KF1070 Perspectives on Materials Design 10.5 credits

Perspektiv på materialdesign

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 KF1070 valid from Autumn 2010

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

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 Perform proper referencing of scientific information
- Critically evaluate and judge information from internet sources, books and journals etc.
- Solve simple numerical and analytical problems with the aid of computer programs.

Course contents

A written examination examines the lecture stuff. A project task 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 and choice of materials are followed by laboratory work (3 and 2 experiments respectively per part).

Compulsory educational visit.

Lectures in information searching, reference systems, plagiarism and source critique are followed by laboratory exercises.

Course literature

William D. Callister: Materials Science and Engineering. An Introduction, 2th Ed. John Wiley & Sons, 2007

Course marerial during the course

Examination

- LAB1 - Laboratory Work, 1.0 credits, grading scale: P, F
- LIT1 - Literature Searching, 1.0 credits, grading scale: P, F
- PRO1 - Project, 4.0 credits, grading scale: A, B, C, D, E, FX, F

- STU1 - Study Visit, 0.5 credits, grading scale: P, F
- TEN1 - Written Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Exercises, 1.0 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

- LIT1 - Literature Searching, 1,0 hp, betygsskala: P, F
- ÖVN1 - MATLAB/Computer Exercises, 1,0 hp, betygsskala: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1,0 hp, betygsskala: P, F
- PRO1 - Project , 4,0 hp, betygsskala: A, B, C, D, E, FX, F
- STU1 - Studiebesök, 0,5 hp, betygsskala: P, F
- TEN1 - Written Examination, 3,0 hp, betygsskala: A, B, C, D, E, FX, F

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.