MG2038 Digital Factories 6.0 credits

Digitala fabriker

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

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

Establishment

On March 13 2024, The Director of First and Second Cycle Education at the ITM School has decided to establish this official course syllabus to apply from autumn semester 2024, registration number: M-2024-0504

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Students of a master programme at KTH who have taken the courses:

MG2028/MG2128 CAD and other IT Tools in Industrial Processes
MG2029 Production Engineering - Planning and Control
MG2130 Modelling and Simulation of Industrial Processes

or the equivalent

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 will be able to:

1. explain what is meant by digital factories and their relation to real factories
2. use selected IT tools as part of a digital factory for production development
3. use information modelling to describe and specify information and information flows in a digital factory
4. analyse and explain in own words how information can be handled and coordinated between different IT systems in a digital factory
5. adapt and evaluate the information model of a digital factory to changed prerequisites and in own words describe benefits and drawbacks of different solutions
6. propose and motivate how an information architecture should be designed to be able to combine development information with large amounts of data from the production process

Course contents

Lecture with introduction to digital factories:

- What is a digital factory and why is it needed?
- Relations between digital and real factories.
- An example of a digital factory with its software for discrete production.

Guest lectures from industry about use and benefits of digital factories

Lectures about and exercises and assignments in information modelling, databases and information standards

Computer exercises in software used for development of and data handling in digital factories

Project about a concrete application of a digital factory

Examination

- LAB3 - Computer labs and exercises, 1.5 credits, grading scale: P, F
- PRO3 - Project, 2.5 credits, grading scale: A, B, C, D, E, FX, F

- TEN3 - Written exam, 2.0 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.

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.