FMH3104 Alloy Theory 7.5 credits

Legeringsteori

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

Establishment

Course syllabus for FMH3104 valid from Autumn 2020

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Admitted to doctoral studies, with knowledge in material thermodynamics and materials theory.

Language of instruction

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

Intended learning outcomes

After completing the course, the student should be able to:

- apply the laws of thermodynamics

- explain general conditions for equilibrium and stability

- develop mathematical models to describe the thermodynamics of different phases: solid, liquid and gas phase from unary to multicomponent systems

- apply mathematical models for phase equilibria and phase transformations including order/disorder and magnetic transformations

- apply molar Gibbs energy diagrams and connect them to phase diagrams and driving forces

- apply phase diagrams and property diagrams from unary to multicomponent systems.

Course contents

The thermodynamic laws and general conditions for equilibrium and stability. Mathematical modelling of different phases such as solid phase and melt for multicomponent systems. Driving force, order transformations, Gibbs energy diagram, phase diagram.

Examination

- INL1 - Assignment, 7.5 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.

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.