Annex 2: Overall course description of FAME+ Master

M1 Grenoble INP HOME UNIVERSITY (first year students)

AUTUMN SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
FAM/e-project	5	150	Collaborative course with partners	Sarigiannidou Eirini
Elaboration I	4	120	Fundamentals of materials science	Tassin-Arques Catherine
Polymers	3	90	Fundamentals of materials science	Auzely Rachel
Phase Transformation	2	60	Fundamentals of materials science	Deschamps Alexis
Microstructure & Properties	2	60	Fundamentals of materials science	Blandin Jean Jacques
Crystallography	2	60	Fundamentals of materials science	Hippert Francoise
Solid state chemistry	2	60	Applied materials	Djurado Elisabeth
Functional polymers	2	60	Applied materials	Iojoiu Cristina
Functional materials physics	2	60	Applied materials	Picard Catherine
Numerical Methods	4	120	Modelling tools & materials	Fournier Annie
Materials families	2	60	Modelling tools & materials	Salvo Luc
	TOTAL	**30**		
SPRING SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
FAM/e-project	5	150	Collaborative course with partners	Sarigiannidou Eirini
Materials Characterisation	4	120	Applied materials	Missiaen Jean-Michel
Semiconductor physics	2	60	Applied materials	Ionica Irina
Practical Lab Work	2	60	Applied materials	Sarigiannidou Eirini
Elaboration II	3	90	Fundamentals of materials science	Duffar Thierry
Thin film material science	2	60	Fundamentals of materials science	Tassin-Arques Catherine
Surfaces & interfaces	2	60		Riassetto David
Multi scale modelling	2	60	Modelling tools & materials	Jakse Noel
Internship	8	240	Professional training	Sarigiannidou Eirini
	TOTAL	**30**		

M2 Grenoble INP HOME UNIVERSITY (second year students)

AUTUMN SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
Material & process selection	6	180	Applied projects	Salvo Luc
Modelling in material science	6	180	Applied projects	Jakse Noel
Multidisciplinary project	6	180	From materials to device	Volpi Fabien
Clean room Practical works	4	120	From materials to device	Volpi Fabien
Process flow for micro tech.	2	60	From materials to device	Volpi Fabien
Packaging & Durability	2	60	From materials to device	Hodaj Fiqiri
Business Marketing	2	60	Professional training	Maud Damperat
Strategy & finance	2	60	Professional training	Maud Damperat
	TOTAL	**30**		
SPRING SEMESTER				
Master thesis	30		Professional training	Sarigiannidou Eirini
	TOTAL	**30**		

M1 TUDa HOME UNIVERSITY (first year students):

AUTUMN SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
FAM/e-project	4	120	Collaborative course with partners	Joachim Brötz
Micromechanics for Materials Science	6	180	Micromechanics for Materials Science	Baixiang Xu
Surfaces and interfaces	5	150	Surfaces and interfaces	Wolfram Jaegermann
Research Lab I	4	120	Research Lab I	Wolfgang Donner
Functional Materials	6	180	Functional Materials	Oliver Gutfleisch
Computational Material science	5	150	Computational Material science	Karsten Albe
TOTAL	**30**			
SPRING SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
FAM/e-project	6	180	Collaborative course with partners	Joachim Brötz
Advanced Characterization methods of Materials Science	6	180	Advanced Characterization methods of Materials Science	Wolfgang Donner
Polymers processing	4	120	Polymers processing	Jürgen Wieser
Theoretical Methods in Material Science	6	180	Theoretical Methods in Material Science	Karsten Albe
Internship	8	240	Professional training	Joachim Brötz
TOTAL	**30**			

M2 TUDa HOME UNIVERSITY (second year students)

AUTUMN SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
Mandatory Courses				
Micromechanics for Materials Science	6	180	Micromechanics for Materials Science	Baixiang Xu
Research Lab II	4	120	Research Lab I	Wolfgang Donner
Elective courses				
Advanced Microscopy	4	120	Advanced Microscopy	Robert Stark
Ceramic Materials: Syntheses and Properties. Part II	4	120	Ceramic Materials: Syntheses and Properties. Part II	Emanuel Ionescu
Computational Material science	5	150	Computational Material science	Karsten Albe
Course Processing of Conventional and Polymer Derived Silicon Ceramics	2	60	Course Processing of Conventional and Polymer Derived Silicon Ceramics	Emanuel Ionescu
Electrochemistry in Energy Applications I: Converter Devices	4	120	Electrochemistry in Energy Applications I: Converter Devices	Wolfram Jaegermann
Focused Ion Beam Microscopy	4	120	Focused Ion Beam Microscopy	Clemens Müller
Fundamentals and Techniques of Modern Surface Science	4	120	Fundamentals and Techniques of Modern Surface Science	Wolfram Jaegermann
Magnetism and Magnetic Materials	4	120	Magnetism and Magnetic Materials	Lambert Alff
Materials Chemistry	4	120	Materials Chemistry	Ralf Riedel
Mathematical Methods in Materials Science	4	120	Mathematical Methods in Materials Science	Yuri Genenko
Mechanical Properties of Ceramic Materials	4	120	Mechanical Properties of Ceramic Materials	Jürgen Rödel

