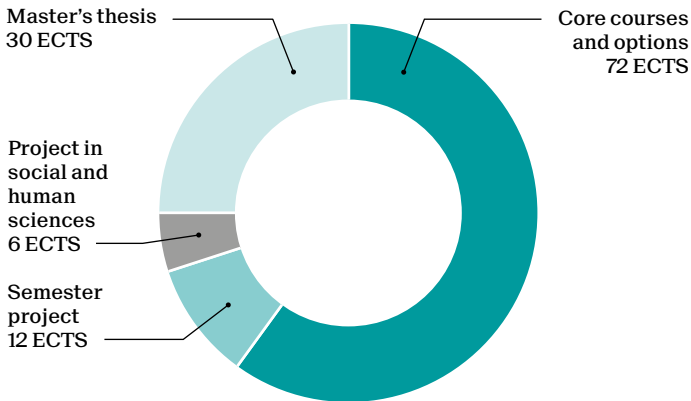


Master of Science in COMMUNICATION SYSTEMS

2-year program - 120ECTS



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

Students may choose a 30 ECTS specialization in:

- A Computer engineering
- B Data analytics
- C Foundations of software
- D Cyber security
- 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 included in the 120 ECTS.

Recommended minors with this program:

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

Instead of a minor, students may opt for a Teaching specialization (30 ECTS at the *Haute école pédagogique du canton de Vaud*).

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
go.epfl.ch/master-communication-systems
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	Specialization										Credits	
	A	B	C	D	E	F	G	H	I	J		
Core courses (min. 30 credits)												
Advanced algorithms	B	C	D	E								7
Advanced probability and applications	B							H	I			6
Cryptography and security				D	E						J	7
Distributed algorithms		C				E	G		I	J		6
Distributed information systems	B			E						J		4
Information security and privacy	B			D	E		G					6
Information theory and coding	B							H	I			7
Machine learning	B					F			I	J		7
Mobile networks				D	E		G	H				4
Modern digital communications					E	F		H				6
Statistical signal and data processing through applications	B					F		H				6
TCP/IP networking				D	E		G	H				6

	A	B	C	D	E	F	G	H	I	J	
Options											
Advanced computer architecture	A			D			G				6
Advanced computer graphics						F					6
Advanced cryptography				D							4
Advanced multiprocessor architecture	A						G				6
Advanced topics on privacy enhancing technologies				D							7
Applied biostatistics											5
Applied data analysis		B									6
Artificial neural networks											5
Automatic speech processing						F					3
Bioimage informatics						F					4
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 complexity		B							I		4
Computational photography						F					5
Computer vision						F					4
Computers and music											4
Concurrent algorithms			C				G		I		5
Database systems		B	C				G		J		7
Data visualization		B									4
Decentralized systems engineering							G				6
Deep learning						F					4
Design technologies for integrated systems	A										6
Digital education and 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
Experience design						F					6
Formal verification	A		C	D							6
Geometric computing						F					6
Gödel and recursivity									I		5
Image processing I, II						F					6
Industrial automation											3
Intelligent agents									J		6
Interaction design									J		4
Introduction to natural language processing		B							J		4
Learning theory											4
Machine learning for behavioral data											4
Markov chains and algorithmic applications		B							I		4
Mathematical foundations of signal processing						F					6
Networks out of control		B			E			H	J		4
Number theory in cryptography					D						5
Optimization for machine learning											5
Optional project in communication systems											8
Principles of computer systems	A		C	D			G				7
Probabilistic method in combinatorics									I		5
Real-time embedded systems	A										4
Sensors in medical instrumentation						F					3
Set theory											5
Smart grid technologies											5
Social media									J		2
Software security					D						6
Statistical mechanics and Gibbs measures											5
Statistics for data science		B									6
Student seminar: security protocols and applications					D						3
Sublinear algorithms for big data analysis									I		4
Technology ventures in IC											4
The GC maker project						F					6
Topics in theoretical computer science		B							I		4
Virtual reality						F					4
Visual intelligence: machines and minds											5