



**Faculty of Engineering and Architecture  
Master of Science in Sustainable Materials Engineering**

Language of instruction: English

Programme version 12

## 1 General Courses 60 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E042740 Fracture and Deformation Behaviour of Materials <i>Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	B:1	180
2	E068900 Structure and Dynamics of Polymers <i>Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering</i>	6		1	B:1	180
3	E069041 Bio-based and Synthetic Fibres <i>Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering</i>	6		1	A:1	180
4	E065340 Micro-analysis and Structure Determination in Materials Science <i>Hossein Beladi -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:2	180
5	E900069 Composites <i>Wim Van Paepengem -- Department of Materials, Textiles and Chemical Engineering</i>	6		1	A:1	180
6	E065472 Metal Extraction and Recycling <i>Inge Bellemans -- Department of Materials, Textiles and Chemical Engineering</i>	6		1	A:2	180
7	E071400 Computer Aided Materials Engineering <i>Lode Daelemans -- Department of Materials, Textiles and Chemical Engineering</i>	6		1	A:1	180
8	E064221 Design and Manufacturing of Textile Structures <i>Lieva Van Langenhove -- Department of Materials, Textiles and Chemical Engineering</i>	6		1	A:2	180
9	E066230 Microstructure-Property Control of Metals <i>Hossein Beladi -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:2	180
10	E066662 Environmentally Assisted Degradation of Materials <i>Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering</i>	6		1	A:2	180

## 2 Majors 18 credits

Subscribe to 1 major from the following list. Subject to approval by the faculty.

### 2.1 Major Metal Science and Engineering 18 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E066270 Metal Processing and Technology <i>Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering</i>	6		2	A:2	180
2	E066170 Physical Materials Science <i>Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering</i>	6		2	C:1	180
3	E024122 Computational Materials Physics <i>Stefaan Cottenier -- Department of Electromechanical, Systems and Metal Engineering</i>	6		2	A:2	180

### 2.2 Major Polymer and Fibre Engineering 18 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E064761 Textile Functionalization <i>Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering</i>	6		2	A:2	180
2	E064201 Technical Textiles <i>Lieva Van Langenhove -- Department of Materials, Textiles and Chemical Engineering</i>	6		2	A:1	180
3	E064961 Polymer Processing and Circularity <i>Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering</i>	6		2	A:2	180

### 3 Elective Courses

18 credits

Subscribe to 18 credit units from 1 path from the following list. Subject to approval by the faculty.

#### 3.1 Elective Courses: Path 1

18 credits

Subscribe to 18 credit units from no less than 1 and no more than 3 modules from the following list. Subject to approval by the faculty.

##### 3.1.1 Elective Courses Materials Science

Subscribe to no less than 6 credit units from the following list. Subject to approval by the faculty.

- The courses with reference 'M' are from the major Metal Science and Engineering
- The courses with reference 'P' are from the major Polymer and Fibre Engineering

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E066270 Metal Processing and Technology <i>Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering</i>	6	M		A:2	180
2	E066170 Physical Materials Science <i>Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering</i>	6	M		C:1	180
3	E024122 Computational Materials Physics <i>Stefaan Cottenier -- Department of Electromechanical, Systems and Metal Engineering</i>	6	M		A:2	180
4	E064961 Polymer Processing and Circularity <i>Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering</i>	6	P		A:2	180
5	E064761 Textile Functionalization <i>Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering</i>	6	P		A:2	180
6	E064201 Technical Textiles <i>Lieva Van Langenhove -- Department of Materials, Textiles and Chemical Engineering</i>	6	P		A:1	180
7	C004145 Functional Ceramics <i>Klaartje De Buysser -- Department of Chemistry</i>	3			B:2	90
8	E063671 Biomaterials and Tissue Engineering <i>Ruslan Dmitriev -- Department of Human Structure and Repair</i>	5			A:1	150
9	C002965 Advanced Polymer Chemistry <i>Filip Du Prez -- Department of Organic Chemistry</i>	3			A:1	75
10	E006800 Modelling and Engineering of Nanoscale Materials <i>Louis Vanduyfhuys -- Department of Applied Physics</i>	6			A:1	180
11	C004140 Nanomaterials Chemistry <i>Klaartje De Buysser -- Department of Chemistry</i>	6			A:1	180
12	E070650 Advanced Instrumental Techniques for Chemical Analysis <i>Laszlo Vincze -- Department of Chemistry</i>	3			A:1	90
13	C003122 Nuclear Methods in Material Research <i>Stefaan Cottenier -- Department of Electromechanical, Systems and Metal Engineering</i>	6			A:2	180
14	E042910 Mechanical Material Modelling <i>Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering</i>	3			A:1	90
15	C004144 Topics in Nanoscience <i>Pieter Geiregat -- Department of Chemistry</i>	4			A:2	120
16	E064950 Polymer Reaction Engineering <i>Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering</i>	6			A:2	180
17	C004126 Advanced Macromolecular Chemistry <i>Filip Du Prez -- Department of Organic Chemistry</i>	6			A:1	180
18	E024730 Complex Materials and Rheology <i>Flavio Marchesini de Oliveira -- Department of Materials, Textiles and Chemical Engineering</i>	6			A:2	180
19	E099400 Research Internship <i>Patrick Segers -- Department of Electronics and Information Systems</i>	6			A:J	180
20	E099400 Research Internship <i>Patrick Segers -- Department of Electronics and Information Systems</i>	3			B:J	90

