

Studies Plan

Cyber security 2023-24

Master project

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

Group 1

Courses			Master 1	Master 2	Exam Session	Exam	Credit	
Language	Code	Section	Teacher	Specialization	o p	l e p		
E	Advanced computer architecture							
	CS-470	IN	lenne		3h	2h	Sum	Written 8
E	Advanced topics on privacy enhancing technologies							
	CS-523	IN	González Troncoso		3h	1h 2h	Sum	Written 8
E	Algorithms II							
	CS-450	IN	Svensson		4h	3h	Win	Written 8
E	Cryptography and security							
	COM-401	SC	Vaudenay		4h	2h	Win	Written 8
E	Decentralized systems engineering							
	CS-438	IN	Borsò		2h	2h 2h	Win	Oral 8
E	Distributed algorithms							
	CS-451	SC	Guerraoui		2h	1h 3h	Win	Written 8
E	Information security and privacy							
	COM-402	IN	Payer		3h	1h 2h	Win	Written 8
E	Machine learning							
	CS-433	IN	Flammarion Jaggi		4h	2h	Win	Written 8
E	Systems for data management and data science							
	CS-460	IN	Ailamaki Kermarrec			2h 2h 2h	Sum	Written 8
E	TCP/IP networking							
	COM-407	SC	Nikolopoulos		2h	2h 2h	Win	Written 8

Group 2 : Options

Courses			Master 1	Master 2	Exam Session	Exam	Credit	
Language	Code	Section	Teacher	Specialization	o p	l e p		
E	Advanced compiler construction							
	CS-420	IN	Schinz			2h 2h	Sum	During the 6 semester
E	Advanced computer graphics							
	CS-440	IN	Jakob			2h 2h	Sum	During the 6 semester
E	Advanced cryptography							
	COM-501	SC	Vaudenay			2h 2h	Sum	Written 6
E	Advanced multiprocessor architecture							
	CS-471	IN	Falsafi		4h		Win	During the 6 semester
E	Advanced probability and applications							
	COM-417	SC	Shkel			4h 2h	Sum	Written 8
E	AI product management							
	CS-500	IN	Kaboli Roshan Zamir		2h	2h 3h	Win	During the 6 semester
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	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	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	Deep learning EE-559	EL	Cavallaro	2h	2h	Sum	During the semester	4	
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	
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 Data Science COM-406	IN	Gastpar Urbanke	4h	2h	Win	Written	8	
E	Foundations of probabilistic proofs CS-459	IN	Chiesa	4h	1h	Win	During the semester	6	
E	Foundations of software CS-452	IN	Doeraene	2h	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		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	8
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	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	Mobile networks COM-405	SC			3h	1h		Sum	Written	8
E	Modern digital communications: a hands-on approach COM-430	SC		Chiurtu	2h	2h		Win	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 computer science II CS-596	IN		Profs divers	8h		8h	Sum Win	During the semester	8
E	Principles of computer systems CS-522	IN		Argyrazi 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
E	Statistical physics of computation PHYS-512	PH		Krzakala Zdeborová	2h	2h		Win	Written	4
E	Statistical signal and data processing through applications COM-500	SC		Ridolfi	3h	2h		Sum	Written	8

E	Student seminar: security protocols and applications COM-506	SC	Vaudenay	2h		Sum	During the 3 semester
E	Sublinear algorithms for big data analysis CS-448	IN		2h 1h		Win	During the 6 semester
E	System programming for Systems-on-chip CS-473	IN	Kluter	2h 2h		Win	During the 6 semester
E	Topics in software security CS-510	IN	Payer	1h 1h		Win	During the 3 semester
E	Topics in theoretical computer science CS-455	IN		3h 1h		Win	During the 6 semester
E	Virtual reality CS-444	IN	Boulic	2h 1h		Sum	During the 6 semester

Block "Projects & SHS"

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