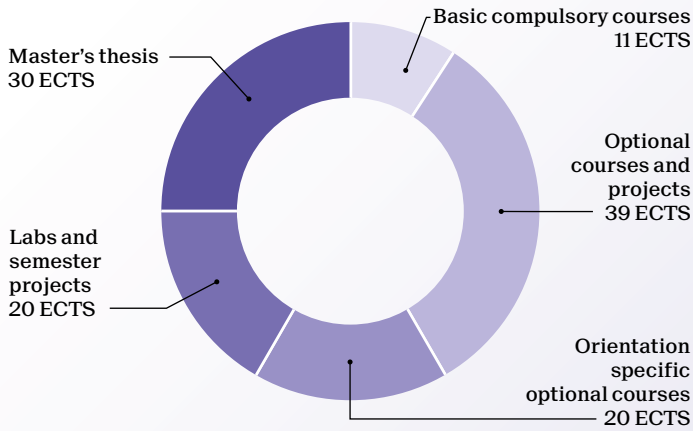


# Master of Science in ROBOTICS

2-year program - 120 ECTS



The program includes a compulsory industrial internship with a minimal duration of 8 weeks.

Students must choose 20 ECTS of optional courses in one of these three orientations:

- A Industrial robotics
- B Medical robotics
- C Mobile robotics

The optional courses and projects (39 ECTS) include either:

- Optional courses (19 ECTS)
- 1 semester project (10 ECTS)
- 1 interdisciplinary project or more optional courses (10 ECTS)

OR

- Optional courses (9 ECTS)
- A minor (30 ECTS) selected among the list of minors at EPFL e.g.:
  - Biomedical Technologies
  - Computational Science & Engineering
  - Energy
  - Internet of Things
  - Management, Technology and Entrepreneurship
  - Photonics
  - Science, Technology and Area Studies
  - Space Technologies

## Project types

- Interdisciplinary projects are selected among a list available at: [discoverylearningprogram.epfl.ch](http://discoverylearningprogram.epfl.ch)
- Semester projects are hosted in EPFL laboratories, including interdisciplinary projects.

## Prerequisites for admission

Candidates holding an EPFL bachelor's degree in microengineering are automatically accepted. Holders of a bachelor's degree in computer science, electrical engineering, mechanical engineering, or any related field with an interdisciplinary background can apply and will go through the standard EPFL admission procedure.

School of Engineering  
[master.epfl.ch/programs/robotics/](http://master.epfl.ch/programs/robotics/)  
contact: [robotics.master@epfl.ch](mailto:robotics.master@epfl.ch)

	Credits
<b>Basic compulsory courses</b>	<b>11</b>
Applied machine learning	4
Basics of mobile robotics	4
Model predictive control	3

Optional courses and orientation	A	B	C	59
Advanced control systems	A	B	C	3
Advanced machine learning	A	B	C	4
Advanced MEMS & microsystems			C	3
Advanced satellite positioning			C	4
Analyse de produits et systèmes	A			2
Analysis and modeling of locomotion		B	C	4
Artificial evolution			C	3
Biomaterials		B		4
Brain computer interaction		B		4
Commande embarquée de moteurs	A			2
Computational motor control		B	C	4
Computer vision	A	B	C	4
Conception mécanique intégrée	A			3
Continuous improvement of manufacturing systems	A			4
Controlling behavior in animal and robots		B	C	4
Distributed intelligent systems			C	5
Embedded systems	A	B	C	4
Flexible bioelectronics		B		4
Flying robots			C	4
Fundamentals of computer aided manufacturing	A			5
Fundamentals of neuroengineering			C	4
Haptic human robot interfaces	A			3
Image analysis and pattern recognition		B	C	4
Image processing I		B		3
Image processing II		B		3
Industrial automation	A			3
Industry dynamics, models & trends	A			4
Intelligent agents	A		C	6
Legged robots			C	4
Lifecycle performance of product systems	A			3
Machine learning programming	A	B	C	2
Mechanical product design and development	A	B	C	5
Multi-body simulation (pas donné en 2018-19)		B	C	3
Multivariable control and coordination systems			C	4
Networked control systems			C	3
Numerical methods in biomechanics		B		3
Optimal decision making	A			4
Organic and printed electronics		B	C	2
Production management	A			5
Real time embedded systems	A	B	C	4
Real time networks			C	3
Robotique industrielle et appliquée	A			2
Sensorimotor neuroprosthetics		B		4
Sensor orientation			C	4
Sensors in medical instrumentation		B		3
Signal processing for functional brain imaging		B		3
System identification	A	B	C	3
Systèmes mécatroniques	A	B	C	5

Lab and semester projects	20
Robotics practicals	4
Robotics project I	10
Project in human and social sciences	6