



MG2206 Design and Information Management 9.0 credits

Design and Information Management

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

Establishment

Course syllabus for MG2206 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

For students on the M or P programmes

4G1165 Automation Technology

4G1166 Bachelor's Thesis in Production Engineering and Management

4G1169 Manufacturing

For students on the TPEMM program, see programme description.

Language of instruction

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

Intended learning outcomes

This course is meant to provide an in-depth

exposure to system modelling and simulation paradigms in order to enhance the student's ability to identify, represent, analyze, design, and manage complex systems whose behavior cannot be understood without simulation. Special emphasis is given to production systems, inventory systems and project management. The course covers topics in System Dynamics and Discrete Event Simulation. Appropriate state-of-the-art simulation software tools are used.

A comprehensive view is taken of the main information flows within a manufacturing enterprise to explore technology components, operations, management techniques and social issues related to information in manufacturing business.

Course contents

Fundamentals of Simulation. Continuous and discrete in time simulation. Monte Carlo and dynamic simulations. Introduction to System Thinking. Systems with Feedback. Stable, unstable and oscillating systems. System Modeling: Causal Loop Diagrams, Stock and Rate Diagrams, Delays and smoothing. System Dynamics simulation models. Application to production systems, supply chain and project management. Simulation model construction building. Application of Design of Experiments to simulation. Model validation and verification. Output analysis: sampling strategies, variance reduction methods. Sensitivity analysis. Application: terminating and steady state systems, comparison of alternative systems.

Computer-Based Information Systems. Management information requirements, database, decision/information models, presentation models, and design issues. Interface with other components within the business, including marketing.

Course literature

Will be announced at course start.

Examination

- INL1 - Assignment, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 6.0 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

Assignments (INL1; 3 cr)

Exam (TEN1; 6 cr)

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.