

Studies Plan

Science et génie des matériaux 2025-26

Block "Projects & SHS"

Courses			Master 1					Master 2					Exam Session	Exam	Credit		
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I		
	Innovation & entrepreneurship in engineering																
E	MGT-555	MTE	Michaud Weber		2h			8h						Win	During the semester	10	
	Research project in materials I																
E	MSE-490	MX	Profs divers						10h					10hSum	Win	During the semester	10
	Research project in materials II																
E	MSE-491	MX	Profs divers						10h					10hSum	Win	During the semester	10
	HSS : Introduction to project SHS																
	HSS : Project SHS																
														Win		3	
														Sum		3	

Block 1

Courses			Master 1					Master 2					Exam Session	Exam	Credit	
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	
	Advanced metallurgy															
E	MSE-422	MX	Leinenbach		3h	1h								Win	Written	4
	Fracture of materials															
E	MSE-424	MX	Drezet Molinari							2h	2h			Sum	Written	4
	Fundamentals of solid-state materials															
E	MSE-423	MX	Marzari		3h	1h								Win	Written	4
	Soft matter															
E	MSE-425	MX	Amstad Klok		3h	1h								Win	Written	4
	Statistical mechanics															
E	MSE-421	MX	Cerioti							2h	1h	1h		Sum	Oral	4

Group "options"

Courses			Master 1					Master 2					Exam Session	Exam	Credit	
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	
	Advanced ceramic technologies															
E	MSE-495	MX	Stuer Testino							2h	1h			Sum	Oral	3
	Advanced phase transformations															
E	MSE-483	MX	Raju Natarajan		2h	1h								Win	Oral	3
	Assembly techniques															
E	MSE-464	MX								2h				Sum	During the semester	2
	Atomistic and quantum simulations of materials															
E	MSE-468	MX	Pizzi							3h		1h		Sum	During the semester	4
	Biomaterials (pour MX)															
E	MSE-471	MX			2h	1h	2h							Win	Written	5
	Cementitious materials (advanced)															
E	MSE-420	MX	Scrivener		2h									Win	During the semester	2

Charge transport in energy conversion and storage							
E	MSE-496	MX	Battaglia Senocrate	2h 2h		Win	Written 4
Composites technology							
E	MSE-440	MX	Bourban Michaud Wakeman	2h 1h		Win	During the 3 semester
Electrochemistry for materials technology							
E	MSE-441	MX	Frantz Van Herle	2h 1h		Win	Written 3
Electron microscopy: advanced methods							
E	MSE-450	MX	Alexander		2h 2h	Sum	Oral 4
Engineered living materials							
E	MSE-493	MX	Abitbol	2h 1h		Win	During the 3 semester
Error control in scientific modelling							
E	MATH-500	MA	Herbst	2h 2h		Win	Oral 5
Immunoengineering							
E	BIOENG-399	SV	Tang		2h 2h	Sum	Written 4
IMX Colloquium (autumn)							
E	MSE-470(a)	MX	Amstad Jotzu Sorin	1h 1h		Win	Written 2
IMX Colloquium (spring)							
E	MSE-470(b)	MX	Amstad Jotzu Sorin		1h 1h	Sum	Written 2
Introduction to food science and technology							
E	MSE-497	MX	Hartmann	2h 2h		Win	Oral 4
Introduction to magnetic materials in modern technologies							
E	MSE-432	MX	Grundler		2h 2h	Sum	During the 4 semester
Light, liquids and interfaces							
E	MICRO-390	MT			2h 2h	Sum	Written 4
Material science at large scale facilities							
E	MSE-435	MX	Liebi Van Petegem	2h 1h		Win	Oral 3
Materials selection							
E	MSE-474	MX	Michler Vaucher		2h	Sum	Written 2
Mathematical methods for materials science							
E	MSE-487	MX	Sorin	2h 2h		Win	Written 4
Nanomaterials							
E	MSE-477	MX		2h	1h	Win	During the 3 semester
Optical properties of materials							
E	MSE-482	MX	Marchioro Nüesch		2h 1h	Sum	Written 3
Organic electronic materials							
E	MSE-486	MX	Frauenrath		3h 1h	Sum	Written 4
Physical chemistry of polymeric materials							
E	MSE-431	MX	Klok-Lermann		3h 1h	Sum	During the 4 semester
Polymer chemistry and macromolecular engineering							
E	MSE-437	MX	Klok	2h 1h		Win	During the 3 semester
Properties of semiconductors and related nanostructures							
E	MSE-484	MX			3h 2h	Sum	During the 5 semester
Quantum materials:							

fundamentals and applications										
E	MSE-494	MX	Jotzu			2h	2h	Sum	Oral	4
Research project in materials III										
E	MSE-492	MX	Profs divers			10h		10hSum Win	During the semester	10
Surface analysis										
E	MSE-351	MX	Igual Muñoz Stolichnov			2h	1h	Win	Written	3
Thin film fabrication technologies										
E	MSE-465	MX	Michler			2h		Sum	Oral	2
Towards sustainable materials										
E	MSE-433	MX	Leterrier Wakeman			3h	1h	Sum	During the semester	4
Tribology										
E	MSE-485	MX	Igual Muñoz			2h		Win	During the semester	2
Wood structures, properties and uses										
E	MSE-466	MX	Pichelin			2h		Sum	Written	2

Master project

Courses			Master 1			Master 2			MP Autumn			MP Spring			Exam Session	Exam	Credit						
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	C	E	L	T	P	I		
Engineering internship credited with master project (master in Materials science and engineering)																							
F	MSE-597	MX	Profs divers							320h					320h					320h	Sum Win	During the semester	0
Master project in Materials Science and Engineering																							
E	MSE-599	MX	Profs divers												900h					900h	Sum Win	Oral	30