

## Machine Learning for Industrial Data

Course Workload		Assessment form (examination/ graded test/ ungraded test)
ECTS	Hours	
4	144	Exam

This course introduces students to the principles of machine learning for IoT problems. This course will enable them to gain the skills to plan and control the deployment process, to run the right set of software solutions to further develop mathematical models using AI. The course will help students gain an understanding of machine learning technologies for processing sensory data. Upon successful completion of this section, students will be able to design and create fundamentally new models for organizing and managing a big data infrastructure; design and implement models for representing semi-structured big data and processing models using artificial intelligence techniques and approaches. **Knowledge of Machine Learning is required.**

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### Course structure:

#### 1. Machine Learning for Sensory Data Processing

1.1. The main issues that arise when working with ultra-big data of time series, including the IoT. Including, the development of methods for analysis, storage, processing of data, using AI

#### 2. Machine Learning for Computer Engineering

2.1. Issues of creating digital images using AI and deep learning methods in computer engineering on the example of modern complex industrial facilities

#### 3. Methodologies for developing intelligent professional assistants

3.1. The principles of the methodology for creating professional assistants (for example, chat bots) using various AI approaches, in the absence of prepared data arrays are considered

#### 4. AI challenges in industry using augmented reality

4.1. Existing tasks of the industry, where process optimization is necessary, by accompanying the operator in complex tasks, in order to accelerate and verify based on augmented reality technologies

#### 5. AI Differentiated Programming

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5.1. The issues of applying the new paradigm in various applied problems, from teaching self-organizing systems to analyzing the combination of various models of deep learning, including in the field of computer vision