MH2103 High Performance Steels and Other Alloys 6.0 credits

Högpresterande stål och andra legeringar

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

Establishment

Course syllabus for MH2103 valid from Spring 2009

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

4H1114 Mikro och nanostrukturer.

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:

- Have an overview over the possibilities and limitations of computational thermodynamics
- Be able to apply the Calphad method for simple cases
- Use simulations tools such as Thermo-Calc, DICTRA and phase field.

Course contents

The Calphad method. Diffusion and thermodynamics. Solution of Fick's first and second laws, application to important cases in materials science. Diffusion in multicomponent systems. Over-all transformation kinetics. Sharp and diffuse interface modeling of phase transformations. The DICTRA and phase-field approaches. Examples of applications.

Examination

- SEM1 - Seminar, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project, 4.5 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

Seminars (SEM1; 1,5 cr)
Project assignment (PRO1; 4,5cr)

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.