



# MH2058 Materials Processes II

## 7.5 credits

### Materials processer II

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

The official course syllabus is valid from the spring semester 2025 in accordance with the decision by the Head of the ITM School: M-2023-2073. Date of decision: 2023-10-11

### Grading scale

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

### Education cycle

Second cycle

### Main field of study

Materials Science and Engineering

### Specific prerequisites

Knowledge in metallurgical processes equivalent to contents of MH2054 Materials Processes I.

## Language of instruction

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

## Intended learning outcomes

On successful completion of the course, the student should be able to the following, mainly with regard to iron and steel production but also for production of other important metals as aluminium and copper:

1. With calculations solve problems and explain concepts in the course content where special focus is placed on realistic issues of industrial relevance.
2. Design and control a metallurgical process chain with optimisation of process parameters where consideration is taken to quality, finance and sustainability.
3. Communicate results and hypotheses in the course content both orally and in writing, and provide arguments for these.

## Course contents

Additional knowledge of thermodynamics for metallic solutions and advanced knowledge for metal production. The course specifically provides knowledge of:

- How thermodynamic and kinetic theories can be used to optimise metallurgical processes.
- The 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.

Applications in material technology, e.g.:

- Iron production, roasting and melting of sulphides, steel production, refining of iron and steel, refining of copper and silicon
- Solid phase transformations and equilibria in metals and alloys

## Examination

- INL1 - Homework, 3.5 credits, grading scale: A, B, C, D, E, FX, 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.

## 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.