



MH2049 Advanced Course in Process Science 9.0 credits

Avancerad kurs i processvetenskap

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

Establishment

The official course syllabus is valid from the autumn semester 2026 as decided by the Faculty Board: PA-2026-011. Decision date: 2026-08-26.

Grading scale

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

Education cycle

Second cycle

Main field of study

Materials Science and Engineering

Specific prerequisites

MH2039 Process Engineering/MH2029 Extractive Metallurgy, or the equivalent

MH2041 Applied Thermodynamics and Kinetics, Part 2, or the equivalent

Intended learning outcomes

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

- Explain the basic kinetic theories related to pyrometallurgical metal production
- Identify possibilities to process control and reactor design in industrial metallurgical processes
- Identify how it is possible to choose and optimise parameters to receive a sustainable metallurgical process chain
- Identify how it is possible to choose parameters to control a metallurgical process

Course contents

The course deals with:

- advanced knowledge for metal production, mainly via pyrometallurgy.
- advanced kinetic theories that are used in metal production.

The course provides knowledge of:

- how thermodynamic and kinetic theories can be used to optimise metallurgical processes.
- importance of choice of process parameters to reach an improved process control of a metallurgical process with regard to both productivity and sustainability.
- possibilities to design processes or parts of processes in metallurgical industry.

Examination

- LAB1 - Laboratory Work, 1.0 credits, grading scale: P, F
- TENA - Written examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- SEM1 - Seminar, 1.0 credits, grading scale: P, F
- PRO1 - Project, 4.0 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.

If the course is discontinued, students may request to be examined during the following two academic years.

Students who have not completed course with previous assessment modules should contact the course coordinator.

Transitional regulations

Contact the course coordinator

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.