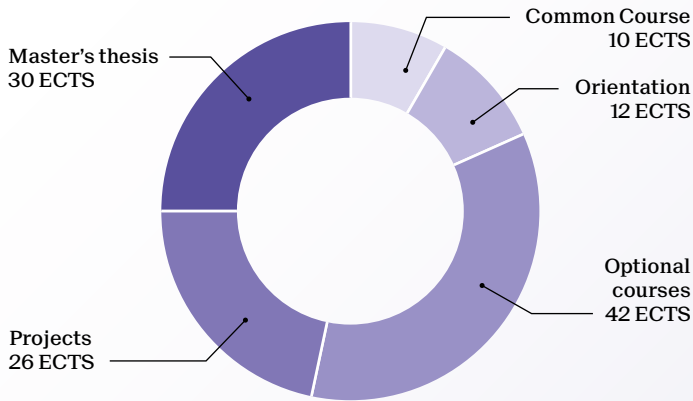


Master of Science in MICROENGINEERING

2-year program - 120 ECTS



including an 8-week internship in industry

Possibility to follow a 30 ECTS Minor within the optional courses:

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

Optional courses

The student chooses among the courses recommended for his orientation. He can select other ones with the written consent of his tutor.

Possible orientations:

- A Optical Engineering
- B Micro- and Nanosystems
- C Robotics

School of Engineering
master.epfl.ch/microengineering
contact: guy.delacretaz@epfl.ch

	Track			Credits
Common Course:				10
Products design & system engineering				10

	Track			Credits
Orientation				12
Optical Engineering	A			12
Image optics				3
Optical Detectors				3
Optics laboratories				3
Selected topics in advanced optics				3

	Track			Credits
Micro- and Nanosystems		B		12
Advanced MEMS and microsystems				3
Materials and technology of microfabrication				3
Modeling and simulation of microsystems				3
Nanotechnology				3

	Track			Credits
Robotics			C	12
Applied machine learning				4
Mobile robots				4
Robotics practicals				2
Robotique industrielle et appliquée				2

	Track			Credits
Optional courses				42
Advanced control systems	A	B	C	3
Advanced machine learning			C	4
Advanced MEMS and microsystems	A		C	3
Advanced satellite positioning			C	4
Aerial robots			C	4
Analog circuit design I, II		B		4
Analyse de produits et systèmes		B		2
Applied machine learning	A	B		4
Audio	A	B	C	3
Biomedical optics	A			3
BioMEMS	A	B	C	2
Biomicroscopy I, II	A			7
Circuits intégrés I		B		3
Commande embarquée de moteurs			C	2
Commande non linéaire			C	3
Computational motor control			C	4
Computer-aided engineering			C	5
Distributed intelligent systems (pas donné 2016-17)		B	C	5
Evolutionary robotics			C	4
Flexible bioelectronics	A	B	C	3
Fundamentals and processes for photovoltaic devices	A	B	C	3
Fundamentals of biophotonics	A			3
Fundamentals of computer aided manufacturing			C	5
Haptic human robot interfaces			C	3
Image optics		B	C	3
Image processing I, II	A	B	C	6
Integrated optics	A			3
Large-area electronics: devices and materials	A	B	C	3
Laser microprocessing	A	B	C	2
Lasers : theory and modern applications				4
Machine learning programming	A		C	2
Materials & Technology of microfabrication	A	B	C	3
MEMS practicals I, II	A	B	C	4
Microelectronics	A	B	C	2
Mobile robots	A	B		4
Model predictive control		B	C	3
Modeling and simulation of microsystems	A		C	3
Nanobiotechnology and biophysics	A	B		3
Nanotechnology	A		C	3
Optical communications	A			3
Optical detectors		B	C	3
Opticalwave propagation	A			3
Optics laboratories II	A			3
Organic and printed electronics	A	B	C	2
Photomedicine	A			2
Photonic micro- and nanosystems	A	B		2
Photonic systems and technology	A			4
Physics of photonic semiconductor devices	A			4
Quantum electrodynamics and quantum optics	A			4
Quantum optics and quantum information	A			4
Robotique industrielle et appliquée	A	B		2
Scaling laws in micro- and nanosystems	A	B	C	2
Selected topics in advanced photonics		B	C	3
Sensors in medical instrumentation	A	B	C	3
Space mission design and operations		B	C	2
System identification			C	3
Techniques d'assemblage	A	B	C	3
Transducteurs et entraînements intégrés			C	3

	Track			Credits
Projects				26
Projet microtechnique I, II				20
Project in human and social sciences				6