KF1030 Perspectives on Materials Design 9.0 credits

Perspektiv på materialdesign

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

Establishment

Course syllabus for KF1030 valid from Autumn 2007

Grading scale

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

Education cycle

First cycle

Main field of study

Materials Science, Technology

Specific prerequisites

Knowledge in mathematics, chemistry and physics for KTH-studies

Language of instruction

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

Intended learning outcomes

After finished course the student should be able to:

- Describe the structure of metals, ceramics, polymers and fiber based materials.
- Describe the properties (strength, shear, compression, corrosion resistance and degradation) characterizing metals, ceramics, polymers and fiber based materials.
- Be able to do simple reflexions concerning material choice for certain applications/final products
- Be able to schematically describe recovery processes for the most common materials
- Be able to schematically describe the most common testing methods for materials
- Carry out a project in a group and present it in writing and orally
- Search for and collect information from libraries and the Internet
- Solve simple numerical and analytical problems with the aid of computer programs

Course contents

A written test (KON1) examines the lecture stuff. A project task (PRO1) is distributed, to be carried out in groups of 4-6 persons. The moments of this task consist of literature search, problem solving, report writing and oral presentation. The subject for the task consists of themes which can be varied each year (e.g.materials in everyday products such as means of payment). Lectures in MatLab (MATL) and choice of materials (MATV) are followed by laboratory work (3 and 2 experiments respectively per part). Compulsory educational visit (STU1).

Course literature

William D. Callister: Materials Science and Engineering. An Integrated Approach, 2nd Ed. John Wiley & Sons, 2005

Utdelat material

Examination

- PROA - Project, 4.0 credits, grading scale: P, F
- STU1 - Study Visist, 0.0 credits, grading scale: P, F
- TENA - Test, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- MATV - Laboratory Work, 1.0 credits, grading scale: P, F
- MATL - Exercises, 1.0 credits, grading scale: P, 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

Written test (KON1); 1,5 cr
Project 1 (PRO1); 3 cr
Matlab (MATL); 0,5 cr
Materials choice labs (MATV) 0,5 cr
Educational visit (STU1); 0,5 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.