



Curriculum “Telecommunications”

MANDATORY/ELECTIVE	MODULE	ECTS CREDITS (b)	SEMESTER (c)	SCIENTIFIC AREA	AREA CODE
CHOOSE 4	Digital signal processing	9	1	signal processing	ING-INF/03
	Fiber optics and waveguides	9	1	electromagnetism	ING-INF/02
	Telecommunication networks	9	1	networks	ING-INF/03
	Wireless communications	9	1	telecommunications	ING-INF/03
	Antennas and wireless propagation	9	2	electromagnetism	ING-INF/02
	Computer vision	9	2	signal processing	ING-INF/03
	Digital communications and laboratory	9	2	telecommunications	ING-INF/03
	Network modeling	9	2	networks	ING-INF/03
CHOOSE 4	3D augmented reality	6	1	signal processing	ING-INF/03
	5G systems	6	1	telecommunications	ING-INF/03
	Channel coding	6	1	telecommunications	ING-INF/03
	Game theory	6	1	networks	ING-INF/03
	Information security	6	1	networks	ING-INF/03
	Optical and quantum communications	6	1	telecommunications	ING-INF/03
	Internet of things and smart cities	6	2	networks	ING-INF/03
	Optical network devices	6	2	electromagnetism	ING-INF/02
Source coding	6	2	signal processing	ING-INF/03	
CHOOSE 1	Electromagnetic compatibility	9	1	electrical engineering	ING-INF/07
	Integrated circuits for signal processing	9	1	electrical engineering	ING-INF/01
	Database management systems	9	2	computer science	ING-INF/05
	Robotics, vision, and control	9	2	automation engineering	ING-INF/04
CHOOSE 1	Machine learning	6	1	computer science	ING-INF/05
	Innovation and entrepreneurship	6	2	management	ING-IND/35
	Optimization	6	2	mathematics	MAT/09
M	Fully elective credits ^(a)	15			
E	Non verbal communication	6	1	soft skills	L-LIN/12
M	Final project	18			
M	English language B2 (productive skills)	3			
M	Internship	9			

(a) Fully elective credits can be taken from any non mandatory subject, e.g., a fifth module from "CHOOSE 4", an elective module labeled with "E", or a module from another curriculum.

(b) 3 ECTS credits typically correspond to 2 hours per week, for a total duration of 12 weeks.

(c) Semester 1 is from end of September/October to January, Semester 2 is from March to June.



Curriculum "Cybersystems"

MANDATORY/ELECTIVE	MODULE	ECTS CREDITS (b)	SEMESTER (c)	SCIENTIFIC AREA	AREA CODE
M	Network science	9	1	networks	ING-INF/03
M	Web applications	9	2	computer science	ING-INF/05
CHOOSE 3	Cryptography	6	1	mathematics	MAT/05
	Big data computing	6	2	computer science	INF/01
	Graph theory	6	2	mathematics	MAT/09
	Network analysis and simulation	6	2	networks	ING-INF/03
CHOOSE 3	Digital signal processing	9	1	signal processing	ING-INF/03
	Fiber optics and waveguides	9	1	electromagnetism	ING-INF/02
	Telecommunication networks	9	1	networks	ING-INF/03
	Wireless communications	9	1	telecommunication	ING-INF/03
	Antennas and wireless propagation	9	2	electromagnetism	ING-INF/02
	Computer vision	9	2	signal processing	ING-INF/03
	Digital communications and laboratory	9	2	telecommunication	ING-INF/03
	Network modeling	9	2	networks	ING-INF/03
CHOOSE 2	3D augmented reality	6	1	signal processing	ING-INF/03
	5G systems	6	1	telecommunication	ING-INF/03
	Channel coding	6	1	telecommunication	ING-INF/03
	Game theory	6	1	networks	ING-INF/03
	Information security	6	1	networks	ING-INF/03
	Internet of things and smart cities	6	2	networks	ING-INF/03
	Source coding	6	2	signal processing	ING-INF/03
M	Fully elective credits ^(a)	15			
E	Machine learning	6	1	computer science	ING-INF/05
E	Non verbal communication	6	1	soft skills	L-LIN/12
E	Database management systems	9	2	computer science	ING-INF/05
E	Optimization	6	2	mathematics	MAT/09
M	Final project	18			
M	English language B2 (productive skills)	3			
M	Internship	9			

