Studies Plan

Cyber security 2020-21

Master project

Language	Code	Section	Teacher	Specialization	Master 1			Master 2			MP Autumn			MP Spring			Exam Session	Exam	Credit
					p	l	e	p	l	e	p	l	e	p	l	e	p			
	Internship credited with Master Project (master in Cybersecurity)																			
E	CS-594	IN	Profs divers		320h			320h			320h			320h			Sum Win	Term paper	0
	Master project in Cybersecurity																			
E	CS-597	IN	Profs divers								900h			900h			Sum Win	Oral	30

Group 1

Language	Code	Section	Teacher	Specialization	Master 1			Master 2			Exam Session	Exam	Credit
					p	l	e	p	l	e			
	Advanced algorithms												
E	CS-450	IN	Kapralov						4h	3h	Sum	Written	7
	Advanced computer architecture												
E	CS-470	IN	Ienne						3h	2h	Sum	Written	6
	Cryptography and security												
E	COM-401	SC	Vaudenay		4h	2h					Win	Written	7
	Database systems												
E	CS-422	IN	Ailamaki					3h	2h	2h	Sum	During the semester	7
	Decentralized systems engineering												
E	CS-438	IN	Ford		2h	2h	2h				Win	Written	6
	Distributed algorithms												
E	CS-451	SC	Guerraoui		3h	2h	1h				Win	Written	6
	Foundations of software												
E	CS-452	IN	Odersky		2h	2h					Win	Written	4
	Information security and privacy												
E	COM-402	IN	Hubaux Oechslin		3h	1h	2h				Win	Written	6
	Machine learning												
E	CS-433	IN	Flammarion Jaggi		4h	2h					Win	Written	7
	TCP/IP networking												
E	COM-407	SC	Le Boudec		2h	2h	2h				Win	Written	6

Group 2 : Options

Language	Code	Section	Teacher	Specialization	Master 1			Master 2			Exam Session	Exam	Credit
					p	l	e	p	l	e			
	Advanced compiler construction												
E	CS-420	IN	Schinz					2h		2h	Sum	During the semester	4
	Advanced computer graphics												
E	CS-440	IN	Jakob					2h	1h		Sum	During the semester	6
	Advanced cryptography												
E	COM-501	SC	Vaudenay					2h	2h		Sum	Written	4
	Advanced multiprocessor architecture												
E	CS-471	IN			4h						Win	During the semester	6
	Advanced probability and applications												
E	COM-417	SC	Lévêque					3h	2h		Sum	Written	6
	Advanced topics on privacy enhancing technologies												
E	CS-523	IN	Gonzáles Troncoso					3h	1h	2h	Sum	Written	7
	Advanced VLSI design												
E	EE-431	EL	Burg					2h	2h		Sum	Written	4

	Code	Sect.	Professor						Sem.	Exam	Cr.
Applied biostatistics											
E	MATH-493	MA	Goldstein				2h	2h	Sum	During the semester	5
Applied data analysis											
E	CS-401	SC	West	2h		2h			Win	Written	6
Artificial neural networks											
E	CS-456	IN	Gerstner				2h	2h	Sum	Written	5
Automatic speech processing											
E	EE-554	EL	Bourlard	2h		1h			Win	Written	3
Biological modeling of neural networks											
E	BIO-465	IN	Gerstner				2h	2h	Sum	Written	4
Biomedical signal processing											
E	EE-512	EL	Vesin	4h		2h			Win	Written	6
Business design for IT services											
E	CS-490	SC	Wegmann			3h			Sum	Oral	3
Cellular biology and biochemistry for engineers											
E	BIO-105	SV	Zufferey	2h	2h				Win	Written	4
Computational complexity											
E	CS-524	IN		3h	1h				Win	During the semester	4
Computational photography											
E	CS-413	SC	Süsstrunk				2h	2h	Sum	During the semester	5
Computer vision											
E	CS-442	IN	Fua				2h	1h	Sum	Written	4
Concurrent algorithms											
E	CS-453	SC	Guerraoui	3h	1h	1h			Win	Written	5
Data visualization											
E	COM-480	SC	Vuillon				2h	2h	Sum	During the semester	4
Deep learning											
E	EE-559	EL	Fleuret				2h	2h	Sum	Written	4
Design technologies for integrated systems											
E	CS-472	IN	De Micheli	3h		2h			Win	During the semester	6
Digital 3D geometry processing											
E	CS-446	IN		2h	1h	1h			Win	During the semester	5
Digital education & learning analytics											
E	CS-411	IN	Dillenbourg Jermann	2h		2h			Win	Oral	4
Distributed information systems											
E	CS-423	SC	Aberer	2h		1h			Win	Written	4
Distributed intelligent systems											
E	ENG-466	SIE	Martinoli				2h	3h	Sum Win	Written	5
Dynamical system theory for engineers											
E	COM-502	SC	Thiran	2h	1h				Win	Written	4
Embedded systems											
E	CS-473	IN	Beuchat	2h		2h			Win	Oral	4
Enterprise and service-oriented architecture											
E	CS-491	SC	Wegmann			6h			Sum	Oral	6
Experience design											
E	CS-489	IN	Huang	2h		4h			Win	During the semester	6
Formal verification											
E	CS-550	IN	Kuncak Ⓓ	2h	2h	2h			Win	During the semester	6
Foundations of Data Science											
E	COM-406	IN	Urbanke	4h	2h				Win	Written	6
Fundamentals of VLSI design											
E	EE-429	EL	Burg	3h	1h				Win	During the semester	4
Gödel and recursivity											
E	MATH-483	MA	Duparc	2h	2h				Win	Written	5
Image processing I											
E	MICRO-511	MT	Unser Van De Ville	3h					Win	Written	3