Mechanical Properties of Metals	4	120	Mechanical Properties of Metals	Clemens Müller
Polymer Materials	4	120	Polymer Materials	Jürgen Wieser
Quantum Mechanics for Materials Science	6	180	Quantum Mechanics for Materials Science	Hongbin Zhang
Semiconductor Interfaces	4	120	Semiconductor Interfaces	Andreas Klein
Solid State and Structural Chemistry of Materials	4	120	Solid State and Structural Chemistry of Materials	Oliver Clemens
Transmission Electron Microscopy	3	90	Transmission Electron Microscopy	Hans-Joachim Kleebe
TOTAL	**30**			
SPRING SEMESTER				
Master thesis	30		Professional training	Wolfgang Donner
TOTAL	**30**			

M2 University of Aveiro (second year students)

AUTUMN SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
Mandatory Courses				
Nanochemistry	6	162		Tito Trindade
Project	12	324	Applied projects/ Professional training	Ana Barros
Elective Courses (2 to select)				
Free selection from UA's list of electives of 2nd cycle				
Macromolecular Chemistry	6	162		João Mano
Spectroscopic Techniques	6	162		Artur Silva
Materials Characterization II	6	162		Augusto Lopes
Quantum Technologies	6	162		Vitor Amaral
Materials & Sustainability	6	162		João Labrincha
Advanced Materials & Biomimetics	6	162		João Mano
	TOTAL	**30**		
SPRING SEMESTER				
Master thesis	30		Professional training	Ana Barros
	TOTAL	**30**		

M2 Université catholique de Louvain (second year students)

Depending on whether student spreads master thesis over two semesters or not, the courses are taken either in the first SEMESTER or in both the first and second SEMESTERS; the student selects 30 course credits in total.				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
Mandatory Courses (these courses have to be followed only when no equivalent course was followed before by the student; otherwise, they are replaced by electives)				
Polymer Science and Engineering	5	150		Alain Jonas
Physics of Functional Materials	5	150		Gian-Marco Rignanese
Physical Chemistry of Metal and Ceramics	5	150		Pascal Jacques
Deformation and Fracture of Materials	5	150		Thomas Pardoen
Elective courses (other courses are possible, provided the student demonstrates the consistency of his/her curriculum)				
Physics of Nanostructures	5	150	Nanotechnology	Luc Piraux
Design of Micro- and Nano-Systems	5	150	Nanotechnology	Laurent Francis
Macromolecular Nanotechnology	5	150	Nanotechnology Polymers & Macromolecules	Karine Glinel
Micro- and Nano-Fabrication Techniques	5	150	Nanotechnology	Jean-Pierre Raskin
Atomistic and Nanoscopic Simulations	5	150	Nanotechnology	Gian-Marco Rignanese
Transport Phenomena in Solids and Nanostructures	5	150	Nanotechnology	Luc Piraux
Project in Polymer Science	5	150	Polymers & Macromolecules	Alain Jonas
Physical Chemistry and Chemistry of Polymers	5	150	Polymers & Macromolecules	Jean-François Gohy
Polymer Materials	5	150	Polymers & Macromolecules	Christian Bailly
Biomaterials	5	150	Biomaterials	Sophie Demoustier
Materials Selection	5	150	Mechanics of materials	Thomas Pardoen
SECOND SEMESTER (or spread over two semesters)				
Master thesis	28	840		All teachers/Bailly
Master thesis seminar	2	60		All teachers/Bailly
TOTAL	**60**	**1800**		

M2 University of Augsburg (second year students)

