

Les enseignants, les crédits et la période des cours sont indiqués sous réserve de modification.

Code	Matières	Enseignants	Sections	Crédits	Période des cours	
	<b>Spécialisation A "COMPUTER ENGINEERING - SP"</b>	<b>Responsable : Prof. P. lenne</b>		<b>56</b>		
CS-420	Advanced compiler construction	Schinz	IN	4		P
CS-470	Advanced computer architecture	lenne	IN	8		P
CS-471	Advanced multiprocessor architecture (pas donné en 2022-23)	Falsafi	IN	6	A	
EE-431 *	Advanced VLSI design	Burg	EL	4		P
CS-472	Design technologies for integrated systems	De Micheli	IN	6	A	
ENG-466	Distributed intelligent systems	Martinoli	SIE	5		P
CS-473	Embedded systems	Beuchat	IN	4	A	
CS-550	Formal verification	Kuncak	IN	6	A	
EE-429 *	Fundamentals of VLSI Design	Burg	EL	4	A	
EE-490b *	Lab in EDA based design	Vachoux/Koukab	EL	4	A	
CS-522	Principles of computer systems	Argyaki/Candea	SC/IN	7	A	
CS-476	Real-time embedded systems	Beuchat	IN	4		P
	<b>Spécialisation B "DATA ANALYTICS"</b>	<b>Responsable : Prof. M. Grossglauer/Prof. P. Thiran</b>		<b>105</b>		
CS-450	Advanced algorithms	Chiesa/Kapralov	IN	8		P
COM-417	Advanced probability and applications	Lévêque	SC	8		P
CS-401	Applied data analysis	West	SC	8	A	
CS-524	Computational complexity	Göös	IN	4	A	
COM-480	Data visualization	Vuillon	SC	4		P
CS-423	Distributed information systems	Aberer	SC	4	A	
COM-402	Information security and privacy	Busch/Larus/Pyrgelis	IN/SC	8	A	
COM-404	Information theory and coding	Telatar	SC	8	A	
COM-308 *	Internet analytics	Grossglauer	SC	5		P
CS-431	Introduction to natural language processing	Rajman/Chappelier	IN	4	A	
CS-433	Machine learning	Jaggi/Flammarion	IN	8	A	
COM-516	Markov chains and algorithmic applications	Lévêque/Macris	SC	4	A	
CS-552	Modern natural language processing	Bosselut	IN	6		P
COM-512	Networks out of control (pas donné en 2022-23)	Thiran P./Grossglauer	SC	4		P
COM-500	Statistical signal and data processing through applications	Ridolfi	SC	8		P
MATH-413 *	Statistics for Data science	Davison	MA	6	A	
CS-4xx	Systems for data management and data science	Ailamaki/Kermarrec	IN	8		P
CS-455	Topics in theoretical computer science (pas donné en 2022-23)	Kapralov	IN	4	A	
	<b>Spécialisation C "FOUNDATIONS OF SOFTWARE"</b>	<b>Responsable : Prof. M. Odersky</b>		<b>50</b>		
CS-450	Advanced algorithms	Chiesa/Kapralov	IN	8		P
CS-420	Advanced compiler construction	Schinz	IN	4		P
CS-453	Concurrent algorithms	Guerraoui	SC	5	A	
CS-451	Distributed algorithms	Guerraoui	SC	8	A	
CS-550	Formal verification	Kuncak	IN	6	A	
CS-452	Foundations of software	Doeraene	IN	4	A	
CS-522	Principles of computer systems	Argyaki/Candea	SC/IN	7	A	
CS-4xx	Systems for data management and data science	Ailamaki/Kermarrec	IN	8		P
	<b>Spécialisation D "CYBER SECURITY - SP"</b>	<b>Responsable : Prof. C. Troncoso</b>		<b>96</b>		
CS-450	Advanced algorithms	Chiesa/Kapralov	IN	8		P
CS-470	Advanced computer architecture	lenne	IN	8		P
COM-501 *	Advanced cryptography	Vaudenay	SC	4		P
CS-523	Advanced topics on privacy enhancing technologies	Troncoso	IN/SC	7		P
EE-431 *	Advanced VLSI design	Burg	EL	4		P
COM-401	Cryptography and security	Vaudenay	SC	8	A	
CS-550	Formal verification	Kuncak	IN	6	A	
CS-4xx	Foundations of probabilistic proofs	Chiesa	IN	6	A	
EE-429 *	Fundamentals of VLSI Design	Burg	EL	4	A	
COM-402	Information security and privacy	Busch/Larus/Pyrgelis	IN/SC	8	A	
COM-405	Mobile networks	Al Hassanieh	SC	4		P
MATH-489	Number theory in cryptography	Jetchev	MA	5		P
CS-522	Principles of computer systems	Argyaki/Candea	SC/IN	7	A	
CS-412	Software security	Payer	IN	6		P
COM-506 *	Student seminar : security protocols and applications	Vaudenay	SC	3		P
COM-407	TCP/IP Networking	Le Boudec	SC	8	A	

