GHENT UNIVERSITY

Study Programme

Academic year 2025-2026

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 *Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering*	6		1	B:1	180
2	E068900	Structure and Dynamics of Polymers *Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering*	6		1	B:1	180
3	E069041	Bio-based and Synthetic Fibres *Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering*	6		1	A:1	180
4	E065340	Micro-analysis and Structure Determination in Materials Science	6		1	A:2	180
5	E900069	Composites *Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering*	6		1	A:1	180
6	E065472	Metal Extraction and Recycling *Inge Bellemans -- Department of Materials, Textiles and Chemical Engineering*	6		1	A:2	180
7	E071400	Computer Aided Materials Engineering *Lode Daelemans -- Department of Materials, Textiles and Chemical Engineering*	6		1	A:1	180
8	E064221	Design and Manufacturing of Textile Structures *Lieva Van Langenhove -- Department of Materials, Textiles and Chemical Engineering*	6		1	A:2	180
9	E066230	Microstructure-Property Control of Metals *Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering*	6		1	A:2	180
10	E066662	Environmentally Assisted Degradation of Materials *Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering*	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 *Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering*	6		2	A:2	180
2	E066170	Physical Materials Science *Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering*	6		2	C:1	180
3	E024122	Computational Materials Physics *Stefaan Cottenier -- Department of Electromechanical, Systems and Metal Engineering*	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 *Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering*	6		2	A:2	180
2	E064201	Technical Textiles *Lieva Van Langenhove -- Department of Materials, Textiles and Chemical Engineering*	6		2	A:1	180
3	E064961	Polymer Processing and Circularity *Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering*	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 *Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering*	6	M		A:2	180
2	E066170	Physical Materials Science *Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering*	6	M		C:1	180
3	E024122	Computational Materials Physics *Stefaan Cottenier -- Department of Electromechanical, Systems and Metal Engineering*	6	M		A:2	180
4	E064961	Polymer Processing and Circularity *Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering*	6	P		A:2	180
5	E064761	Textile Functionalization *Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering*	6	P		A:2	180
6	E064201	Technical Textiles *Lieva Van Langenhove -- Department of Materials, Textiles and Chemical Engineering*	6	P		A:1	180
7	C004145	Functional Ceramics *Klaartje De Buysser -- Department of Chemistry*	3			B:2	90
8	E063671	Biomaterials and Tissue Engineering *Ruslan Dmitriev -- Department of Human Structure and Repair*	5			A:1	150
9	C002965	Advanced Polymer Chemistry *Filip Du Prez -- Department of Organic Chemistry*	3			A:1	75
10	E006800	Modelling and Engineering of Nanoscale Materials *Louis Vanduyfhuys -- Department of Applied Physics*	6			A:1	180
11	C004140	Nanomaterials Chemistry *Klaartje De Buysser -- Department of Chemistry*	6			A:1	180
12	E070650	Advanced Instrumental Techniques for Chemical Analysis *Laszlo Vincze -- Department of Chemistry*	3			A:1	90
13	C003122	Nuclear Methods in Material Research *Stefaan Cottenier -- Department of Electromechanical, Systems and Metal Engineering*	6			A:2	180
14	E042910	Mechanical Material Modelling *Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering*	3			A:1	90
15	C004144	Topics in Nanoscience *Pieter Geiregat -- Department of Chemistry*	4			A:2	120
16	E064950	Polymer Reaction Engineering *Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering*	6			A:2	180
17	C004126	Advanced Macromolecular Chemistry *Filip Du Prez -- Department of Organic Chemistry*	6			A:1	180
18	E024730	Complex Materials and Rheology *Flavio Marchesini de Oliveira -- Department of Materials, Textiles and Chemical Engineering*	6			A:2	180
19	E099400	Research Internship *Patrick Segers -- Department of Electronics and Information Systems*	6			A:J	180
20	E099400	Research Internship *Patrick Segers -- Department of Electronics and Information Systems*	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] *Patrick Segers -- Department of Electronics and Information Systems*	6			A:J	180
2	E098010	Integrated Portfolio [en, nl] *Hiep Luong -- Department of Telecommunications and Information Processing*	6			A:J	180

