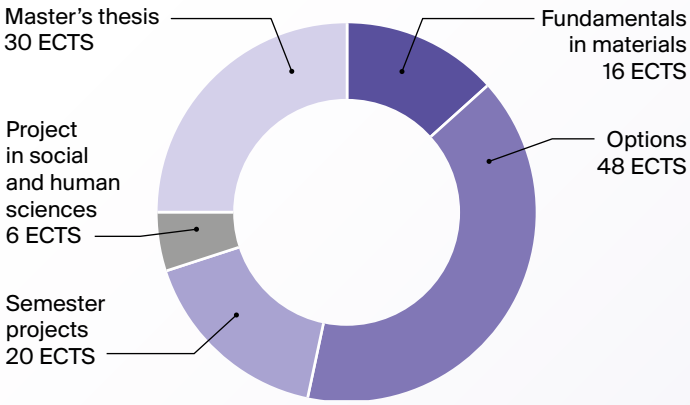
Master of Science in

MATERIALS SCIENCE AND ENGINEERING

2-year program - 120 ECTS



Options may include courses from other programs according to the recommended courses list or other courses approved by the direction of the section.

Specialization:

Students may obtain the "Materials research and development" specialization by choosing 30 ECTS in the optional courses group. For the remaining 18 ECTS, they may choose max. 12 ECTS in other programs.

Or opt for a 30 ECTS minor included in the 48 ECTS optional courses including max. 6 ECTS in other programs.

Minors recommended with this Master:

- Biomedical technologies
- Computational science and engineering
- Energy
- Engineering for sustainability
- Management, technology and entrepreneurship
- Mechanical engineering
- Spatial technologies
- Sustainable construction

Industrial internship

The program includes a compulsory 8-week to 6-month industrial internship, which can be combined with the Master's thesis.

Career prospects

A Master's degree in materials science and engineering is the gateway to careers in a wide variety of industries ranging from the production of materials to the manufacturing of finished products such as watches, sports equipment, aeronautic, foods, metallurgy, automobiles, electronics, and multimedia.

It also provides an ideal training for the innovative application of advanced materials in areas such as bio- and nanotechnology as well as a strong basis for those who wish to pursue a PhD degree in Materials Science or a related field.

School of Engineering
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	ECTS
Fundamentals in materials	**16**
Advanced metallurgy	4
Fracture of materials	4
Fundamentals of solid-state materials	4
Soft matter	4
Statistical mechanics	4

Options	**48**
Advanced additive manufacturing technologies	4
Advanced ceramic technologies	3
Advanced phase transformations	3
Assembly techniques	2
Atomistic and quantum simulations of materials	4
Biomaterials	5
Cementitious materials (advanced)	2
Charge transport in energy conversion and storage	4
Composites technology	3
Electrochemistry for materials technology	3
Electron microscopy: advanced methods	4
Engineered living materials	3
Fundamentals of crystallography and diffraction	3
Immunoengineering	4
IMX colloquium (autumn)	2
IMX colloquium (spring)	2
Introduction to additive manufacturing	4
Introduction to food science and technology	4
Introduction to magnetic materials in modern technologies	4
Light, liquids and interfaces	4
Materials design for vat photopolymerization	3
Material science at large scale facilities	3
Materials selection	2
Mathematical aspects of materials modelling	5
Mathematical methods for materials science	4
Nanomaterials	3
Optical properties of materials	3
Organic electronic materials	4
Physical chemistry of polymeric materials	4
Polymer chemistry and macromolecular engineering	3
Properties of semiconductors and related nanostructures	5
Quantum materials: fundamentals and applications	4
Research project in materials III	10
Surface analysis	3
Thin film fabrication technologies	2
Towards sustainable materials	4
Tribology	2
Wood structures, properties and uses	2