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<b>Spécialisation E "NETWORKING AND MOBILITY"</b>		<b>Responsable : Prof. J.-Y. Le Boudec</b>		<b>56</b>		
CS-450	Advanced algorithms	Chiesa/Kapralov	IN	8		P
COM-401	Cryptography and security	Vaudenay	SC	8	A	
CS-451	Distributed algorithms	Guerraoui	SC	8	A	
CS-423	Distributed information systems	Aberer	SC	4	A	
COM-402	Information security and privacy	Busch/Larus/Pyrgelis	IN/SC	8	A	
COM-405	Mobile networks	Al Hassanieh	SC	4		P
COM-430	Modern digital communications : A hands-on approach	Chiurtu	SC	8	A	
COM-512	Networks out of control (pas donné en 2022-23)	Thiran P./Grossglauser	SC	4		P
COM-407	TCP/IP networking	Le Boudec	SC	8	A	
<b>Spécialisation F "SIGNAL, IMAGES AND INTERFACES"</b>		<b>Responsables : Prof. M. Pauly</b>		<b>114</b>		
CS-440	Advanced computer graphics	Jakob	IN	6		P
EE-554	Automatic speech processing	Magimai Doss	EL	3	A	
BIO-410	Bioimage informatics	Sage/Seitz	SV	4		P
EE-512	Biomedical signal processing	Vesin	EL	6	A	
CS-413	Computational photography	Stisstrunk	SC	5		P
CS-442	Computer vision	Fua	IN	4		P
COM-418	Computers and music (pas donné en 2022-2023)	Prandoni	SC	4		P
EE-559	Deep learning (pas donné en 2022-2023)	vacat	EL	4		P
CS-489	Experience design	Huang	IN	6	A	
CS-457	Geometric Computing	Pauly	IN	6	A	
MICRO-511	Image processing I	Unser/Van De Ville	MT	3	A	
MICRO-512	Image processing II	Unser/Van de Ville/Liebling/Sage	MT	3		P
CS-341 *	Introduction to computer graphics	Pauly	IN	6		P
CS-433	Machine learning	Jaggi/Flammarion	IN	8	A	
COM-514	Mathematical foundations of signal processing	Simeoni /Fageot	SC	6	A	
COM-430	Modern digital communications : A hands-on approach	Chiurtu	SC	8	A	
EE-511	Sensors in medical instrumentation	Aminian	EL	3		P
COM-303 *	Signal processing for communications	Prandoni	SC	6		P
COM-500	Statistical signal and data processing through applications	Ridolfi	SC	8		P
CS-458	The GC Market Project	Pauly	IN	6		P
CS-444	Virtual reality	Boulic	IN	4		P
CS-503	Visual intelligence : machines and minds	Zamir	IN	5		P
<b>Spécialisation G "SOFTWARE SYSTEMS"</b>		<b>Responsable : Prof. G. Candea</b>		<b>72</b>		
CS-420	Advanced compiler construction	Schinz	IN	4		P
CS-470	Advanced computer architecture	Ienne	IN	8		P
CS-471	Advanced multiprocessor architecture (pas donné en 2022-23)	Falsafi	IN	6	A	
CS-453	Concurrent algorithms	Guerraoui	SC	5	A	
CS-438	Decentralized systems engineering	Ford	IN	8	A	
CS-451	Distributed algorithms	Guerraoui	SC	8	A	
CS-452	Foundations of software	Doeraene	IN	4	A	
COM-402	Information security and privacy	Busch/Larus/Pyrgelis	SC/IN	8	A	
COM-405	Mobile networks	Al Hassanieh	SC	4		P
CS-522	Principles of computer systems	Argyaki/Candea	SC/IN	7	A	
CS-4xx	Systems for data management and data science	Ailamaki/Kermarrec	IN	8		P
COM-407	TCP/IP networking	Le Boudec	SC	8	A	
<b>Spécialisation H "WIRELESS COMMUNICATIONS"</b>		<b>Responsable : Prof. E. Telatar</b>		<b>47</b>		
COM-417	Advanced probability and applications	Lévêque	SC	8		P
COM-404	Information theory and coding	Telatar	SC	8	A	
COM-405	Mobile networks	Al Hassanieh	SC	4		P
COM-430	Modern digital communications : A hands-on approach	Chiurtu	SC	8	A	
COM-512	Networks out of control (pas donné en 2022-23)	Thiran P./Grossglauser	SC	4		P
EE-345 *	Rayonnement et antennes	Skrivervik	EL	3	A	
COM-500	Statistical signal and data processing through applications	Ridolfi	SC	8		P
COM-407	TCP/IP networking	Le Boudec	SC	8	A	

