



MF2033 Material, Environment and Economy 6.0 credits

Material, miljö och ekonomi

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

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for MF2033 valid from Spring 2011

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

CDEPR/CMAS^T/CFATE₃/CINEK₃, >120 hp, SE1010, MH1005

Masterprogram TIPUM, TIPDM

Language of instruction

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

Intended learning outcomes

After finishing the course the student shall:

- be able to connect material properties to functional demands for the product
- be able to choose relevant material parameters at the different stages in the material selection process
- be able to analyse tactile qualities of materials
- be able to include environmental effects and economy in a life cycle perspective in the material selection process
- be able of reasoning of causes for material selection in real situations

Course contents

This course will introduce systematic material selection processes in product development with support of material selection tools.

In the process of product development constraints are formed based on the function of the product, which must be connected to materials properties. Here knowledge about materials properties as mechanical, optical, thermal, tactile etc. for different classes of material is necessary. Here former knowledge from mechanics of materials and materials science will be used to identify relevant parameters.

Selection of material is also important from a sustainable perspective. In the course methods for analyzing environmental effects as well as economic aspects from a life cycle perspective will be introduced.

Disposition

The course contains lectures and computer exercises using CES EduPack tool. Also included is one laboratory where materials tactile properties are investigated and three individual hand in tasks. At the end of the course a written exam is given.

Course literature

Materials, engineering, science, processing and design, Ashby, Shercliff, Cebon, ISBN: 9781856178952, 2009

Sensation and Perception, Wolfe, Kluender & Levi et al, ISBN 0-87893-938-5

Examination

- INL1 - Hand in Task, 2.0 credits, grading scale: P, F

- LAB1 - Laboratory Work, 2.0 credits, grading scale: P, F
- TEN1 - Written Exam, 2.0 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.

Other requirements for final grade

Approved assignments and pass a written test

Compulsory attendance of 75% of the lectures and all laboratory

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.