

## Specialisation "Materials research and development"

Code	courses	lecturers	Programs	Semesters						Credits	exams
				MA1/3			MA2				
				c	e	p	c	e	p		
Elective courses from other programs (max. 10 ECTS credits)											
BIOENG-448	Fundamentals of neuroengineering	Millan / Micera	SV				2	2		4	written
CH-447	Advanced materials for photovoltaics and lighting	Nazeeruddin	CGC				2			2	oral
ChE-201	Introduction to chemical engineering I	Hatzimanikatis	CGC	2	1					3	written
ChE-203	Introduction au génie chimique TP	Sivula	CGC					2		2	during semester
ChE-451	Process development I	Zaza	CGC	2						2	written
ChE-452	Process development II	Zaza	CGC				2			2	oral
CIVIL-321	Modélisation numérique des solides et structures	Molinari/Anciaux	GC				2	2		4	écrit
CIVIL-331	Dimensionnement des structures en bois	Natterer Jo.	GC	2	1					3	écrit
CIVIL-411	Barrages et ouvrages hydrauliques annexes	Manso/Mouvet	GC	3						3	oral
CIVIL-443	Advanced composites in engineering structures	Vasilopoulos/Th. Keller	AR	2	1					3	oral
CIVIL-532	Matériaux et structures	Denarié	GC	2	1					3	oral
EE-532	Integrated circuits technology	Sallèse	EL	2						2	written
EE-535	Nanoelectronics	Ionescu	EL	2						2	written
EE-536	Physical models for micro and nanosystems	Kis	EL	2						2	written
EE-585	Space mission design and operations	Nicollier	EL				2			2	oral
ENG-435	Chemistry of food processes	Blank	CGC				2			2	written
ENG-445	Building energetics	Gnansounou/Foradini	GC	2	1					3	during semester
ENG-467	Experimental design and data analysis with R	Schlaepfer/Besic	SIE				1	1		2	written
ENV-201	Génie des procédés	Grogg	SIE							3	written
ENV-220	Ecologie générale	Buttler/Mariotte/Signarbieux	SIE				3	1	1	5	written
ENV-370	Analyse du cycle de vie, écobilan	Payet	SIE	2	1					3	written
ENV-400	Air pollution and climate change	Takahama/Reimann	SIE	2	1					5	written
ENV-422	Concepts in Ecological Engineering	Buttler/Guillaume/Spiegelberger	SIE	2		2				4	oral
ENV-501	Material and energy flow analysis	Binder/Moreau/Massard	SIE	2	1					4	during semester
ENV-503	Génie des bioprocédés environnementaux	Deront	SIE				2	1		5	during semester
ENV-508	Analyse et management des risques industriels	Berriot	SIE				2	1		3	during semester
ENV-525	Physics and hydrology of snow	Huwald/Lehning/Gaume	SIE	2	1					4	during semester
ME-212	Procédés de production	Boillat E.	GM	4						4	written
ME-312	Conception pour X	Kyritsis	GM				1	1		2	oral
ME-331	Solid mechanics	Curtin	GM				3	1		4	written
ME-332	Mécanique vibratoire	Villanueva	GM	3	1					4	written
ME-372	Méthode des éléments finis	Gmür	GM	2	1					3	written
ME-416	Fundamentals of computer aided manufacturing	Kiritis	GM	3	2					5	written
ME-419	Production management	Kaboli	GM	2		2				5	written
ME-426	Micro/Nanomechanical devices	Villanueva	GM	2	1					3	oral
ME-451	Advanced energetics	Maréchal		3	2					5	oral
ME-463	Flow of dispersed media (not given in 2017-18)	vacat	GM	2	1					3	written
ME-474	Numerical flow simulation	Sawley	GM	2	2					5	during semester
ME-481	Biomechanics of the cardiovascular system	Stergiopoulos	GM				2	1		3	written
ME-482	Biomechanics of the musculoskeletal system	Pioletti	GM	2	1					5	written
ME-484	Numerical methods in biomechanics	Terrier	GM				2	1		3	written
ME-499	Simulation and performance analysis in production	Vacat	GM				2		2	4	during semester
ME-516	Lifecycle performance of product systems	Kyritsis/Friot	GM				2	1		3	oral
MICRO-534	Advanced MEMS & microsystems	Briand/Quack	MT				3			3	oral
MICRO-312	Composants semiconducteurs	Besse	MT	2	1					3	oral
MICRO-330	Capteurs	Renaud/Boero	MT				4			4	oral
MICRO-331	Technologie des microstructures I	Gijs/Brugger J.	MT	3						3	oral
MICRO-470	Scaling laws in micro- and nanosystems	Renaud/Shea/Quack	MT	3	1					4	oral
MICRO-431	Materials & Technology of microfabrication	Gijs/Lehnert	MT	2	1					3	oral
MICRO-514	Flexible bioelectronics	Lacour S.	MT	3						3	written
MICRO-520	Laser microprocessing	Hoffmann	MT				2			2	oral
MICRO-523	Optical detectors	Besse P.-A.	MT	3						3	oral
MICRO-561	Biomicroscopy I	Altug	SV	3						3	sem A
MICRO-562	Biomicroscopy II	Altug + Seitz	SV				2	1	1	4	sem P
MICRO-565	Fundamentals and processes for photovoltaic devices	Ballif / Haug	MT				2	1		3	written
MICRO-566	Large-area electronics: devices and materials	Ballif/Haug/Würsch	MT				2	1		3	oral
PHYS-301	Biophysics I	Manley	PH				2	1		3	written
PHYS-317	Optique I	Dwir	PH				2	1		3	oral
PHYS-405	Experimental methods in physics I	Dwir/Cantoni	PH/MX	2	1					3	oral