	Course	Code	Section	Professors	Hours	Semester	Exam	Credits
E	Image processing II	MICRO-512	MT	Liebling Sage Unser Van De Ville	3h	Sum	Written	3
E	Industrial automation	CS-487	SC	Sommer Tournier	2h 1h	Sum	Oral	3
E	Information theory and coding	COM-404	SC	Telatar	4h 2h	Win	Written	7
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	Chappelier Rajman	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 Jacober	2h 2h	Sum	Written	4
E	Markov chains and algorithmic applications	COM-516	SC	Lévêque Macris	2h 2h	Win	Written	4
E	Mathematical foundations of signal processing	COM-514	SC	Bejar Haro Simeoni	3h 2h	Win	Written	6
E	Mobile networks	COM-405	SC	Hubaux	2h 1h	Sum	Written	4
E	Modern digital communications: a hands-on approach	COM-430	SC	Rimoldi	2h 2h	Win	During the semester	6
E	Networks out of control	COM-512	SC		2h 1h	Sum	Written	4
E	Number theory in cryptography	MATH-489	MA	Serban	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 computer science	CS-596	IN	Profs divers	2h 2h	Sum Win	During the semester	8
E	Performance evaluation	COM-503	SC	Le Boudec	3h 1h 2h	Sum	Written	7
E	Principles of computer systems	CS-522	IN	Argyraki Candea	4h	Win	Written	7
E	Probabilistic methods in combinatorics	MATH-467	MA	Marcus	2h 2h	Win	Written	5
E	Real-time embedded systems	CS-476	IN	Beuchat	2h 2h	Sum	During the semester	4
E	Sensors in medical instrumentation	EE-511	EL	Aminian	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	2h 1h 2h	Sum	Written	5
E	Social media	EE-593	EL	Gillet	1h 1h	Sum	During the semester	2

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Software security									
E	CS-412	IN	Payer	3h 2h 1h			Sum	During the semester	6
Statistical signal and data processing through applications									
E	COM-500	SC	Ridolfi	3h 2h			Sum	Written	6
Student seminar: security protocols and applications									
E	COM-506	SC	Oechslin Vaudenay	2h			Sum	During the semester	3
Sublinear algorithms for big data analysis									
E	CS-448	IN		3h			Sum	During the semester	4
Technology ventures in IC									
E	CS-410	IN		2h		2h	Sum	During the semester	4
Topics in theoretical computer science									
E	CS-455	IN	Kapralov	3h 1h			Win	During the semester	4
Virtual reality									
E	CS-444	IN	Boulic	2h 1h			Sum	During the semester	4

Block "Projects & SHS"

Language	Code	Section	Teacher	Specialization	Master 1		Master 2			Exam Session	Exam	Credit
	Courses				c	p	l	e	p			
HSS : Introduction to project												
		SHS								Win		3
HSS : Project												
		SHS								Sum		3
Semester project in Cyber security												
E	CS-496	IN	Profs divers		2h		2h			Sum Win	During the semester	12