##### 3.1.2 Elective Social Courses

Subscribe to no less than 6 credit units from the following list. Subject to approval by the faculty.

Students may apply for another elective social course, given a clear motivation and after approval by the faculty (exceptionally, as a rule a course from the list below is followed).

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E099300 Industry Internship Engineering and Architecture [en, nl] <i>Patrick Segers -- Department of Electronics and Information Systems</i>	6			A:J	180

2	E098010	Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i>	6		A:J	180
3	E098010	Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i>	3		B:J	90
4	E037810	Safety of Electrical and Mechanical Installations [nl] <i>Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering</i>	3		A:2	90
5	E039060	Sustainable Energy and Rational Use of Energy <i>Filip Strubbe -- Department of Electronics and Information Systems</i>	4		A:2	120
6	E078310	Sustainable Use of Materials: Metals [nl] <i>Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering</i>	3		A:1	90
7	E078320	Sustainable Use of Materials: Plastics and Derived Materials [nl] <i>Lode Daelemans -- Department of Materials, Textiles and Chemical Engineering</i>	3		A:2	90
8	E078010	Technology and Environment <i>Luc Martens -- Department of Information Technology</i>	3		A:1	90
9	E078752	Water and Air Quality Management <i>Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering</i>	4		A:2	120
10	E092100	Biosystems [nl] <i>Pascal Verdonck -- Department of Electronics and Information Systems</i>	3		A:1	90
11	E075310	Ethics, Engineering and Society [nl] <i>Seppe Segers -- Department of Philosophy and Moral Sciences</i>	3		A:2	90
12	C004009	History and Philosophy of Sciences [nl] <i>Maarten Van Dyck -- Department of Philosophy and Moral Sciences</i>	3		B:2	90
13	E076320	The Information Society and ICT [nl] <i>Erik Mannens -- Department of Electronics and Information Systems</i>	3		A:2	90
14	A001900	Introduction to Psychology [nl] <i>Wim Notebaert -- Department of Experimental Psychology</i>	3		A:1	90
15	H001977	Coaching and Diversity [nl] <i>Elisabeth De Schauwer -- Department of Special Education</i>	3	UKV	A:J	90
16	A005503	Context and Nuance. A Critical Reflection on Current Topics [nl] <i>July De Wilde -- Department of Translation, Interpreting and Communication</i>	6	UKV	A:1	180
17	F001021	Basic Entrepreneurship [nl] <i>Evy Van Lancker -- Department of Marketing, Innovation and Organisation</i>	3	UKV	A:1	90
18	A005646	Introduction to Business Law [nl] <i>Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law</i>	3		A:1	90
19	F001022	Dare to Venture <i>Johan Verruet -- Department of Marketing, Innovation and Organisation</i>	4		A:2	120
20	E076471	Dare to Start <i>Wouter Haerick -- Department of Information Technology</i>	3		A:2	90
21	E076621	Principles of Law and Construction Law [nl] <i>Jelle Laverge -- Department of Architecture and Urban Planning</i>	3		A:1	90
22	E076951	Engineering Economy <i>Sofie Verbrugge -- Department of Information Technology</i>	6		A:1	180
23	F001020	Introduction to Entrepreneurship <i>Petra Andries -- Department of Marketing, Innovation and Organisation</i>	3		A:1	90
24	H002476	Powerful Learning Environments [nl] <i>Bram De Wever -- Department of Educational Studies</i>	6		A:1	180
25	H002477	The Teacher within Class, School and Society [nl] <i>Melissa Tuytens -- Department of Educational Studies</i>	6		A:2	180
26	H002478	The Student: Development and Motivation [nl] <i>Wim Beyers -- Department of Developmental, Personality and Social Psychology</i>	6		A:1	180
27	F000083	Macroeconomics [nl] <i>Freddy Heylen -- Department of Economics</i>	6		A:1	180
28	H001010	Introduction Industrial Psychology [nl] <i>Bart Wille -- Department of Developmental, Personality and Social Psychology</i>	5		C:1	150
29	F000551	Business Skills <i>Mieke Audenaert -- Department of Marketing, Innovation and Organisation</i>	4		C:2	120
30	A003001	Academic English <i>Geert Jacobs -- Department of Linguistics</i>	3	UKV	B:1, A:2	90

