



MH2101 Metal Powder: Production, Handling and Characterisation 6.0 credits

Metallpulver: Produktion, hantering och karakterisering

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

Establishment

On 07/04/2020, the Dean of the ITM School has decided to establish this official course syllabus to apply from Autumterm 2020 (registration number M-2020-0778).

Grading scale

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

Education cycle

Second cycle

Main field of study

Materials Science and Engineering

Specific prerequisites

Basic knowledge of processes for production of powder metallurgical products (minor essay and AM) and thermodynamic and physical bases of melt systems' solidification, equivalent to course MH1024 Fundamentals of Materials Science - Metallic Materials, or the equivalent.

Basic knowledge in fluid dynamics of melt systems equivalent to the course MH1018 Transport Phenomena, or the equivalent.

Language of instruction

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

Intended learning outcomes

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

- Give example of and evaluate different process paths for production of metal powder
- Compare relevant methods to measure properties of powder and evaluate these for a given powder material and intended application
- Justify for possible changes in powder properties due to storing and handling and explain how this can be prevented or is mitigated
- Give example of and justify different process paths for production of PM components (components of metal powder)
- Explain which different generic properties a powder may depending on production process and justify for the suitability for a specific component manufacturing method
- Give example of components produced with powder metallurgy and justify why the PM process has been used in these cases

Course contents

1. Explanation for the use of metal powder
2. Methods for metal powder production
3. Powder properties and characterisation methods
4. Handling of metal powder
5. Process paths for production of components from metal powder

Examination

- HEM1 - Home assignments, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Written exam, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory work, 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.

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.