



European Master in Advanced Materials Science and Engineering (AMASE)

Course 2019/2020

Track 1: Advanced Metallic Materials

1st quarter. Adaptation phase

	Code	Name	Type	module	ECTS
SPA	CEM01	Physical Metallurgy	Mandatory	III	5
SPA	24798	Mechanical Behaviour of Materials	Mandatory	I	5
SPA	CEM04	Physical Properties of Materials	Mandatory	I	5
SPA	CEM05	Microstructural Characterisation of Materials	Mandatory	II	5
SPA	295em112	Structure and Properties of Polymers	Mandatory	I	6
	Language(*)	French I, German I, Spanish I or English I	Mandatory		4
					30

- 2nd quarter. Take a minimum of 4,5 elective credits

Teaching language	Code	Name	Type	ECTS
SPA	295em021	Modern Manufacture of Metallic Materials	Mandatory	6
SPA	295em022	Structural Integrity and Failure Analysis	Mandatory	6
SPA	240EM144	Materials Joining Technologies	Mandatory	4,5
ENG	240EM146	Modelling of Plastic Deformation	Mandatory	4,5
SPA	240EM141	Materials Selection in Mechanical design	Mandatory	4,5
ENG	240EM142	Materials for Energy Applications	elective	4,5
ENG	240EM143	Materials for Transport Applications	elective	4,5
	Language(*)	French II, German II, Spanish II or English II	Mandatory	4
				29,5 +4,5



- **3rd quarter**

Teaching language	Code	Name	Type	ECTS
SPA	295em111	Structure and Properties of Metal Alloys	Mandatory	6
SPA	295em011	Advanced Characterization of Materials	Mandatory	6
SPA	240em031	Laboratory of materials science and technology	Mandatory	4,5
ENG	240em131	Micromechanical Design, Nanomechanical and Coatings	Mandatory	4,5
SPA	240em135	Functional materials	Mandatory	4,5
SPA	240em134	Nanotechnology	Mandatory	4,5
	Language(*)	French III, German III, Spanish III or English III	Mandatory	4
				34

4th quarter,

CEM40	Master`s Thesis	Mandatory	30
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Track 2: Polymers and Composites - Modelling, processing & tailored properties

1st quarter. Adaptation phase

	Code	Name	Type	module	ECTS
SPA	CEM01	Physical Metallurgy	Mandatory	III	5
SPA	24798	Mechanical Behaviour of Materials	Mandatory	I	5
SPA	CEM04	Physical Properties of Materials	Mandatory	I	5
SPA	CEM05	Microstructural Characterisation of Materials	Mandatory	II	5
SPA	295em112	Structure and Properties of Polymers	Mandatory	I	6
	Language(*)	French I, German I, Spanish I or English I	Mandatory		4
					30

- 2nd quarter. Take a minimum of 15 elective credits

Teaching language	Code	Name	Type	ECTS
SPA	295em121	Composite Technology	Mandatory	6
SPA	295em125	New Challenges in Additivation and Degradation of Plastic Materials	Mandatory	6
SPA	295em022	Structural Integrity and Failure Analysis	Elective	6
ENG	240em142	Materials for Energy Applications	Elective	4,5
ENG	240em143	Materials for Transport Applications	Elective	4,5
SPA	240em144	Materials Joining Technologies	Elective	4,5
ENG	240em141	Selection of Materials in Mechanical Design	Elective	4,5
ENG	295eq221	Experimentation and Instrumentation	Elective	6
	Language(*)	French II, German II, Spanish II or English II	Mandatory	4
				16+15



- 3rd quarter Take a minimum of 26 elective credits

Teaching language	Code	Name	Type	ECTS
SPA	295em112	Structure and Properties of Polymers	Elective	6
ENG	295ii024	Sustainability and Circular Economy	Elective	6
SPA	240em031	Laboratory of materials science and technology	Elective	4,5
SPA	240em033	Biomedical Materials	Elective	4,5
SPA	240em131	Micromechanical Design, nanomechanical and Coatings	Elective	4,5
ENG	240eq233	Polymer and biopolymer nanotechnology	Elective	4,5
SPA	240eq232	Bioplastics and polymer biomaterials	Elective	4,5
SPA	240eq331	Polymer Technology II	Elective	4,5
ENG	295eq011	Biotech processes and polymer Industry	Elective	6
	Language(*)	French III, German III, Spanish III or English III	Mandatory	4
				10+24

4th quarter,

CEM40	Master`s Thesis	Mandatory	30
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Track 5: Bio/Nanomaterials

3rd quarter

- Take a minimum of 13,5 elective credits

Teaching language	Code	Name	Type	ECTS
ENG	240em033	Biomedical Materials	Mandatory	4,5
ENG	240em132	Living Tissues and Biointerface	Mandatory	4,5
ENG	240em133	Bioceramics	Mandatory	4,5
ENG	240em131	Micromechanical Design, Nanomechanical and Coatings	Elective*	4,5
ENG	240em134	Nanotechnology	Elective*	4,5
SPA	240em031	Laboratory of Materials Science and Technology	Elective*	4,5
SPA	295em011	Advanced Characterization of Materials	Elective*	6
	Language	French III, German III, Spanish III or English III	Mandatory	4
				17.5+13,5

4th quarter

CEM40	Master`s Thesis	Mandatory	30
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