3	E098010	Integrated Portfolio [en, nl] *Hiep Luong -- Department of Telecommunications and Information Processing*	3		B:J	90
4	E037810	Safety of Electrical and Mechanical Installations [nl] *Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering*	3		A:2	90
5	E039060	Sustainable Energy and Rational Use of Energy *Filip Strubbe -- Department of Electronics and Information Systems*	4		A:2	120
6	E078310	Sustainable Use of Materials: Metals [nl] *Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering*	3		A:1	90
7	E078320	Sustainable Use of Materials: Plastics and Derived Materials [nl] *Lode Daelemans -- Department of Materials, Textiles and Chemical Engineering*	3		A:2	90
8	E078010	Technology and Environment *Luc Martens -- Department of Information Technology*	3		A:1	90
9	E078752	Water and Air Quality Management *Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering*	4		A:2	120
10	E092100	Biosystems [nl] *Pascal Verdonck -- Department of Electronics and Information Systems*	3		A:1	90
11	E075310	Ethics, Engineering and Society [nl] *Seppe Segers -- Department of Philosophy and Moral Sciences*	3		A:2	90
12	C004009	History and Philosophy of Sciences [nl] *Maarten Van Dyck -- Department of Philosophy and Moral Sciences*	3		B:2	90
13	E076320	The Information Society and ICT [nl] *Erik Mannens -- Department of Electronics and Information Systems*	3		A:2	90
14	A001900	Introduction to Psychology [nl] *Wim Notebaert -- Department of Experimental Psychology*	3		A:1	90
15	H001977	Coaching and Diversity [nl] *Elisabeth De Schauwer -- Department of Special Education*	3	UKV	A:J	90
16	A005503	Context and Nuance. A Critical Reflection on Current Topics [nl] *July De Wilde -- Department of Translation, Interpreting and Communication*	6	UKV	A:1	180
17	F001021	Basic Entrepreneurship [nl] *Evy Van Lancker -- Department of Marketing, Innovation and Organisation*	3	UKV	A:1	90
18	A005646	Introduction to Corporate Law [nl] *Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law*	3		A:1	90
19	F001022	Dare to Venture *Johan Verrue -- Department of Marketing, Innovation and Organisation*	4		A:2	120
20	E076471	Dare to Start *Wouter Haerick -- Department of Information Technology*	3		A:2	90
21	E076621	Principles of Law and Construction Law [nl] *Jelle Laverge -- Department of Architecture and Urban Planning*	3		A:1	90
22	E076951	Engineering Economy *Sofie Verbrugge -- Department of Information Technology*	6		A:1	180
23	F001020	Introduction to Entrepreneurship *Petra Andries -- Department of Marketing, Innovation and Organisation*	3		A:1	90
24	H002476	Powerful Learning Environments [nl] *Bram De Wever -- Department of Educational Studies*	6		A:1	180
25	H002477	The Teacher within Class, School and Society [nl] *Melissa Tuytens -- Department of Educational Studies*	6		A:2	180
26	H002478	The Student: Development and Motivation [nl] *Wim Beyers -- Department of Developmental, Personality and Social Psychology*	6		A:1	180
27	F000083	Macroeconomics [nl] *Freddy Heylen -- Department of Economics*	6		A:1	180
28	H001010	Introduction Industrial Psychology [nl] *Bart Wille -- Department of Developmental, Personality and Social Psychology*	5		C:1	150
29	F000551	Business Skills *Mieke Audenaert -- Department of Marketing, Innovation and Organisation*	4		C:2	120
30	A003001	Academic English *Geert Jacobs -- Department of Linguistics*	3	UKV	B:1, A:2	90
31	E075800	Communication [nl] *Leen Pollefliet -- Department of Information Technology*	3		A:1	90

32	E037830	Basics of Health and Safety at Work for Engineers [nl] *Sofie Van Volsem -- Department of Industrial Systems Engineering and Product Design*	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 *Birger Raa -- Department of Industrial Systems Engineering and Product Design*	6	a		A:1	180
2	E004255	Operations Research Models and Methods *El-Houssaine Aghezzaf -- Department of Industrial Systems Engineering and Product Design*	6			A:1	180
3	E060240	Quality Engineering and Industrial Statistics *Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design*	6			A:2	180
4	E076951	Engineering Economy *Sofie Verbrugge -- Department of Information Technology*	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] *Hendrik Schoukens -- Department of European, Public and International Law*	5			A:1	125
2	I003060	Sustainable Systems Engineering *Sophie Huysveld -- Department of Green Chemistry and Technology*	5			A:1	150
3	E065460	Rational Use of Materials *Tom Depover -- Department of Materials, Textiles and Chemical Engineering*	5			A:1	150
4	E078752	Water and Air Quality Management *Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering*	4			A:2	120
5	E039060	Sustainable Energy and Rational Use of Energy *Filip Strubbe -- Department of Electronics and Information Systems*	4			A:2	120
6	E078061	Introduction to Environmental Risk Assessment *Karel De Schamphelaere -- Department of Animal Sciences and Aquatic Ecology*	3			A:1	90
7	I002606	Environmental Risk Assessment *Karel De Schamphelaere -- Department of Animal Sciences and Aquatic Ecology*	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 cours name, using the following ISO codes:

bg: Bulgarian	de: German	es: Spanish	ja: Japanese	pl: Polish	sh: Kroatian/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 in 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 2026-2027	f: annually, from 2027-2028	i: annually, from 2028-2029
b: tri-annually	d: bi-annually, from 2026-2027	g: bi-annually, from 2027-2028	j: bi-annually, from 2028-2029
	e: tri-annually, from 2026-2027	h: tri-annually, from 2027-2028	k: tri-annually, from 2028-2029