Studies Plan

Systèmes de communication 2023-24

Block "Projects & SHS"

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

Group 1

Language	Code	Section	Teacher	Specialization	Master 1 l	Master 1 e	Master 1 p	Master 2 l	Master 2 e	Master 2 p	Exam Session	Exam	Credit
	Advanced probability and applications												
E	COM-417	SC	Shkel					4h	2h		Sum	Written	8
	Algorithms II												
E	CS-450	IN	Svensson		4h	3h					Win	Written	8
	Cryptography and security												
E	COM-401	SC	Vaudenay		4h	2h					Win	Written	8
	Distributed algorithms												
E	CS-451	SC	Guerraoui		2h	1h	3h				Win	Written	8
	Information security and privacy												
E	COM-402	IN	Payer		3h	1h	2h				Win	Written	8
	Information theory and coding												
E	COM-404	SC	Telatar		4h	2h					Win	Written	8
	Machine learning												
E	CS-433	IN	Flammarion Jaggi		4h	2h					Win	Written	8
	Mobile networks												
E	COM-405	SC						3h	2h		Sum	Written	8
	Modern digital communications: a hands-on approach												
E	COM-430	SC	Chiurtu		2h		2h				Win	During the semester	8
	Statistical signal and data processing through applications												
E	COM-500	SC	Ridolfi					3h	2h		Sum	Written	8
	TCP/IP networking												
E	COM-407	SC	Nikolopoulos		2h	2h	2h				Win	Written	8

Group 2 : Options

Language	Code	Section	Teacher	Specialization	Master 1 l	Master 1 e	Master 1 p	Master 2 l	Master 2 e	Master 2 p	Exam Session	Exam	Credit
	Advanced compiler construction												
E	CS-420	IN	Schinz					2h		2h	Sum	During the semester	6
	Advanced computer architecture												
E	CS-470	IN	Ienne					3h		2h	Sum	Written	8
	Advanced computer graphics												
E	CS-440	IN	Jakob					2h	2h		Sum	During the semester	6
	Advanced cryptography												
E	COM-501	SC	Vaudenay					2h	2h		Sum	Written	6
	Advanced multiprocessor architecture												
E	CS-471	IN	Falsafi		4h						Win	During the semester	6
	Advanced topics on privacy enhancing technologies												
E	CS-523	IN	Chiesa Troncoso					3h	1h	2h	Sum	Written	8

C : Courses, E : Exercice, P : Pratic courses, * : option courses / F : French courses, D : Deutsch courses, E : English Courses / Sum : Summer, Win : Winter

Type	Course / Code	Section	Professor	C	E	P	C	E	P	Sem.	Exam	Cr.
E	**AI product management** CS-500	IN	Kaboli Zamir	2h	2h	3h				Win	During the semester	6
E	**Applied biomedical signal processing** EE-512	EL	Lemay	2h		2h				Win	Written	4
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	8
E	**Artificial neural networks/reinforcement learning** CS-456	IN	Gerstner				2h	2h		Sum	Written	6
E	**Automatic speech processing** EE-554	EL	Magimai Doss	2h	1h					Win	Written	3
E	**Basics of mobile robotics** MICRO-452	MT	Mondada	2h	2h					Win	Written	4
E	**Bioimage informatics** BIO-410	SV	Sage Seitz				2h		2h	Sum	Written	4
E	**Causal inference** MGT-416	MTE					2h	1h		Sum	During the semester	4
E	**Causal thinking** MATH-352	MA	Stensrud	2h	2h					Win	Written	5
E	**Cellular biology and biochemistry for engineers** BIO-105	SV	Zufferey	2h	2h					Win	Written	4
E	**Computational complexity** CS-524	IN	Sokolov	2h	2h					Win	During the semester	6
E	**Computational neurosciences: neuronal dynamics** NX-465	NX	Gerstner				2h	2h		Sum	Written	5
E	**Computational photography** CS-413	SC	Süsstrunk				2h		2h	Sum	During the semester	6
E	**Computers and music** COM-418	SC					2h	1h		Sum	During the semester	6
E	**Computer vision** CS-442	IN	Fua				2h	1h		Sum	Written	6
E	**Concurrent computing** CS-453	SC	Guerraoui	2h	1h	2h				Win	Written	6
E	**Data visualization** COM-480	SC	Vuillon				2h		2h	Sum	During the semester	6
E	**Decentralized systems engineering** CS-438	IN	Borsò-Tan	2h	2h	2h				Win	Oral	8
E	**Deep learning** EE-559	EL	Cavallaro				2h	2h		Sum	During the semester	4
E	**Deep learning in biomedicine** CS-502	IN	Brbic	2h	2h	1h				Win	During the semester	6
E	**Design technologies for integrated systems** CS-472	IN	De Micheli	3h	2h					Win	During the semester	6
E	**Digital education** CS-411	IN	Dillenbourg Jermann	2h	2h					Win	Written	6
E	**Distributed information systems** CS-423	SC	Aberer	2h	1h					Win	Written	6
E	**Distributed intelligent systems** ENG-466	SIE					2h	3h		Sum	Oral	5
E	**Dynamical system theory for engineers** COM-502	SC					2h	1h		Sum	Written	6
E	**Embedded system design** CS-476	IN	Kluter				2h		2h	Sum	During the semester	6
E	**Ethics and law of AI** DH-415	DH	Rochel	2h	1h					Win	Written	4

