

## Data Science and AI for Industry Curriculum



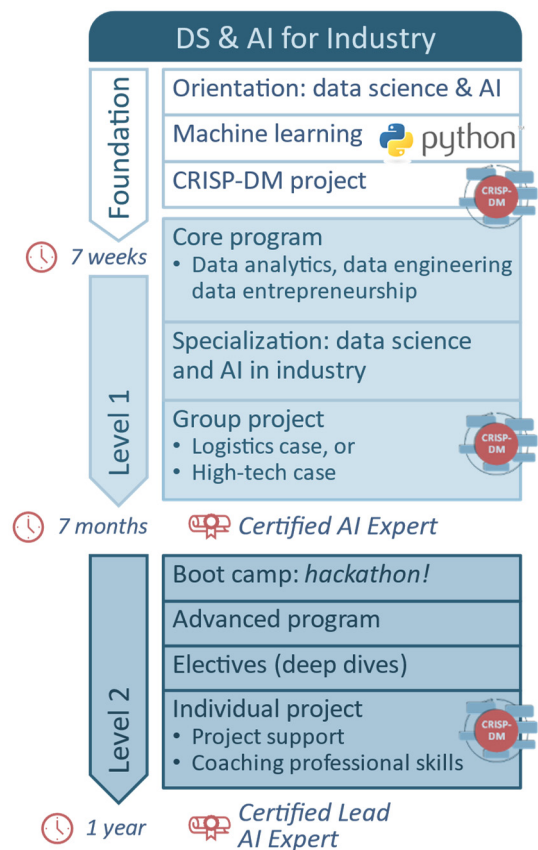
This program is targeted at professionals in industry eager to learn to develop machine-learning and AI solutions and implement them in industry applications. The progress in analytics and the availability of large amounts of data and computation power are changing the world rapidly. This unique course prepares you for a leading role in this new business reality.

### Foundation

The Foundation offers an orientation in data science, AI, new analytics and new business opportunities. You will learn predictive analytics, the theory of supervised and unsupervised learning, and their practical applications in a Python-based analytics environment. You practise applying machine learning in the data-analytic project execution methodology embodied by the CRISP-DM model.

Curriculum (7 days in class):

- Preparation: Depending on your skill level in programming, you may need up to 4 weeks of self-study in an online learning environment where you learn coding in Python.
- Data science and AI: new forms of data, new analytics and new business opportunities
- Data science and AI projects
- Principles of machine learning
- Data preparation
- Supervised learning
- Unsupervised learning
- Statistical learning: Prediction, causal inference and validity
- Interpretable machine learning and evaluation
- Practical application of machine learning in a CRISP-DM project



### Level 1

The core program in data analytics, machine learning, data engineering and data entrepreneurship trains you as an all-round AI expert and data scientist. You also take specialized lectures focusing on applications of AI and data science in logistics, manufacturing and high-tech. Upon completion of this level, you become a *Certified AI Expert*.

Curriculum (12 days in class):

- Leading data-science and AI projects: how to get things done?
- Visualization
- Data modelling and relational database management
- Time-series forecasting
- Data and privacy law
- Decision quality
- Introduction to deep learning

- Text mining and natural-language processing (NLP)
- Specialization Data Science and AI in Industry: Industry 4.0, data-driven production planning, predictive maintenance, servitization and data-driven business models.
- Professional skills: sharing and understanding thoughts, questions, ideas and solutions. Resulting in goal setting, presentation skills and pitching.
- Together with a team of classmates, you develop a realistic data-science and AI solution in a complex and challenging group project. Choose between a case in logistics or a case in high-tech.

## Level 2

If you decide to continue to the second level, this module offers a number of deep-dives in advanced-level topics. In a two-day bootcamp you do a hackathon with your classmates. The Level 2 training revolves around learning to lead a data-science or AI initiative and achieve real impact. With the support of JADS and EAISI experts and professors you implement a data-science and AI application in your own organization and help your organization create business value from AI and analytics. Upon completion of this level, you become a *Certified Lead AI Expert*.

Curriculum (11 days in class):

- Leading data science and AI: winning support and realizing your organization's data and AI ambitions
- Recent advances in AI, including GANs and reinforcement learning.
- Data management and data governance
- Anomaly detection
- Process mining
- Advanced data architectures
- Electives program: professors and experts offer a varied program of deep-dives, from which you select two courses
- Two-day bootcamp where you do a hackathon with your classmates.
- Professional skills: Lectures and individual coaching in taking a leading role in the development of your organization's data and AI ambitions.
- In-company project supported by JADS and EAISI experts

## JADS and EAISI

This special program is offered by EAISI (the Eindhoven AI Systems Institute of Eindhoven University of Technology) and JADS.

