













Studies Plan

Systèmes de communication 2020-21




Master project



























Courses			Master 1	Master 2	MP Autumn	MP Spring	Exam Session	Exam	Credit
Language	Code	Section	TeacherSpecialization	on p	l e p	l e p	l e p		
E	Engineering internship credited with Master project (master in Communication Systems)			320h	320h	320h	320h	Sum Win	Term paper 0
E	COM-597	SC	Profs divers						
E	Master project in Communication Systems					900h	900h	Sum Win	Oral 30
E	COM-599	SC	Profs divers						

Group 1

Courses			Master 1	Master 2	Exam Session	Exam	Credit
Language	Code	Section	TeacherSpecialization	on p	l e p		
E	Advanced algorithms			4h 3h	Sum	Written	7
E	CS-450	IN	Kapralos 				
E	Advanced probability and applications			3h 2h	Sum	Written	6
E	COM-417	SC	Lévêque 				
E	Cryptography and security			4h 2h	Win	Written	7
E	COM-401	SC	Vaudenry 				
E	Distributed algorithms			3h 2h 1h	Win	Written	6
E	CS-451	SC	Guerraco 				
E	Distributed information systems			2h 1h	Sum Win	Written	4
E	CS-423	SC	Aberer 				
E	Information security and privacy			3h 1h 2h	Win	Written	6
E	COM-402	IN	Hubaux  Oechslin				
E	Information theory and coding			4h 2h	Win	Written	7
E	COM-404	SC	Telatar 				
E	Machine learning			4h 2h	Win	Written	7
E	CS-433	IN	Flamma  Jaggi				
E	Mobile networks			2h 1h	Sum	Written	4
E	COM-405	SC	Hubaux 				
E	Modern digital communications: a hands-on approach			2h 2h	Win	During the semester	6
E	COM-430	SC	Rimoldi 				
E	Statistical signal and data processing through applications			3h 2h	Sum	Written	6
E	COM-500	SC	Ridolfi 				
E	TCP/IP networking			2h 2h 2h	Win	Written	6
E	COM-407	SC	Le  Boudec				

Group 2 : Options

Courses			Master 1	Master 2	Exam Session	Exam	Credit
Language	Code	Section	TeacherSpecialization	on p	l e p		
E	Advanced computer architecture			3h 2h	Sum	Written	6
E	CS-470	IN	lenne 				
E	Advanced computer graphics			2h 1h	Sum	During the semester	6
E	CS-440	IN	Jakob 				
E	Advanced cryptography			2h 2h	Sum	Written	4
E	COM-501	SC	Vaudenry 				

E	Advanced multiprocessor architecture CS-471	IN	 	4h		Win	During the semester	6
E	Advanced topics on privacy enhancing technologies CS-523	IN	González Troncoso	3h	1h 2h	Sum	Written	7
E	Applied biostatistics MATH-493	MA	Goldstein	2h	2h	Sum	During the semester	5
E	Applied data analysis CS-401	SC	West 	2h	2h	Win	Written	6
E	Artificial neural networks CS-456	IN	Gerstner	2h	2h	Sum	Written	5
E	Automatic speech processing EE-554	EL	Bourlarc 	2h	1h	Win	Written	3
E	Biological modeling of neural networks BIO-465	IN	Gerstner	2h	2h	Sum	Written	4
E	Biomedical signal processing EE-512	EL	Vesin  	4h	2h	Win	Written	6
E	Business design for IT services CS-490	SC	Wegmann	3h		Sum	Oral	3
E	Cellular biology and biochemistry for engineers BIO-105	SV	Zufferey	2h	2h	Win	Written	4
E	Computational complexity CS-524	IN		3h	1h	Win	During the semester	4
E	Computational photography CS-413	SC	Süsstrunk 	2h	2h	Sum	During the semester	5
E	Computer vision CS-442	IN	Fua 	2h	1h	Sum	Written	4
E	Concurrent algorithms CS-453	SC	Guerracini   	3h	1h 1h	Win	Written	5
E	Database systems CS-422	IN	Ailamak   	3h	2h 2h	Sum	During the semester	7
E	Data visualization COM-480	SC	Vuillon 	2h	2h	Sum	During the semester	4
E	Decentralized systems engineering CS-438	IN	Ford 	2h	2h 2h	Win	Written	6
E	Deep learning EE-559	EL	Fleuret   	2h	2h	Sum	Written	4
E	Design technologies for integrated systems CS-472	IN	De Micheli 	3h	2h	Win	During the semester	6
E	Digital 3D geometry processing CS-446	IN		2h	1h 1h	Win	During the semester	5
E	Digital education & learning analytics CS-411	IN	Dillenbourg Jermann	2h	2h	Win	Oral	4
E	Distributed intelligent systems ENG-466	SIE	Martinoli 	2h	3h	Sum	Oral	5
E	Dynamical system theory for engineers COM-502	SC	Thiran	2h	1h	Win	Written	4
E	Embedded systems CS-473	IN	Beuchat 	2h	2h	Win	Oral	4
E	Enterprise and service-oriented architecture CS-491	SC	Wegmann	6h		Sum	Oral	6
E	Experience design CS-489	IN	Huang	2h	4h	Win	During the semester	6
E	Formal verification CS-550	IN	Kuncak	2h	2h 2h	Win	During the semester	6
E	Gödel and recursivity MATH-483	MA	Duparc 	2h	2h	Win	Written	5
E	Image processing I MICRO-511	MT	Unser Van De Ville 	3h		Win	Written	3

