



MG2130 Modelling and Simulation of Industrial Processes 9.0 credits

Modellering och simulering av industriella processer

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

Establishment

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Compulsory for TPRMM1, CMAST4 PRM, CDEPR4 PRM

Elective for students of other Master programmes at KTH

Language of instruction

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

Intended learning outcomes

Upon completion of the course requirements, the student will be able to:

- use common methods and standards for creating models of machines and other hardware, products, activities and flows in production plants
- use simulation software to:
 - create layout models of complete factories, production lines and manufacturing and assembly cells
 - simulation of manufacturing in a single machine tool
 - co-ordination and balancing of machine groups
 - perform event-driven simulation as a means for deciding on proper buffer and batch sizes, based on a given production capacity
- simulate the effects of changing process parameter values in manufacturing operations
- describe common principles for the exchange of product and production data between simulation software and other IT tools
- evaluate the user interface and functions of a simulation software package and decide on its usability for a given production case

Course contents

Modelling of manufacturing cells, production layouts, material flows and factories

Digital visualisation and simulation of cells, layouts, material flows and factories

Factory layouts

Event-driven simulation of production flow, to predict manufacturing capacity, lead times, bottlenecks, buffer sizes, stock handling, etc.

Simulation of manufacturing processes

Machine simulations

Course literature

pdf documents will be available through Bilda for registered course participants

Examination

- SEM1 - Seminars, 1.5 credits, grading scale: P, F
- PRO1 - Project Assignment, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 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.

Other requirements for final grade

Project Assignment (PRO1; 4,5cr)

Participation in seminars (SEM1; 1,5cr)

Written examination (TEN1; 3cr)

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.