Course: Artificial Intelligence — credits: 5

Course code	ELVB25AIN
Name	Artificial Intelligence
Study year	2025-2026
ECTS credits	5
Language	English
Coordinator	J. Kleine Deters
Modes of delivery	Project-based learning
Assessments	Artificial Intelligence - Assignment

Learning outcomes

Design
The novice professional considers different solutions to arrive at a detailed and well-founded (electrical) technical product / service / process based on the program of requirements and uses appropriate design methods and takes into account social interests and engineering standards.

Realisation
The novice professional realizes and validates a (prototype of a) product / service / process based on an (electrical) technical design and makes appropriate use of materials / techniques / instruments.

Advice
The novice professional presents and documents substantiated results in accordance with engineering standards, draws logical conclusions, and provides advice on a (future) product/process/method in an electrical engineering context.

Content

In this module the basic concepts and techniques of Artificial Intelligence(AI) and Machine Learning are treated and applied to a smart system.

Professional products

- Software for a Smart System – The applications and algorithms that enable intelligent functionality, data processing, decision-making, and communication within a smart system. It typically includes embedded software, control software, and communication protocols to facilitate real-time operations, automation, and system integration. *In this module: AI and machine learning software*
- Recommendations – Suggestions or advice provided based on analysis or experience, aimed at improving a situation, process, or outcome. They offer solutions or guidelines for taking future steps. *In this module: AI and machine learning generated recommendations*

Skills

- AI software design – The process of developing software systems that incorporate artificial intelligence techniques—such as machine learning, data analysis, and decision-making algorithms—to enable intelligent behaviour, learning from data, and adaptation to changing environments. It involves designing models, data pipelines, and interfaces that integrate seamlessly with applications.
- Information and recommendation generation – The process of analyzing and combining data—often through embedded software, data fusion, and AI algorithms—to produce meaningful insights or actionable suggestions. This enables systems to support decision-making, personalize responses, or automate actions based on real-time sensor input and learned patterns.

Knowledge

- Machine learning techniques – Methods that enable computers to learn from data and improve their performance over time without being explicitly programmed. These techniques include supervised learning, unsupervised learning, reinforcement learning, and deep learning, each suited for different types of tasks like prediction, classification, clustering, and decision-making.

Included in programme(s)

Exchange Sensors and Smart Systems (autumn)
Minor Sensors and Smart Systems

School(s)

Institute of Engineering

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