E	Image processing II MICRO-512 MT		Liebling Sage Unser Van De Ville	F	3h		Sum	Written	3	
E	Industrial automation CS-487 SC		Sommer Tournier		2h	1h	Sum	Oral	3	
E	Intelligent agents CS-430 IN		Faltings		3h	3h	Win	During the semester	6	
E	Interaction design CS-486 IN		Pu Faltings		2h	1h	1h	Sum	During the semester	4
E	Introduction to natural language processing CS-431 IN		Chappe Rajman	R	2h	2h	Win	Written	4	
E	Learning theory CS-526 IN		Macris Urbanke		2h	2h	Sum	Written	4	
E	Machine learning for behavioral data CS-421 IN		Käser Jacobser		2h	2h	Sum	Written	4	
E	Markov chains and algorithmic applications COM-516 SC		Lévêque Macris	B I	2h	2h	Win	Written	4	
E	Mathematical foundations of signal processing COM-514 SC		Bejar Haro Simeoni	F	3h	2h	Win	Written	6	
E	Networks out of control COM-512 SC			B E H	2h	1h	Sum	Written	4	
E	Number theory in cryptography MATH-489 MA		Serban	D	2h	2h	Sum	Written	5	
E	Optimization for machine learning CS-439 IN		Flammarion Jaggi		2h	2h	1h	Sum	Written	5
E	Optional project in communication systems COM-507 SC		Profs divers		2h		2h	Sum Win	During the semester	8
E	Performance evaluation COM-503 SC		Le Boudec	B C E G	3h	1h	2h	Sum	Written	7
E	Principles of computer systems CS-522 IN		Argyaki Candea	A C G	4h		Win	Written	7	
E	Probabilistic methods in combinatorics MATH-467 MA		Marcus	I	2h	2h	Win	Written	5	
E	Real-time embedded systems CS-476 IN		Beuchat	A	2h	2h	Sum	During the semester	4	
E	Sensors in medical instrumentation EE-511 EL		Aminian	C F	2h	1h	Sum	Written	3	
E	Set theory MATH-318 MA		Duparc		2h	2h	Sum Win	Written	5	
E	Smart grids technologies EE-472 EL		Le Boudec Paolone	H	2h	1h	2h	Sum	Written	5
E	Social media EE-593 EL		Gillet	F	1h	1h	Sum	During the semester	2	
E	Software security CS-412 IN		Payer	D	3h	2h	1h	Sum	During the semester	6
E	Statistical mechanics and Gibbs measures MATH-486 MA		Friedli		2h	2h	Sum	Oral	5	
E	Statistics for data science MATH-413 MA		Olhede	C D	4h	2h	Win	Written	6	

E	Student seminar: security protocols and applications		COM-506	SC	Oechslin Vaudenay	2h	Sum	Written	3
E	Sublinear algorithms for big data analysis		CS-448	IN		3h	Sum	During the semester	4
E	Technology ventures in IC		CS-410	IN		2h	2h	Sum	During the semester 4
E	Topics in theoretical computer science		CS-455	IN	Kapralo	3h	1h	Win	During the semester 4
E	Virtual reality		CS-444	IN	Boulic	2h	1h	Sum	During the semester 4

Block "Projects & SHS"

Courses				Master 1	Master 2	Exam Session	Exam	Credit
Language	Code	Section	Teacher	Specialization	on p	l e p		
Semester project in communication systems II								
E	COM-416	SC	Profs divers		2h	2h	Sum Win	During the semester 12
HSS : Introduction to project						Win		3
HSS : Project						Sum		3