31	E075800	Communication [nl] <i>Leen Pollefliet -- Department of Information Technology</i>	3	A:1	90
32	E037830	Basics of Health and Safety at Work for Engineers [nl] <i>Sofie Van Volsem -- Department of Industrial Systems Engineering and Product Design</i>	3	A:1	90

### 3.1.3 Elective Courses Ghent University

Subscribe to no more than 6 credit units from the programmes of Ghent University, including the [Ghent University Elective Courses](#). Subject to approval by the faculty.

## 3.2 Elective Courses: Path 2 18 credits

Subscribe to 18 credit units from 1 minor from the following list. Subject to approval by the faculty.

### 3.2.1 Minor Operations Management 18 credits

Subscribe to 18 credit units from the following list, with no less than 6 credit units with reference a. Subject to approval by the faculty.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E076221	Manufacturing Planning and Control <i>Birger Raa -- Department of Industrial Systems Engineering and Product Design</i>	6	a		A:1	180
2	E004255	Operations Research Models and Methods <i>El-Houssaine Aghezzaf -- Department of Industrial Systems Engineering and Product Design</i>	6			A:1	180
3	E060240	Quality Engineering and Industrial Statistics <i>Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design</i>	6			A:2	180
4	E076951	Engineering Economy <i>Sofie Verbrugge -- Department of Information Technology</i>	6			A:1	180

### 3.2.2

Subscribe to 18 credit units from the following list. Subject to approval by the faculty.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C002275	Environmental Law [nl] <i>Hendrik Schoukens -- Department of European, Public and International Law</i>	5			A:1	125
2	I003060	Sustainable Systems Engineering <i>Sophie Huysveld -- Department of Green Chemistry and Technology</i>	5			A:1	150
3	E065460	Rational Use of Materials <i>Tom Depover -- Department of Materials, Textiles and Chemical Engineering</i>	5			A:1	150
4	E078752	Water and Air Quality Management <i>Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering</i>	4			A:2	120
5	E039060	Sustainable Energy and Rational Use of Energy <i>Filip Strubbe -- Department of Electronics and Information Systems</i>	4			A:2	120
6	E078061	Introduction to Environmental Risk Assessment <i>Karel De Schampheleire -- Department of Animal Sciences and Aquatic Ecology</i>	3			A:1	90
7	I002606	Environmental Risk Assessment <i>Karel De Schampheleire -- Department of Animal Sciences and Aquatic Ecology</i>	5			A:1	150

## 4 Master's Dissertation 24 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E091103	Master's Dissertation	24		2	B:J	720

## Teaching

When a course is not taught (solely) in the programme's language of instruction, the effectively used languages are indicated in square brackets following the course name, using the following ISO codes:

bg: Bulgarian	de: German	es: Spanish	ja: Japanese	pl: Polish	sh: Croatian/Serbian	zh: Chinese
cs: Czech	el: Greek	fr: French	nl: Dutch	pt: Portuguese	sl: Slovene	
da: Danish	en: English	it: Italian	no: Norwegian	ru: Russian	sv: Swedish	

## Semester

Semesters are indicated by their number (1 or 2); semester 3 represents the summer period and J indicates a course spanning semesters 1 and 2.

When a capital letter precedes a semester number, the course has multiple offerings. The letter indicates the offering concerned.

When a semester is shown in brackets, the course is not offered this year in the specific offering.

The offering frequency and first year of offering are indicated by the following codes:

a: bi-annually	c: annually, from 2027-2028	f: annually, from 2028-2029	i: annually, from 2029-2030
b: tri-annually	d: bi-annually, from 2027-2028	g: bi-annually, from 2028-2029	j: bi-annually, from 2029-2030
	e: tri-annually, from 2027-2028	h: tri-annually, from 2028-2029	k: tri-annually, from 2029-2030