

List of recommended courses from other programs (12 credits max. with Specialization "Materials research and development / 6 credits max. with Minor)

Code	courses	lecturers	Programs	Semesters		exams	
				Fall credits	Spring credits		
Elective courses from other programs (max. 12 ECTS credits if Specialisation Materials research and development / 6 ECTS credits if Minor)							
BIO-498	Entrepreneurship in food & nutrition science	Feige/Lé Bur/an der Beek	CGC		4	during semester	no withdrawal
CH-413	Nanobiotechnology	Steinauer	CGC		3	written	
CH-421	Catalysis for energy storage	Hu Xile	CGC	2		written	
ChE-201	Introduction to chemical engineering	Hatzimanikatis	CGC	3		written	
ChE-203	Introduction au génie chimique et à l'énergie TP	Buonsanti	CGC		2	during semester	
ChE-402	Diffusion and mass transfer	Agrawal	CGC	3		written	
ChE-403	Heterogenous reaction engineering	Luterbacher	CGC	3		written	
ChE-436	Pharmaceutical biotechnology	Pick	CGC	3		written	
CIVIL-321	Modélisation numérique des solides et structures	Molinari/Anciaux	GC		4	écrit	
CIVIL-331	Dimensionnement des structures en bois	Natterer Jo.	GC	3		écrit	
CIVIL-411	Dam engineering	De Cesare/Manso	GC	3		oral	
CIVIL-443	Advanced composites in engineering structures	Vasilopoulos	GC	3		oral	
CIVIL-532	Materials and structures	Denarié	GC	3		oral	
EE-535	Nanoelectronics	Ionescu	EL	2		written	
EE-536	Physical models for micro and nanosystems	Kis	EL	2		during semester	
EE-585	Space mission design and operations	Kuntzer	EL	2		oral	
ENG-410	Energy supply, economics and transition	Binder C./Thalmann Ph./Ballif	SIE/AR/MT		2	written	
ENG-433	Chimie des denrées alimentaires	Richard	CGC	2		écrit	
ENG-435	Chemistry of food processes	Blank	CGC		2	written	
ENG-436	Food biotechnology	Sybesma	CGC		2	written	
CIVIL-407	Energy and comfort in buildings	Khovalyg/Licina/Sonta/Favero	GC	5		during semester	
ENV-220	Fundamentals in ecology	Battin/Grossiord	SIE		5	written	
ENV-409	Air pollution	Takahama/Reimann	SIE		5	written	
ENV-470	Developpement engineering (pas donné en 2025-26)	Makohliso/Schönenberger	SIE		4	during semester	no withdrawal
ENV-500	Solid waste engineering	Ludwig	SIE	4		during semester	
ENV-501	Material flow analysis and resource management	Binder/Del Campo	SIE	4		written	
ENV-525	Physics and hydrology of snow	Huwald/Lehning	SIE	4		written	
ME-212	Procédés de production	Boillat E.	GM		4	written	
ME-331	Solid mechanics	Reis	GM		4	written	
ME-332	Mécanique vibratoire	Villanueva	GM	4		written	
ME-342	Introduction aux turbomachines	Yim	GM		3	written	
ME-409	Energy conversion and renewable energy	Maréchal/Nguyen	GM	4		written	
ME-413	Introduction to additive manufacturing	Boillat/Bruggger/Moser	GM	3		written	
ME-419	Production management	Kaboli	GM	4		during semester	no withdrawal
ME-426	Micro/Nanomechanical devices	Villanueva	GM	4		written	
ME-451	Advanced energetics	Maréchal/Orrigo	GM	5		oral	
ME-460	Renewable energy (for ME)	Haussemer/Van Herle	GM		4	written	
ME-474	Numerical flow simulation	Boujo	GM	5		during semester	no withdrawal
ME-481	Biomechanics of the cardiovascular system	Stergiopoulos	GM		3	written	
ME-517	Product decarbonization and life cycle analysis	Wakeman	GM		5	during semester	no withdrawal
MICRO-534	Advanced MEMS & microsystems	Briand	MT		3	oral	
MICRO-312	Physique des composants semi-conducteurs	Besse	MT	3		oral	
MICRO-330	Capteurs	Shea/Boero	MT		5	written	
MICRO-331	Microfabrication technologies	Brugger J./Zhang	MT	4		written	
MICRO-420	Selected topics in advanced optics	Martin	MT	3		oral	
MICRO-426	Laser fundamentals and applications for engineers	Moser	MT		3	oral	
MICRO-448	Manufacturing systems and supply chain dynamics	Filliger/Gallay	MT		3	oral	
MICRO-516	Nanophotonics	Ladanza/Moselund	MT		3	oral	
MICRO-518	Quantitative imaging for engineers	Ando	GC	3		during semester	
MICRO-520	Laser microprocessing	Hofmann	MT		2	oral	
MICRO-523	Optical detectors	Bruschini	MT	3		oral	
MICRO-561	Fundamentals of biomicroscopy	Altug	SV	4		written	
MICRO-562	Experimental biomicroscopy	Altug + Seitz	SV		4	sem P	
MICRO-565	Fundamentals and processes for photovoltaic devices	Ballif	MT		3	written	
MICRO-566	Large-area electronics: devices and material (pas donné en 2025-26)	Ballif/Haug	MT		3	oral	
PHYS-301	Biophysics : physics of the cell	Manley	PH		3	written	
PHYS-340	Optique et photonique (pas donné en 2025-26)	vacat	PH	3		oral	
PHYS-403	Computer simulation of physical systems I	Pasquarello	PH	4		oral	
PHYS-433	Semiconductor physics and light-matter interaction	Buté	PH	4		written	
PHYS-438	Fundamentals of biomedical imaging	Xin	PH		4	written	
PHYS-445	Nuclear fusion and plasma physics	Fasoli	PH	4		oral	
PHYS-491	Magnetism in materials	Zivkovic	PH		4	oral	
PHYS-501	Nonlinear optics	Roke	PH	4		written	