



ML1615 Reliability and Maintenance in the Smart Factory 7.5 credits

Driftsäkerhet och tillförlitlighet i den uppkopplade fabriken

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

Establishment

The official course syllabus is valid from the autumn semester 2026 as decided by the Faculty Board: dnr HS-2026-1312. Decision date: 2026-06-15.

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Intended learning outcomes

After completing the course, the student must, for grade E, be able to:

1. report on trends in industrial digitalization and automation as well as the benefits that industrial digitalization solutions can lead to
2. explain how a production plant works from an overall system perspective
3. explain the principles of cloud services and reason about how they can be applied within industry 4.0
4. explain the content of reference architecture for Industry 4.0
5. explain the function of software for PLM (Product Lifecycle Management)

For higher grades, the student must also be able to:

1. show competence for the points above on a deeper level
2. explain the driving forces behind ongoing changes in industrial digitalization and automation
3. evaluate how industrial digitalization solutions can be used to achieve efficiency gains in production
4. apply reference architecture for industry 4.0
5. apply software for PLM (Product Lifecycle Management)
6. critically review the benefits and challenges that Industry 4.0 entails and propose how organizations and individuals can deal with them
7. develop an implementation plan for a digitalization case within industrial production

Course contents

The course focuses on Industry 4.0 and its applications, and gives a deeper insight in what possibilities there are to connect the equipment of a factory to internet and to cloud services.

Examination

- INL1 - Assignments, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- SEM1 - Seminars, 1.5 credits, grading scale: P, F
- TEN1 - Written examination, 4.5 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.

The examiner decides, in consultation with KTH's coordinator for disabilities (Funka), about possible adapted examination for students with documented, permanent disabilities. The examiner may permit other examination format for re-examination of individual students.

Other requirements for final grade

Attendance at specified compulsory course dates (or completed compensation assignment to these) are requirements for final grading.

Transitional regulations

Finns inga

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.