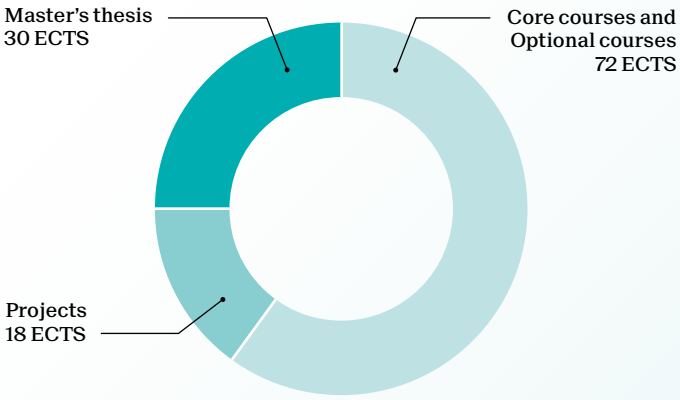
ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Master of Science in

COMMUNICATION SYSTEMS

2-year program - 120ECTS



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

Students may choose a 30 ECTS Specialization in:

A Computer Engineering-SP
B Data Analytics
C Foundations of Software
D Information Security-SP
E Networking and Mobility
F Signals, Images and Interfaces
G Software Systems
H Wireless Communications
I Computer Science Theory
J Internet Information Systems

Or a 30 ECTS Minor in:

- Biocomputing
- Biomedical Technologies
- Computational Science and Engineering
- Management, Technology and Entrepreneurship
- Space Technologies

Other Minors may be possible, in agreement with the programs' directors.

Career prospects

The EPFL Innovation Park, literally two steps away, is home to numerous R&D laboratories from international companies such as Cisco, Logitech, Credit Suisse or Nitto Denko. Such companies closely collaborate with the researchers from the School of Computer and Communication Sciences IC.
The EPFL Innovation Park is the springboard for plenty of start-ups, most of them stemming from the IC School.

It only takes an average of 10 weeks to find one's first job in the field of Information and Communication Technologies (ICT). Moreover, many graduates in the ICT field receive a job offer during the last semester of their training. Companies like Facebook, Google and Microsoft have even begun recruiting directly on campus.

School of Computer and Communication Sciences
master.epfl.ch/communicationsystems
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	Specialization									Credits
Core courses (min. 30 credits)	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	
Advanced digital communications								H			7
Cryptography and security				D	E					J	7
Distributed algorithms			C				G		I	J	4
Distributed information systems		B			E					J	4
Information theory and coding		B						H	I		7
Mobile networks				D	E		G	H			4
Pattern classification and machine learning		B				F			I	J	7
Statistical signal and data processing through applications		B				F		H			5
TCP/IP networking				D	E		G	H			5

Optional courses	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	
Advanced algorithms		B	C	D	E				I		7
Advanced analysis I, II											8
Advanced computer architecture	A			D			G				4
Advanced computer graphics						F					6
Advanced cryptography				D							4
Advanced multiprocessor architecture	A						G				6
Advanced probability and applications								H	I		6
Analytic algorithms		B							I		4
Applied data analysis		B									6
Audio signal processing and virtual acoustics						F					4
Automatic speech processing						F					3
Biological modeling of neural networks											4
Biomedical signal processing						F					6
Business design for IT services											3
Cellular biology and biochemistry for engineers											4
Computational photography						F					5
Computer vision						F					4
Concurrent algorithms			C		E		G		I		4
Convex optimization and applications								H			4
Database systems		B	C				G			J	7
Design technologies for integrated systems	A										6
Digital 3D geometry processing						F					5
Digital education & learning analytics											4
Distributed intelligent systems	A										5
Dynamical system theory for engineers											4
Embedded systems	A										4
Enterprise and service-oriented architecture										J	6
Gödel and recursivity									I		5
Human-computer interaction										J	4
Image and video processing						F					6
Image communication											4
Image processing I,II						F					6
Industrial automation											3
Information security and privacy		B		D	E						6
Intelligent agents										J	6
Introduction to natural language processing		B								J	4
Markov chains and algorithmic applications		B							I		4
Mathematical foundations of signal processing						F					6
Media security				D							6
Microwaves								H			4
Networks out of control		B			E			H		J	4
Number theory in cryptography				D							5
Optional project in communication systems											8
Performance evaluation		B	C		E		G			J	7
Personal interaction studio						F					6
Principles of computer systems	A		C				G				7
Probabilistic method									I		5
Real-time embedded systems	A										4
Real-time networks					E						3
Satellite communications systems and networks					E			H			3
Sensors in medical instrumentation						F					3
Set theory											5
Smart grid technologies											5
Social media										J	2
Software-defined radio: a hands-on course					E	F		H			5
Statistical neuroscience		B									4
Student seminar : security protocols and applications				D							3
Synthesis, analysis and verification	A		C								6
Technology ventures in IC											4
Topics in theoretical computer science									I		4
Unsupervised and reinforcement learning in neural networks											4
Virtual reality						F					4

Projects											**18**
Project in communication systems II											12
Project in human and social sciences											6