FMG3005 System Dynamics for Production Systems Design and Performance Analysis 6.0 credits

Systemdynamik vid utveckling och analys av produktionssystem

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

Establishment

Course syllabus for FMG3005 valid from Spring 2011

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

M.Sc in Mechanical Engineering or equivalent
Students of the 3rd, 4thor 5thyear of Civilingenjör programme
Students of the 1st year of TPRMM programme.

Language of instruction

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

Intended learning outcomes

After the course the students will be able to,

· Demonstrate knowledge in theory and principles of system dynamics

· Create mental models for complex systems and indentify balancing (B) and reinforcing (R) or combined B-R scenarios, specially for production systems and processes

· Model and analyze complex dynamic systems

· Make qualified decisionsconcerning process and system design in production

Course contents

The aim of the course is to train production engineers in System Dynamics.

The course aims to cover major aspects of production system design and performance analysis using system dynamics (SD) approach. The course will also include modeling and simulation of complex production systems and demonstrate process of decision making using SD.

Course literature

Business Dynamics- Systems Thinking and Modeling for Complex World, John D.Sterman, Irwin McGraw-Hill, 2000, ISBN-978-0-07-231135-8

Examination

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

Exam: No exam!!!

Assignment: One project work for each group (4 students). The project needs to be submitted in the form of written report with proper demonstration using stella software. The project work will correspond to 3 ECTS.

Tutorial: Most of the lectures will end with one or more tutorials. At least 90 % attendance in the lectures with 90-100% involvement during the tutorials will give 3 ECTS.

Presentation: Each project work needs to be presented through 10-20 minutes presentation.

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.