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Curriculum "Photonics"

MANDATORY/ELECTIVE	MODULE	ECTS CREDITS (b)	SEMESTER (c)	SCIENTIFIC AREA	AREA CODE
M	Nanophotonics and sensing (active from 18/19)	9	1	electromagnetism	ING-INF/02
M	Photonics for safety and security (active from 18/19)	6	1	physics	FIS/03
M	Quantum information and computing	6	1	physics	FIS/03
M	Biophotonics	6	2	electromagnetism	ING-INF/02
CHOOSE 1	Nanostructured materials	9	1	materials	ING-IND/22
	Optoelectronics for green technologies	9	1	electrical engineering	ING-INF/01
	Quantum optics and laser	9	2	physics	FIS/03
CHOOSE 3	Digital signal processing	9	1	signal processing	ING-INF/03
	Fiber optics and waveguides	9	1	electromagnetism	ING-INF/02
	Telecommunication networks	9	1	networks	ING-INF/03
	Wireless communications	9	1	telecommunications	ING-INF/03
	Antennas and wireless propagation	9	2	electromagnetism	ING-INF/02
	Computer vision	9	2	signal processing	ING-INF/03
	Digital communications and laboratory	9	2	telecommunications	ING-INF/03
	Network modeling	9	2	networks	ING-INF/03
CHOOSE 2	5G systems	6	1	telecommunications	ING-INF/03
	Channel coding	6	1	telecommunications	ING-INF/03
	Optical and quantum communications	6	1	telecommunications	ING-INF/03
	Internet of things and smart cities	6	2	networks	ING-INF/03
	Optical network devices	6	2	electromagnetism	ING-INF/02
M	Fully elective credits ^(a)	15			
E	Electromagnetic compatibility	9	1	electrical engineering	ING-INF/07
E	Integrated circuits for signal processing	9	1	electrical engineering	ING-INF/01
E	Machine learning	6	1	computer science	ING-INF/05
E	Non verbal communication	6	1	soft skills	L-LIN/12
M	Final project	18			
M	English language B2 (productive skills)	3			
M	Internship	9			

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Curriculum “ICT for life & health”

MANDATORY/ELECTIVE	MODULE	ECTS CREDITS (b)	SEMESTER (c)	SCIENTIFIC AREA	AREA CODE
M	Telemedicine	6	1	telecommunications	ING-INF/03
CHOOSE 5	Bioinformatics and genomics	6	1	computer science	INF/01
	Computational neuroscience (active from 18/19)	6	1	computer science	ING-INF/05
	Machine learning	6	1	computer science	ING-INF/05
	Neuroimaging	6	1	bioengineering	ING-INF/06
	Biophotonics	6	2	electromagnetism	ING-INF/02
	Human data analytics	6	2	signal processing	ING-INF/03
	Neurorehabilitation and brain computer interfaces (active only within 17/18)	6	2	bioengineering	ING-INF/06
	Sports engineering and rehabilitation devices	6	2	mechanical eng.	ING-IND/14
CHOOSE 3	Digital signal processing	9	1	signal processing	ING-INF/03
	Fiber optics and waveguides	9	1	electromagnetism	ING-INF/02
	Telecommunication networks	9	1	networks	ING-INF/03
	Wireless communications	9	1	telecommunications	ING-INF/03
	Antennas and wireless propagation	9	2	electromagnetism	ING-INF/02
	Computer vision	9	2	signal processing	ING-INF/03
	Digital communications and laboratory	9	2	telecommunications	ING-INF/03
	Network modeling	9	2	networks	ING-INF/03
CHOOSE 2	3D augmented reality	6	1	signal processing	ING-INF/03
	Game theory	6	1	networks	ING-INF/03
	Information security	6	1	networks	ING-INF/03
	Optical and quantum communications	6	1	telecommunications	ING-INF/03
	Internet of things and smart cities	6	2	networks	ING-INF/03
	Source coding	6	2	signal processing	ING-INF/03
M	Fully elective credits ^(a)	15			
E	Electromagnetic compatibility	9	1	electrical engineering	ING-INF/07
E	Non verbal communication	6	1	soft skills	L-LIN/12
E	Innovation and entrepreneurship	6	2	management	ING-IND/35
E	Robotics, vision, and control	9	2	automation	ING-INF/04
M	Final project	18			
M	English language B2 (productive skills)	3			
M	Internship	9			

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