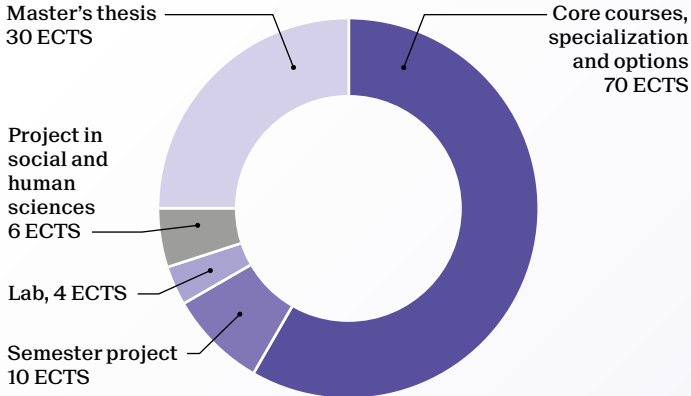


Master of Science in ELECTRICAL AND ELECTRONIC ENGINEERING

2-year program - 120 ECTS



	Specialization							Credits
	A	B	C	D	E	F	G	
Core courses (min. 12 credits)	A	B	C	D	E	F	G	
Convex optimization				D	E			5
Fundamentals of analog and mixed signal VLSI design	A	B	C	D			G	4
Fundamentals of inference and machine learning	A	B		D	E	F		4
Semiconductor devices I	A	B					G	4
Smart grids technologies								5
Wireless receivers: algorithms and architectures	A		C	D		F	G	4
Lab	A	B	C	D	E	F	G	4
Cell-free synthetic biology			C					4
Lab in acoustics								4
Large-scale data science for real-world data				D				4
Lab in EDA based design	A			D				4
Lab in electrical energy systems								4
Lab in microwaves	A						G	4
Lab in nanoelectronics	A	B						4
Lab in signal and image processing				D		F		4
Lab on app development for tablets and smartphones				D	E			4

Students may choose a 30 ECTS specialization in:

- A Microelectronic circuits and systems
- B Electronic technologies and device-circuit interactions
- C Bioelectronics
- D Internet of Things (IoT)
- E Data science and systems
- F Signal, image, video and communication
- G Wireless and photonic circuits and systems

Or / and a 30 ECTS minor included in the 120 ECTS.

Recommended minors with this Master:

- Biomedical technologies
- Computational science and engineering
- Energy
- Management, technology and entrepreneurship
- Space technologies

Or / and a 30 ECTS internship (4-6 months)

Industrial internship

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

School of Engineering

go.epfl.ch/master-electrical-electronic-engin
contact: philippe.gay-balmaz@epfl.ch

	Specialization							Credits
	A	B	C	D	E	F	G	
Options	A	B	C	D	E	F	G	
Adaptation and learning					E	F		4
Advanced analog integrated circuit design	A	B	C	D			G	2
Advanced computer architecture	A							8
Advanced lab in electrical energy systems								4
Advanced lab in electrical engineering								4
Advanced multiprocessor architecture	A			D				6
Advanced VLSI design	A			D				4
Advanced wireless receivers	A			D			G	3
Analog circuits for biochip	A		C	D				3
Applied biomedical signal processing				D		F		4
Applied data analysis				D	E			8
Applied machine learning				D	E			4
Audio						F		3
Automatic speech processing					E	F		3
Bioelectronics and biomedical microelectronics	A	B	C	D				3
Biometrics								3
Biomicroscopy I, II	A		C	D			G	7
Bio-nanochip design				C	D			3
Causal inference				D	E	F		4
Cellular and molecular biology I				C				3
Computational neurosciences: neuronal dynamics				C				5
Computational photography						F		5
Computer architecture II	A							4
Data visualization					E			4
Deep learning				D	E	F		4
Deep learning for autonomous vehicles								6
Deep learning for optical imaging						E	F	3
Design technologies for integrated systems	A	B	C	D		F		6
Discrete optimization				D	E			5
Distributed information systems				D		F		4
Distributed intelligent systems	A					F		5
Electromagnetic compatibility								2
Embedded systems	A		C	D				4
Energy conversion and renewable energy								4
Energy storage systems								3
Fundamentals and processes for photovoltaic devices								3
Fundamentals of biomedical imaging				C				4
Fundamentals of biosensors and electronic biochips					C	D		3
Fundamentals of VLSI design	A	B	C	D				4
How to design for value for space applications								2
Hydropower plants: generating and pumping units								2
Image analysis and pattern recognition						E	F	4
Image and video processing					D		F	6
Imaging optics	A							3
Industrial automation								3
Industrial electronics I, II								8
Information theory and coding	A			D	E	F		8
Integrated circuits technology	A							2
Introduction to computer graphics						F		6
Introduction to the design of space mechanisms								2
Lasers: theory and modern applications	A						G	4
Lessons learned from the space exploration								2
Low-power radio design for IoT	A			D			G	3
Machine learning	A				E			8
Mathematics of data: from theory to computation					E			6
Media security				D		F		6
Microwaves, the basics of wireless communications	A		C			F	G	4
Mobile networks	A			D				4
Model predictive control				D				4
Multivariable control and coordination systems								4
Nanoelectronics	A		C	D				2
Networked control systems				D				3
Network machine learning				D	E	F		4
Optical detectors	A						G	3
Optics laboratories I	A						G	3
Optimal decision making				D				4
Photonic micro- and nanosystems	A							2
Photonic systems and technology	A					F	G	4
Physical models for micro- and nanosystems	A							2
Physics of photonic semiconductor devices	A						G	4
Power system restructuring and deregulation								3
Power systems dynamics								3
Project in electrical engineering	A		C	D	E	F	G	10
Projet en technologies spatiales								12
Quantum electrodynamics and quantum optics	A						G	6
Quantum optics and quantum information	A						G	6
Radio frequency circuits design techniques	A		C				G	4
Real-time embedded systems	A			D				4
Scaling laws and simulations in micro- and nanosystems				C				4
Selected topics in advanced optics	A						G	3
Semiconductor devices II	A	B					G	4
Semiconductor physics and light-matter interaction								4
Seminar in physiology and instrumentation								2
Sensors in medical instrumentation			C					3
Smart sensors for IoT				D				3
Social media						F		2
Space mission design and operations								2
Space propulsion								3
Spacecraft avionics architectures								2
Spacecraft design and system engineering								4
Statistical inference and machine learning	A	B		D	E	F		4
Statistics for data science								6
Summer workshop								4
Systems and architectures for signal processing	A							2
TCP/IP networking								6
Test of VLSI systems	A							2
Transdisciplinary project								4
Transducers for classical and quantum applications								4
Wave propagation along transmission lines						F		2