MF1026 Model Based Product Development I 9.0 credits

Modellbaserad produktutveckling I

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

Establishment

Course syllabus for MF1026 valid from Autumn 2010

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Qualified for studies in grade 3, 5B1132/SF1618 ,5B1133/SF1619 , 4C1010/SE1010 , MF1039/MF1013/4F1813

TIPUM, TIPUD, TAEEM

Language of instruction

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

Intended learning outcomes

After completing this course you will be able to:

- Define technical problems and search for solutions based on model based methods and modern computer tools in a structured way.
- Compare and select between analytical and computer based CAE-methods for analysis of less complicated products and to explain your decisions.
- Plan and perform a multi body systems (MBS) simulation of a less complicated product and a two dimensional thermal FE simulation of a system component.
- Verify simulation results of an analysis of a less complicated product based on analytical methods.
- Present solutions to simulation problems in writing and motivate and argue for the conclusions and also to reflect over these conclusions.

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Course contents

- Model based product development
- Dynamic models
- Introduction to multi body systems simulations, MBS
- Conservation laws and thermal course of events.
- Thermo eleastic effects
- Advanced MBS
- Control of MBS models
- Effects of spread variation and tolerances

The theoretical content is presented at the lectures and is applied in a number of assignments. The assignments are accomplished in groups of 2-3 students. Introductions to computer tools are given at three computer laborations and are being used to solve the assignments.

Disposition

Period 3, 4
Lectures 24h
Tutorials 24h
Laboration 12h
Project

Kursen kan inte kombineras med Examensarbete för kandidatexamen för fördjupningarna IPU och MKN.

Course literature

To be decided later.

Examination

- PRO1 - Project, 3.0 credits, grading scale: P, F
- ÖVN1 - Exercises, 3.0 credits, grading scale: P, F
- TEN1 - Home 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

To pass this course requires approved assignments (INL; 3 cr), approved project (PRO1; 3 cr) and an approved written examination (TEN1; 3 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.