

Studies Plan

Mineur : Science et ingénierie quantiques 2023-24

Minor : Quantum science and engineering

	Courses			Exam Session	Exam	Credit
Language	Code	Section	Teacher			
E	Atomistic and quantum simulations of materials					
	MSE-468	MX	Marzari	Sum	During the semester	4
E	Classical and quantum photonic transducers					
	MICRO-410	MT	Benea-Chelms	Sum	Oral	3
E	Computational complexity					
	CS-524	IN	Sokolov	Win	During the semester	6
E	Computational methods in molecular quantum mechanics					
	CH-452	CGC	Bonella	Win	Oral	4
E	Computational quantum physics					
	PHYS-463	PH	Carleo	Sum	Oral	4
E	Cryptography and security					
	COM-401	SC	Vaudenay	Win	Written	8
E	Deep learning					
	EE-559	EL	Cavallaro	Sum	During the semester	4
E	Foundations of Data Science					
	COM-406	IN	Gastpar Urbanke	Win	Written	8
E	Fundamentals of integrated photonic components					
	MICRO-471	MT	Benea-Chelms	Win	Oral	4
E	Fundamentals of solid-state materials					
	MSE-423	MX	Marzari	Win	Written	4
E	Information theory and coding					
	COM-404	SC	Telatar	Win	Written	8
E	Interacting quantum matter					
	PHYS-502	PH		Win	Oral	4
E	Introduction to electronic structure methods					
	CH-353	CGC	Röthlisberger	Win	During the semester	4
E	Introduction to quantum computation					
	CS-308	IN	Lévêque Urbanke	Sum	Written	5
E	Introduction to quantum information processing					
	COM-309	SC	Macris	Win	Written	5
E	Introduction to quantum science and technology					
	QUANT-400	SIQ	Charbon Holmes Ionescu Macris Scarlino	Win	Written	5
E	Lab in nanoelectronics					
	EE-490(i)	EL	Kis	Win	During the semester	4
E	Metrology					
	MICRO-428	MT	Bruschini Charbon Fantner	Sum	Written	3
E	Molecular dynamics and Monte-Carlo simulation					
	CH-351	CGC	Röthlisberger	Sum	During the semester	2
E	Molecular quantum dynamics					
	CH-453	CGC	Vanicek	Sum	Oral	3
E	Nanoelectronics					
	EE-535	EL	Ionescu	Win	Written	2

E	Nanotechnology					
	MICRO-530	MT	Boero Brugger	Sum	Oral	3
E	Nonlinear optics for quantum technologies					
	PHYS-470	PH		Win	Oral	4
E	Optional project in quantum science and engineering					
	QUANT-403	SIQ	Profs divers	Sum Win	During the	6 semester
E	Photonic systems and technology					
	EE-440	EL	Brès	Sum	Written	4
E	Physics of photonic semiconductor devices					
	PHYS-434	PH	Grandjean	Sum	Oral	4
E	Quantum and nanocomputing					
	MICRO-435	MT	Charbon Graziano	Win	Written	6
E	Quantum Computing					
	PHYS-641	EDPY	Savona	Win	Oral	4
E	Quantum electrodynamics and quantum optics					
	PHYS-453	PH	Kippenberg	Win	Written	6
E	Quantum optics and quantum information					
	PHYS-454	PH	Brantut	Sum	Written	6
E	Quantum physics I					
	PHYS-313	PH	Savona	Win	Written	5
E	Quantum transport in mesoscopic systems					
	PHYS-462	PH	Banerjee	Sum	Oral	4
E	Semiconductor devices I					
	EE-557	EL	Matioli	Win	During the	4 semester
E	Semiconductor devices II					
	EE-567	EL	Ionescu Kis	Sum	Written	4
E	Semiconductor physics and light-matter interaction					
	PHYS-433	PH	Butté	Win	Written	4
E	Solid state systems for quantum information					
	PHYS-464	PH	Scarlino	Sum	Oral	4
E	Statistical mechanics					
	MSE-421	MX	Cerioti	Sum	Oral	4