EQ2855 Emerging Information Technologies for Industrial Digitalization 7.5 credits

Framväxande informationsteknik för industriell digitalisering

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

This official course syllabus is valid from the autumn semester 2024 in accordance with decision by the director of first and second cycle education: J-2024-0230.Date of decision: 05/02/2024

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Knowledge in communications, 7.5 higher education credits, equivalent EQ2310 or IK2507.

Knowledge in English corresponding to the upper secondary course English B/English 6.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After passing the course, the student shall be able to

1. reflect on the most important information technologies for sustainable industries

2. discuss key requirements and enabling technologies for information technology (both theories and practical methods) for industry digitalization, including e.g. wireless networks, AI, security, digital twin and global coverage

3. apply the information technology in chosen vertical use cases for industry digitalization

4. reflect on the latest development and existing challenges for information technology for the digitalization of the industry

in order to

- educate the students in the most important information technologies for the digital transformation of the industry

- inspire the students to potential new research subjects.

Course contents

The course contains both theoretical results and practical use cases on important information technologies for industry digitalization. The course also contains first hand knowledge about application of related technologies. In the main content of the course is included:

1. Highly performing wireless networks and internet of things (IoT) on enabling technologies, theories, vertical applications and experiments.

2. Sector security and function security.

3. Industrial AI and calculations: Algorithms, vertical applications and experiments and digital twin.

4. Global coverage, satellite based communication and use of computers for industry transformation.

5. Industrial positioning with high precision.

6. Reflection about information technology for sustainable industry.

7. Industrial robots etc (optional).

Examination

- DEL1 - Active participation, 2.0 credits, grading scale: P, F
- PRO1 - Project work, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- RAP1 - Report, 3.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.