MH2100 Powder Metallurgy 6.0 credits

Pulvermetallurgi

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 MH2100 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Materials Science,Materials Science and Engineering

Specific prerequisites

4H1114 Micro and Nano Structures.

Language of instruction

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

Intended learning outcomes

To provide the student with knowledge

- about powder metallurgical materials and their fabrication processes.
- of materials of special importance for the Swedish PM-industry.

Course contents

Fabrication of metallic powders and methods for their characterisation. Compaction and sintering of ironbased powder and cemented carbide powder. Compaction by uni-axial and isostatic pressing and the use of pressing aids. Thorough analysis of chemical equilibria and diffusion processes during sintering of sinter steel and cemented carbides. Sintering theory and the influence of different processing conditions, wetting and surface diffusion. Solid phase as well as liquid phase sintering are exemplified by applications on sinter steel and cemented carbides. Advantages and limitations of powder metallurgy materials are discussed from technical and economical point of views.

Course literature

German, R.M. Powder Metallurgy Science.

Compendium.

Examination

- LAB1 - Laboratory Work, 2.3 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 3.7 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

Written exam (TEN1; 4 credits). Lab work (LAB1; 2 credits).

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.