Type	Course	Code	Dept	Professor	Winter C	Winter E	Winter P	Summer C	Summer E	Summer P	Sem	Exam	Credits
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	**Foundations of probabilistic proofs**	CS-459	IN	Chiesa	4h	1h					Win	During the semester	6
E	**Geometric computing**	CS-457	IN	Pauly	3h		2h				Win	Written	6
E	**Gödel and recursivity**	MATH-483	MA		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	Sage Unser Van De Ville				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				2h	1h	1h	Sum	During the semester	6
E	**Introduction to IT consulting**	CS-491	IN	Regev	6h						Win	Oral	6
E	**Introduction to natural language processing**	CS-431	IN	Bosselut Chappelier Rajman	2h	2h					Win	Written	6
E	**Learning theory**	CS-526	IN	Macris				2h	2h		Sum	Written	6
E	**Machine learning for behavioral data**	CS-421	IN					2h		2h	Sum	Written	6
E	**Markov chains and algorithmic applications**	COM-516	SC	Lévêque Macris	2h	1h	1h				Win	Written	6
E	**Mathematical foundations of signal processing**	COM-514	SC		3h	2h					Win	Written	6
E	**Modern natural language processing**	CS-552	IN	Bosselut				3h	2h	1h	Sum	During the semester	8
E	**Networks out of control**	COM-512	SC	Grossglauser Thiran				2h	1h		Sum	Written	6
E	**Number theory II.c - Cryptography**	MATH-489	MA	Jetchev				2h	2h		Sum	Written	5
E	**Optimization for machine learning**	CS-439	IN	Flammarion Jaggi				2h	2h	1h	Sum	Written	8
E	**Optional research project in communication Systems**	COM-507	SC	Profs divers			2h			2h	Sum Win	During the semester	8
E	**Principles of computer systems**	CS-522	IN	Argyraki Candea	4h						Win	During the semester	8
F	**Project management and risk analysis**	MGT-427	MTE	Wieser	2h	1h					Win	During the semester	4
E	**Social media**	EE-593	EL					1h		1h	Sum	During the semester	2
E	**Software security**	CS-412	IN	Payer				3h	2h	1h	Sum	During the semester	6

Language	Code	Section	Teacher					Exam Session	Exam	Credit
	Statistical mechanics and Gibbs measures									
E	MATH-486	MA	Friedli		2h	2h		Sum	Oral	5
	Statistical physics of computation									
E	PHYS-512	PH	Krzakala Zdeborová	2h	2h			Win	Written	4
	Statistics for data science									
E	MATH-413	MA	Rubin		4h	2h		Sum	Written	8
	Student seminar: security protocols and applications									
E	COM-506	SC	Vaudenay		2h			Sum	During the semester	3
	Sublinear algorithms for big data analysis									
E	CS-448	IN		2h	1h			Win	During the semester	6
	System programming for Systems-on-chip									
E	CS-473	IN	Kluter	2h		2h		Win	During the semester	6
	Systems for data management and data science									
E	CS-460	IN	Ailamaki Kermarrec		2h	2h	2h	Sum	Written	8
	The GC maker project									
E	CS-458	IN					6h	Sum	During the semester	6
	Topics in software security									
E	CS-510	IN	Payer	1h	1h			Win	During the semester	3
	Topics in theoretical computer science									
E	CS-455	IN		3h	1h			Win	During the semester	6
	Virtual reality									
E	CS-444	IN	Boulic		2h	1h		Sum	During the semester	6
	Visual intelligence : machines and minds									
E	CS-503	IN	Zamir		2h	2h		Sum	During the semester	6

Master project

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