Postgraduate Certificate
AI in Business and Industry

Kortrijk, September 2024 - June 2025

Aim of the programme

Artificial Intelligence has already become an integral part of our society, influencing more and more aspects of our lives. Nevertheless, scientists believe that the AI revolution is just getting started, and that it will eventually leave an even deeper impression on humanity than the Industrial Revolution. AI has the potential to improve healthcare, make agriculture more efficient, optimise production systems or increase the safety of citizens. Companies, hospitals and other organisations want to employ AI, but often lack properly trained staff. The Postgraduate Certificate: Artificial Intelligence in Business and Industry aims to give engineers, computer scientists and other professionals the opportunity to specialise in the field of artificial intelligence.

The programme has been designed with a specific need in the job market in mind: many current employees in for example R&D divisions of leading companies are highly skilled but did not receive specific training on AI in their formal education. Perhaps you, too, experience the need to bring your AI-skills up to date and are looking for a qualitative AI course to do that? This postgraduate training allows professionals to acquire in one year a solid academic knowledge of artificial intelligence, as well as insight into the domains of image and language (computer vision/NLP) and business aspects of AI.

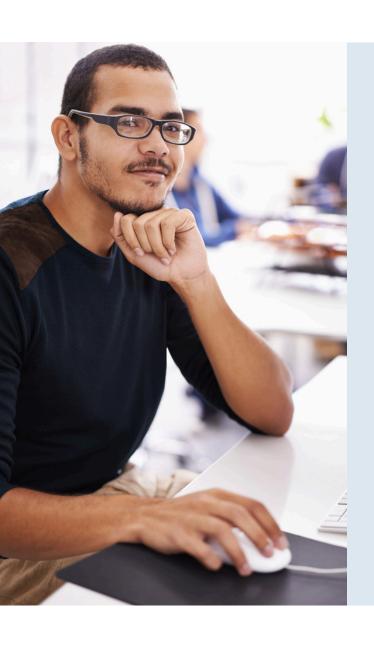# Open the door to the advanced master Artificial Intelligence in Business and Industry

The postgraduate programme Artificial Intelligence in Business and Industry stands firmly on its own, but also opens the door to more. Participants can choose to follow a follow-up track into the Advanced Master AI in Business and Industry, where they gain access to the wider range of in-depth, broadening and, in particular, more applied modules. The courses offered in the postgraduate programme form an integral part of the Advanced Master Artificial Intelligence in Business and Industry, and participants who pass the courses in the postgraduate programme will be granted exemptions when following the rest of the master's programme.

Target audience & eligibility

The programme aims at different kinds of engineers (e.g. in Engineering Science, Engineering Technology, or Business Engineers who majored in data science or applied computer science). In addition, the programme is open to masters in mathematics and physics. In general, any participant with a master's degree that offers sufficient background in mathematics, programming and technology will be admitted. If you do not have one of the aforementioned master diplomas, you can submit a file with your motivation and cv to the programme committee, who will assess your application.

While recently graduated students are welcome, the programme also offers added value to professionals with field experience, wishing to re- or upskill themselves in the field of Artificial Intelligence in order to make the most of their career opportunities. The programme specifically caters to participants looking for a theoretical, academically grounded approach to AI. Given the advanced content of the courses, the profiles most suitable for this postgraduate are, for example, IT developers and functional analysts or R&D staff, engineers, project leaders and managers

AI for professionals
Optimal combination of work and study

- From the 24th of September 2024 until the 28th of June 2025
- Sessions on Tuesdays from 1pm until 9pm
- Teaching language: English
- Extensive use of educational technology
- Engagement, interaction and networking guaranteed

After successful completion of the programme, you receive the Postgraduate Certificate: Artificial Intelligence in Business and Industry, awarded by KU Leuven. This programme contains 25 ECTS.

Responses from the job market

"This programme is very much in line with our mission to shape the future sustainably through technology, with our project 'Be The Change' to anticipate as much as possible the evolutions in the labour market and finally with our ambition to make Flanders a top European region."

Peter Demuynck, Agoria

"Today, AI is crucial for the success of our businesses and for the innovation potential of our country. In the coming years, the influence of AI will be felt in all sectors. The biggest opportunities lie, for example, in ageing, climate change, food safety, health and care. As yet, only a few companies have the technological knowledge, the means and the overview to work with AI. The Federation of Belgian Enterprises is therefore convinced that education can and should play a crucial role in this."

Pieter Timmermans, VBO

"In the increasingly competitive struggle to deliver more value to the customer, AI is an important new technology that is being used more and more. It is in this context that Barco invests in AI, and wants to participate in initiatives that can strengthen the knowledge and skills around AI in Flanders."

Jan De Witte, Barco

Programme

The programme starts with the theoretical AI foundations that are indispensable for professionals. Participants therefore get three academic courses that teach them the scientific basics of artificial intelligence. In addition, the door is opened to industrial applications and to general business applications with the courses in the second semester.

