MG2038 Digital Factories 6.0 credits

Digitala fabriker

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

Establishment

Course syllabus for MG2038 valid from Autumn 2019

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:

- explain the principles of digital factories and their relation to real factories
- use selected IT system support as part of a digital factory for production development
- use information modelling for describing and specifying information and information flow in a digital factory
- analyse and, using own words, explain how information can be managed and coordinated between different systems in a digital factory
- adapt and evaluate the information model for a digital factory when changing the preconditions, and in own words describe pro and cons of different solutions

For a higher grade, the student should also be able to:

- propose and motivate how an information architecture should be designed to combine data from production develoåpment with large amounts of data from the production processes

Course contents

Introduction to digital factories - What is a digital factory and why is it needed? The relation between digital and real factories.

Digital modelling and visualization of manufacturing concepts

Digital modelling and visualization of factory layouts

Guest lectures by company employees on use and value of digital factories

Information modelling, databases and standadised model formats

Computer laborations on a case study of a digital factory including communication and coordination of various purpose models

Examination

- LAB2 - Laboratory work, 1.0 credits, grading scale: P, F
- TEN2 - Written home exam, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO2 - Project, 1.5 credits, grading scale: P, F
- ÖVN1 - Assignments, 0.5 credits, grading scale: P, 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.