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UE	Course	ECTS	Language
JMA5U1	FUNDAMENTAL KNOWLEDGE FOR MATERIALS SCIENCE I	12	
	Introduction seminar 1: Introduction to Materials Engineering		
	Introduction seminar 2: Introduction to the organization of Research		
	Mathematics for engineering 1: Mathematics tools for engineering	2	
	Mathematics for engineering 2: Measuring accuracy, uncertainty of measurements	2	
	Basic chemistry 1: Atomistic – chemical reactivity	2	
	Basic chemistry 2: Chemistry in aqueous media	2	
	Basic physics: mechanics, electrostatic and electricity	4	
JMA5U2	FUNDAMENTAL KNOWLEDGE FOR MATERIALS SCIENCE II	12	
	Solid Physics	3	
	Thermodynamics	2	
	Crystallography: lecture and X-ray/TEM characterizations	3	
	Organic and inorganic Chemistry	3	
	Materials engineering project	1	
JMA5U3	ENGINEERING SCIENCES I	6	
	English (lecture and TOEIC)	2	
	Numerical tools for engineering 1: Numerical responsibility and accountability	1	
	Numerical tools for engineering 2: methods for bibliography and Zotero		
	Numerical tools for engineering 3: Excel and scientific data processing	1	
	CC – Business strategy and organization	1	
	CC – Management of cultural difference in organizations	1	
	MOUV S5 hors EDT		



















BACHELOR, 3rd Year - 2nd Semester (S6) [JMA6ST0]

UE	Course	ECTS	Language
JMA6U1	FUNDAMENTAL KNOWLEDGE FOR MATERIALS SCIENCE III	11	
	Transport phenomena 1: Electrochemistry	2	
	Transport phenomena 2: Diffusion in matter	2	
	Transport phenomena 3: Heat transfer	2	
	Dielectric and magnetic materials	2	
	Matlab software	2	
	Lab Work Thermodynamics and Energetics	1	
JMA6U2	CLASS OF MATERIALS	12	
	Metal and alloys	2	
	Ceramics and glass	2	
	Polymers 1: Polymers	1	
	Polymers 2: Elastomers	1	
	Polymers 3: Plastic Engineering	1	
	Composite materials	2	
	Semiconductor materials	1	
Lab Work Characterization of materials 1	2		
JMA6U3	ENGINEERING SCIENCES II	4	
	English (lecture and TOEIC)	1	
	Business intelligence	1	
	Databases	0.5	
	Corporate financial management	0.5	
	Sustainable development and corporate social responsibility	0.5	
	MOUV	0.25	
	Personal goals and careers plan 1 (PPP 1)	0.25	
Seminars / Companies visits			
JMA6U4	WORK PLACEMENT I (Internship)	3	 / 






















MASTER, 1st Year - 1st Semester (S7) [JMA7ST0]

UE	Course	ECTS	Language
JMA7U1	SURFACES AND INTERFACES	10	
	Surfaces: thermodynamics and structure	2	
	Deposition Processing of Thin Films 1: Thin film deposition processes and characterizations	2	
	Deposition Processing of Thin Films 2: Vacuum technologies	1	
	Deposition Processing of Thin Films 3: Sol-gel technologies and Thin film coating in liquid phase	1	
	Characterizations of surfaces and materials	1	
	Crystalline growth processes	1	
	Lab Work Characterization of materials 2	2	
JMA7U2	MECHANICAL BEHAVIOUR OF MATERIALS	7	
	Resistance of materials	2	
	Continuum mechanics	3	
	Rheology	2	
JMA7U3	NUMERICAL AND MODELLING TOOLS	7	
	Technical drawing	1	
	CAD	2	
	Numerical computation	2	
	Pre-sizing and finite element calculation	1	
	Design of experiments (DOX-DOE)	1	
JMA7U4	ENGINEERING SCIENCES III	6	
	English (lecture and TOEIC)	2	
	Risk assessment in materials science engineering	1	
	life cycle assessment and carbon footprint	1	
	Project management 2: MS Project	0.5	
	Project management 1: Project Management	0.5	
	Commercial management and marketing	0.5	
	Quality Management	0.5	
	Norms and standards (seminars)		
	Seminars / webinars / visits of companies		
	Challenges (hors EdT)		


MASTER, 1st Year - 2nd Semester (S8) [JMA8ST0]

UE	Course	ECTS	Language
JMA8U1	DETERIORATION OF MATERIALS	5	
	Non destructive testing	1	
	Tribology and lubrication	2.5	
	Corrosion	1	
	Ageing of materials	0.5	
JMA8U2	PROPERTIES AND CHARACTERISATIONS OF MATERIALS	6	
	Accoustic properties of materials	1	
	Optical properties of materials	1.5	
	Data transmission chain ans sensors	1.5	
	STIR (Introduction week on research and labwork) available in english	2	
JMA8U3	ENGINEERING SCIENCES IV	4	
	English	2	
	Responsible management	0.5	
	Innovation and entrepreneurship	1	
	PPP 2	0.5	
	Seminars / webinars / visits of companies		 / 
JMA8U4	TAI I: resolution of a practical industrial question	5	 / 
JMA8U5	WORK PLACEMENT II (Internship)	10	 / 

MASTER, 2nd Year - 1st Semester (S9) [JMA9ST0]

UE	Course	ECTS	Language
JMA9U1	DESIGN AND ENGINEERING OF SURFACES AND COATINGS	7	
	surface treatment and processing	2	
	Adhesion and bonding	0.5	
	Additive manufacturing and machining	0.5	
	CATIA	2	
	Finite element calculation	2	
JMA9U2	ADVANCED MATERIALS	10	
	Materials for the nuclear industry, materials and irradiation	2	
	Materials for civil engineering and eco-building	1	
	Nano-materials and micro-electronics	1.5	
	Materials for the health and care industry	0.5	
	Recycling and eco-design	1	
	Materials and energy	1.5	
	Materials for transport 1: materials for the aeronautic and space industry	1	
	Materials for transport 2: materials for the naval industry	0.5	
	Materials for transport 3: materials for the automotive industry	0.5	
Materials for transport 4: materials for the rail industry	0.5		
JMA9U3	TAI II: resolution of a practical industrial question	10	 / 
JMA9U4	ENGINEERING SCIENCES IV	3	
	English	2	
	Intellectual Property Rights		
	Seminar on Innovation and entrepreneurship	1	
	Seminars / webinars / visits of companies		

MASTER, 2nd Year - 2nd Semester (S10) [JMA10ST0]

UE	Main course	ECTS	Language
JMA10U1	WORK PLACEMENT III (Internship)	30	 / 