SEMESTER 1

Fundamentals of AI

Prof. dr. Mathias Verbeke

In this course, you will acquire a deep knowledge and insight in foundational techniques from Artificial Intelligence, including: search methods and their applications to games, the version spaces algorithm for machine learning, constraint processing techniques, strips planning and theorem proving for first-order predicate logic. You will be able to simulate each of the above techniques with pen and paper on small new examples, and have insight into the relevance of these techniques for applications in domains such as manufacturing, health, education, logistics, manufacturing, robotics.

Artificial Neural Networks and Deep Learning

Prof. dr. Mathias Verbeke

The aim of the course is to introduce the basic techniques, methods and properties of ANN and to study their application to selected problems. The basic concepts will be introduced in the lectures. Advanced topics and recent research results will be touched upon occasionally. You will study and develop explicit neural network models for selected applications.

Machine Learning and Inductive Inference

Prof. dr. Celine Vens

This course will familiarize you with the domain of machine learning, which concerns techniques to build software that can learn how to perform a certain task (or improve its performance on it) by studying examples of how it has been accomplished previously, and in a broader sense the discovery of knowledge from observations (inductive inference).

SEMESTER 2

Computer Vision and Natural Language Processing

Prof. dr. ir. ing. Toon Goedemé, prof. dr. ir. Patrick Vandewalle, prof. dr. Marie-Francine Moens, dr. Katrien Laenen

The course introduces natural language processing technologies and their applications in a variety of tasks, which include text mining, machine translation, question answering and dialogue modeling. It also introduces computer vision algorithms and their applications such as image classification, object detection, image segmentation. Special attention goes to applications that require the joint processing of language and visual data, as this is a natural way to interact with machines. The students will gain insights in suitable machine learning algorithms that ideally are trained with limited annotated examples or human feedback. They will learn how to build and critically assess an application making use of the most recent techniques and resources.

Business Analytics

Prof. dr. Jochen De Weerdt, dr. Jari Peeperkorn

In this course, you will learn to understand how business problems can be formulated with advanced analytics techniques as a potential solution. You will be able to reason on the organizational and managerial aspects of applying big data and analytics techniques, and understand how prescriptive analytics and causal ML can help to use analytics for business decision making. The course teaches you how analytical modeling techniques can be optimized and evaluated form a profit-driven perspective and how analytics techniques can exploit network-based information.

Practical information

Timing, location, organisation
The programme runs from the 24th of September 2024 until the 28th of June 2025, with three courses in the first and two courses in the second semester. Sessions are taught in English and scheduled on Tuesdays from 1pm until 9pm.

Sessions are taught at KU Leuven Kulak (Etienne Sabbelaan 53, Kortrijk). Tutors will make optimal use of educational technology to guarantee an optimal combination of work and study, and to maximize engagement and interaction between participants and lecturers.

Registration
Register before the 17th of September 2024 via puc.kuleuven.be. Registration fee is 4.150 euro. Included: participation to the lessons, course material, catering and insurance. You also receive a student's card of KU Leuven.

Save on your registration fee by using the kmo-portefeuille. More information on kmo-portefeuille.be.

This programme is eligible for educational leave by the Flemish Government and the Brussels-Capital Region.

Contact information
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Evaluation, certificate, exemptions
The forms of evaluation are different for each course, ranging from written exams to papers and presentations. The evaluations will largely take place during the university's regular examination periods (January, June, August).

Participants who succeed for the postgraduate's courses receive a KU Leuven postgraduate certificate, as well as exemptions for the courses if they should decide to continue their study trajectory with the rest of the eponymous Advanced Master's Programme.

Participants who have previously succeeded for the postgraduate programme Big Data and Analytics in Business and Management will be granted an exemption for the course 'Business Analytics' in the postgraduate programme or advanced master AI in Business and Industry.

Programme committee
Supervision is carried out by the programme committee, which guarantees the quality, scientific and practice-oriented nature of the programme. Members of the committee are all the teaching staff, supplemented with the programme director Prof. dr. ir. Lieven De Lathauwer, director of PUC - KU Leuven Continue Prof. dr. Wim Malfait, a student representative and programme coordinator Benedicte Seynhaeve.

The Postgraduate Certificate Artificial Intelligence in Business and Industry is a collaboration between the Faculties of

- Engineering Science,
- Engineering Technology,
- Science,
- Economics and Business.

It has the administrative-organisational support of PUC - KU Leuven Continue.

This programme is organised with the financial support of the Flemish government, which specifically assigned funds to boost Life Long Learning in West-Flanders regarding technological topics such as AI.

The programme is also supported by the Flemish AI Academy (VAIA).

Vlaanderen
verbeelding werkt

VAIA