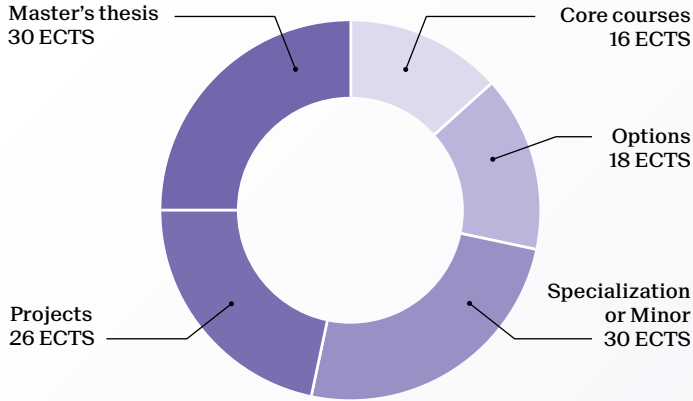


# Master of Science in MATERIALS SCIENCE AND ENGINEERING

2-year program - 120 ECTS



## Specialization:

Validation of the specialization "Materials research and development" requires 30 ECTS from the Group "Options"

## Possible Minor programmes (30ECTS)

- Area & Cultural Studies
- Biomedical Technologies
- Computational Science & Engineering
- Energy
- Management, Technology and Entrepreneurship
- Mechanical engineering
- Science, Technology and Area Studies
- Space Technologies

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  
[master.epfl.ch/materials](http://master.epfl.ch/materials)  
 contact: [homeira.sunderland@epfl.ch](mailto:homeira.sunderland@epfl.ch)

	Credits
<b>Core courses in materials science</b>	<b>16</b>
Advanced metallurgy	4
Fracture of materials	4
Fundamentals of solid-state materials	4
Soft matter	4
Statistical mechanics	4

	Credits
<b>Optional or Specialization courses</b>	<b>18</b>
Assembly techniques	2
Atomistic and quantum simulations of materials	4
Biomaterials	3
Cementitious materials (advanced)	2
Composites technology	3
Dielectric properties of materials	2
Electrochemistry for materials technology	2
Electron microscopy: advanced methods	3
Introduction to crystal growth by epitaxy	2
Introduction to magnetic materials in modern technologies	4
Life cycle engineering of polymers	2
Materials selection	2
Micro and nanostructuring of materials	2
Modelling problem solving, computing and visualisation I	2
Modelling problem solving, computing and visualisation II	3
Nanomaterials	3
Organic electronic materials - synthesis, applications, properties	3
Organic semiconductors	3
Physical chemistry of polymeric materials	3
Polymer morphological characterization techniques	2
Polymer physical chemistry and materials properties	3
Powder technology	3
Properties of semiconductors and related nanostructures	4
Recycling of materials	2
Research project in materials III	10
Seminar series on advances in materials	2
Surface analysis	3
Thin film fabrication processes	2
Tribology	2
Wood structures, properties and uses	2
Courses in other programmes according to list of recommended courses	max. 6 or 10

<b>Projects</b>	<b>26</b>
Research project in materials I, II	20
Project in human and social sciences	6

Courses in other programmes according to list of recommended courses