AUTUMN SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
Mandatory Courses				
Laboratory Project	10	300	Conducting and Presenting Scientific Work	Volkmer/All teachers
Elective Courses (3-4 to select)				
Advanced Solid State Materials	6	180	Materials Science Elective Topic	Höppe
Applied Magnetic Materials and Methods	6	180	Materials Science Elective Topic	Albrecht
Biophysics and Biomaterials	6	180	Materials Science Elective Topic	Thalhammer
Carbon-based functional Materials	6	180	Materials Science Elective Topic	Volkmer
Characterization of Composite Materials	6	180	Materials Science Elective Topic	Sause
Coordination Materials	6	180	Materials Science Elective Topic	Volkmer
Dielectric and Optical Materials	6	180	Materials Science Elective Topic	Deisenhofer
Fiber Reinforced Composites	6	180	Materials Science Elective Topic	Horn
Functional Polymers	6	180	Materials Science Elective Topic	Ruhland
Ion-Solid Interaction	6	180	Materials Science Elective Topic	Karl
Magnetism	6	180	Materials Science Elective Topic	Krug von Nidda
Modern Metallic Materials	6	180	Materials Science Elective Topic	Haider
Nanostructures / Nanophysics	6	180	Materials Science Elective Topic	Krenner
Non-Destructive Testing	6	180	Materials Science Elective Topic	Sause
Organic Semiconductors	6	180	Materials Science Elective Topic	Brütting
Oxidation and Corrosion	6	180	Materials Science Elective Topic	Haider
Physics and Technology of Semiconductor Devices	6	180	Materials Science Elective Topic	Krenner
Physics of Cells	6	180	Materials Science Elective Topic	Wixforth
Physics of Thin Films	6	180	Materials Science Elective Topic	Hammerl
Porous Functional Materials	6	180	Materials Science Elective Topic	Volkmer
Solid State NMR Spectroscopy and Diffraction Methods	6	180	Materials Science Elective Topic	Eickerling
Solid State Spectroscopy with Synchrotron Radiation and Neutrons	6	180	Materials Science Elective Topic	Kuntscher
Spintronics	6	180	Materials Science Elective Topic	Hammerl
Superconductivity	6	180	Materials Science Elective Topic	Tidecks
SPRING SEMESTER				
Master thesis	26	**780**	Finals	All teachers/Volkmer
Colloquium	4	**120**	Finals	All teachers/Volkmer
	TOTAL	**30**		

M2 University of Bordeaux (second year students)

AUTUMN SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
Mandatory Lectures				
Hybrid and Nanomaterials	6	180		Toupance Thierry
Large Scale Facilities	6	180		Desmedt Arnaud
Elective Lectures				
Magnetic & Dielectric Properties	6	180		Josse Michaël
Applied Nanosciences	6	180		Del Guerzo André
Photonics, Laser and Imaging	6	180		Jubera Véronique
Energy, Communication & Information	6	180		Hadziiannou Georges
Molecular Simulation	6	180		Soetens Jean-Christophe
Innovative & Composite Materials	6	180		Rebillat Francis
	TOTAL	**30**		
SPRING SEMESTER				
Master thesis	24			Josse Michaël
Bibliographic Project	6			Josse Michaël
	TOTAL	**30**		

M2 Université de Liège (second year students)

AUTUMN SEMESTER				
Course Name	**ECTS**	**Workload**	**Module**	**Teacher in charge**
General (mandatory) courses (total of 20 ECTS)				
Quantum Chemistry	4	120		Françoise Remacle
Physics of functional oxides	4	120		Philippe Ghosez
Macromolecular Chemistry	4	120		Christine Jérôme
Nanomaterials,(electro)synthesis & applications	4	120		Christophe Detrembleur
Advanced solid state chemistry	4	120		Bénédicte Vertruyen
Elective courses (total of 10 ECTS)				
Physics & chemistry of materials : complements	2	60		Ngoc Duy Nguyen
Physics of nanomaterials	4	120		Jean-Yves Raty
Spectroscopy of materials	4	120		Matthieu Verstraete
Characterization of Biomaterials	4	120		Edwin De Pauw
Biohybrids : theory and modeling	4	120		Françoise Remacle
Molecular logic	2	60		Françoise Remacle
Polymers and environment	2	60		Philippe Lecomte
Introduction to solid state NMR	2	60		Christian Damblon
Characterization of nanostructures by scanning probe techniques	2	60		Anne-Sophie Duwez
Physics of semiconductors	4	120		Ngoc Duy Nguyen
Physics of superconductors	2	60		Alejandro Silhanek
Physics of magnetic materials	4	120		Eric Bousquet
Quantum modeling of materials properties	4	120		Philippe Ghosez
Introduction to nanofabrication	4	120		Alejandro Silhanek
	TOTAL	**30**		
SPRING SEMESTER				
Research master thesis	15			Ngoc Duy Nguyen
Research master thesis (complements)	15			Ngoc Duy Nguyen
	TOTAL	**60**		