

COURSE SYLLABUS

Materials Technology, 7.5 credits

Materialteknik, 7.5 högskolepoäng

Course Code: TMTK16	Education Cycle: First-cycle level
Confirmed: Feb 01, 2025	Disciplinary domain: Technology
Valid From: Jan 19, 2026	Subject group: Mechanical Engineering
	Specialised in: G1F First cycle, has less than 60 credits in first-cycle course/s as entry requirements
	Main field of study: Mechanical Engineering

Intended Learning Outcomes (ILO)

On completion of the course the student shall:

Knowledge and understanding

- display knowledge of the material groups: metals, ceramics, polymers and composites
- display knowledge of the relationships between composition, microstructure and material properties
- display knowledge of corrosion and degradation of materials

Skills and abilities

- demonstrate skills in identifying the structural features that influence the properties of a material
- demonstrate the ability to explain material properties linked to characterization methods

Judgment and approach

- demonstrate the ability to critically compare and select suitable testing methods for metallic, polymeric and ceramic components.
- demonstrate the ability to assess the interrelations between structure and properties.

Content

The course gives an understanding of the four primary types of materials (metals, ceramics, polymers and composites), as well as the interrelations between the structural elements of materials and their properties.

The course contains the following elements:

- Overview of material groups (metals, polymers, composites and ceramics) and their properties
- Overview of material testing methods
- Overview of corrosion and degradation of materials
- Basic relationship between structural features and material properties

Type of instruction

Teaching takes place in the form of lectures, exercises and laborations.

Language of instruction is in English.

Entry requirements

General entry requirements and taken courses in Product Development and CAD, 7,5 credits and Single Variable Calculus, 7,5 credits (or the equivalent).

Examination and grades

The course is graded 5, 4, 3 or U.

Registration of examination:

Name of the Test	Value	Grading
Examination ¹	4 credits	5/4/3/U
Laboratory	2.5 credits	G/U
Assignment	1 credit	G/U

¹Determines the final grade of the course, which is issued only when all course units have been passed.

Course literature

Please note that changes may be made to the reading list up until eight weeks before the start of the course.

Titel: Materials Science and Engineering: An Introduction, 10th Edition

Authors: William D Callister Jr and David G Rethwisch

ISBN: 978-1-119-40549-8.