Study time 85 h Contact hrs 24.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2)	Dutch	Gent	lecture	24.0 h
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Lecturers in academic year 2020-2021

Cnops, Jan	TW05	lecturer-in-charge
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Offered in the following programmes in 2020-2021

	crdts	offering
Master of Science in Information Engineering Technology	3	A

Teaching languages

Dutch

Keywords

Artificial intelligence, Neural nets, Computer science (P170), Informatics (P175), Computer technology (T120)

Position of the course

This is an introductory course to the field of Artificial Intelligence (AI). It aims to provide an overview of the different areas of AI with a more in-depth treatment of specific sample techniques, with emphasis on neural networks.

Contents

The course includes the following topics:

- General overview. Basic assumptions, examples of different approaches and applications.
- Classification problems. Recognising subgroups in a data set. Learning with and without supervision.
- Searching in search spaces. Heuristics.
- Expert systems. Simple rule-based systems. Working with uncertainty. Frames.
- Active agents. Reinforcement learning.
- Treatment of sequential information: Markov models.
- Neural nets (NN). Comparison of biological NNs, artificial NNs and classical programming.
- NNs and classification problems. Linear and non-linear classification.
- Associative memories.
- Knowledge representation and language processing in neural networks.

Initial competences

The final competences of the courses Mathematics I and II, Algorithms I (might be followed at the same time) suffice.

Final competences

- 1 To be able to acquire knowledge and to gain insight into different aspects of scientific research in the domain of computer science, such as techniques with regards to

artificial intelligence.

- 2 To be able to master different forms of present-day programming techniques in the domain of artificial intelligence, in order to be able to apply these in practice.
- 3 To be able to get acquainted with, to assimilate, to implement and to use relevant new technologies and/or theories.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture

Learning materials and price

syllabus (Dutch)

References

- [1] J. Schurmann: Pattern Classification. A unified view of statistical and neural approaches, John Wiley & Sons, 1996.
- [2] Laurene Fausett: Fundamentals of Neural Networks. Architectures, Algorithms and Applications, Prentice Hall International editions, 1994.
- [3] Donald Hebb: A textbook of Psychology, W. B. Saunders Company, 1966.
- [4] George Luger: Artificial Intelligence, Addison Wesley, 2005.
- [5] Stuart Russel en Peter Norvig: Artificial Intelligence. A modern approach, second edition, Prentice Hall, 2003.

Course content-related study coaching

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Oral examination

Examination methods in case of periodic evaluation during the second examination period

Oral examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Calculation of the examination mark