**Légende :**

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	<b>Spécialisation I. "COMPUTER SCIENCE THEORY"</b>	<b>Responsable : Prof. O. Svensson</b>		<b>94</b>		
CS-450	Advanced algorithms	Chiesa/Kapralov	IN	8		P
COM-417	Advanced probability and applications	Lévêque	SC	8		P
MATH-460	* Combinatorial optimization	Eisenbrand	MA	5	A	
CS-524	Computational complexity	Göös	IN	4	A	
FIN-472	* Computational finance	Pulido/Glau	IF	5	A	
CS-453	Concurrent algorithms	Guerraoui	SC	5	A	
MATH-461	* Convexity	Eisenbrand	MA	5	A	
CS-451	Distributed algorithms	Guerraoui	SC	8	A	
CS-4xx	Foundations of probabilistic proofs	Chiesa	IN	6	A	
MATH-483	Gödel and recursivity	Fournier	MA	5	A	
COM-404	Information theory and coding	Telatar	SC	8	A	
CS-433	Machine learning	Jaggi/Flammarion	IN	8	A	
COM-516	Markov chains and algorithmic applications	Lévêque/Macris	SC	4	A	
COM-300	* Modèles stochastiques pour les communications	Thiran	SC	6	A	
MATH-467	Probabilistic methods in combinatorics	Marcus	MA	5	A	
CS-448	Sublinear algorithms for big data analysis (pas donné en 2022-23)	Kapralov	IN	4	A	
CS-455	Topics in theoretical computer science (pas donné en 2022-23)	Kapralov	IN	4	A	
	<b>Spécialisation J. "INTERNET INFORMATION SYSTEMS"</b>	<b>Responsable : Prof. B. Faltings et Prof. K. Aberer</b>		<b>64</b>		
COM-401	Cryptography and security	Vaudenay	SC	8	A	
CS-451	Distributed algorithms	Guerraoui	SC	8	A	
CS-423	Distributed information systems	Aberer	SC	4	A	
CS-491	Enterprise and service-oriented architecture (pas donné en 2022-23)	Regev	SC	6		P
CS-486	Interaction design	Pu	IN	4		P
CS-430	Intelligent agents	Faltings	IN	6	A	
CS-431	Introduction to natural language processing	Rajman/Chappelier	IN	4	A	
CS-433	Machine learning	Jaggi/Flammarion	IN	8	A	
CS-5xx	Modern natural language processing	Bosset	IN	6		P
COM-512	Networks out of control (pas donné en 2022-23)	Thiran P./Grossglauser	SC	4		P
EE-593	Social Media	Gillet/Vonèche	EL	2		P
CS-4xx	Systems for data management and data science	Ailamaki/Kermarrec	IN	8		P

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