

Faculty of Engineering and Architecture

Master of Science in Chemical Engineering

Language of instruction: English

Programme version 12

1 General Courses 60 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E071200 Unit Operations in Chemical Industry Geraldine Heynderickx -- Department of Materials, Textiles and Chemical Engineering	6		1	B:1	180
2	E071131 Sustainable Chemical Production Processes Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering	6		1	A:1	180
3	E068900 Structure and Dynamics of Polymers Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering	6		1	B:1	180
4	E028700 Thermal Installations Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering	6		1	A:1	180
5	E072110 Chemical Reactors: Fundamentals and Applications Paul Van Steenberghe -- Department of Materials, Textiles and Chemical Engineering	6		1	B:1	180
6	E073760 Chemical Process Design Georgios Bellos -- Department of Materials, Textiles and Chemical Engineering	6		1	B:2	180
7	E071170 Process Control Clara-Mihaela Ionescu -- Department of Electromechanical, Systems and Metal Engineering	6		1	A:2	180
8	E071140 Catalysis and Kinetics Mark Saeys -- Department of Materials, Textiles and Chemical Engineering	6		1	A:2	180
9	E073720 Industrial Project Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering	6		2	B:1	180
10	E072302 Safety, Health and Environmental Management Paul Van Steenberghe -- Department of Materials, Textiles and Chemical Engineering	3		2	A:2	90
11	E071190 Process Intensification Yi Ouyang -- Department of Materials, Textiles and Chemical Engineering	3		2	A:2	90

2 Elective Courses 36 credits

Subscribe to 36 credit units from 2 modules from the following list. Subject to approval by the faculty.

- 12 credit units in year 1
- 24 credit units in year 2.

2.1 In-Depth Elective Courses 18 credits

Subscribe to no less than 18 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E074200 Kinetic Modelling and Simulation Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering	6			A:1	180
2	E071181 Chemistry of Industrial Processes Maarten Sabbe -- Department of Materials, Textiles and Chemical Engineering	6			B:2	180
3	E071341 Molecular Modelling of Industrial Processes Veronique Van Speybroeck -- Department of Applied Physics	6			A:2	180
4	E064950 Polymer Reaction Engineering Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering	6			A:2	180
5	E040533 Computational Fluid Dynamics in Chemical Technology Geraldine Heynderickx -- Department of Materials, Textiles and Chemical Engineering	3			A:2	90

2.2 Broadening Elective Courses 18 credits

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

2.2.1 Broadening Elective Courses: Option 1

18 credits

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

2.2.1.1 Clusters

The student may choose electives across the different clusters.

2.2.1.1.1 Cluster Economic Aspects

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E004255 Operations Research Models and Methods El-Houssaine Aghezzaf -- Department of Industrial Systems Engineering and Product Design	6			A:1	180
2	E076221 Manufacturing Planning and Control Birger Raa -- Department of Industrial Systems Engineering and Product Design	6			A:1	180
3	E076820 Project Management Mario Vanhoucke -- Department of Business Informatics and Operations Management	6			A:2	180
4	E076951 Engineering Economy Sofie Verbrugge -- Department of Information Technology	6			A:1	180
5	F000551 Business Skills Mieke Audenaert -- Department of Marketing, Innovation and Organisation	4			C:2	120

2.2.1.1.2 Cluster Chemistry

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002679 Green Chemistry of Renewable Resources Sven Mangelincx -- Department of Green Chemistry and Technology	4			A:1	120
2	E070650 Advanced Instrumental Techniques for Chemical Analysis Laszlo Vincze -- Department of Chemistry	3			A:1	90
3	C002965 Advanced Polymer Chemistry Filip Du Prez -- Department of Organic Chemistry	3			A:1	75
4	I002754 Environmental Chemistry: Organic Polluents [nl] Christophe Walgraeve -- Department of Green Chemistry and Technology	3			A:1	90
5	C004141 Materials Physics Zeger Hens -- Department of Chemistry	6			A:1	180
6	C004159 Advanced X-ray Spectroscopy Laszlo Vincze -- Department of Chemistry	3			A:2	90
7	C004144 Topics in Nanoscience Pieter Geiregat -- Department of Chemistry	4			A:2	120

2.2.1.1.3 Cluster Fundamental Techniques

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I001280 Experimental Design Stijn Luca -- Department of Data Analysis and Mathematical Modelling	3			A:2	75
2	E005220 Linear Systems Gert De Cooman -- Department of Electronics and Information Systems	6			A:2	180
3	E005722 Modelling and Simulation of Dynamical Systems Guillaume Crevecoeur -- Department of Electromechanical, Systems and Metal Engineering	6			A:2	180
4	E045240 Computational Fluid Dynamics Joris Degroote -- Department of Electromechanical, Systems and Metal Engineering	6			A:2	180
5	E039110 Technical Thermodynamics [nl] Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering	6			A:1	180

2.2.1.1.4 Cluster Materials

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E064961 Polymer Processing and Circularity Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering	6			A:2	180
2	E065340 Micro-analysis and Structure Determination in Materials Science Roumen Petrov -- Department of Electromechanical, Systems and Metal Engineering	6			A:1	180
3	E066170 Physical Materials Science Leo Kestens -- Department of Electromechanical, Systems and Metal Engineering	6			C:1	180
4	C004145 Functional Ceramics Klaartje De Buysser -- Department of Chemistry	3			B:2	90

5	C004142	Surface Topology, Internal Structure and Composition Mieke Adriaens -- Department of Chemistry	6		A:1	180
6	C004140	Nanomaterials Chemistry Pascal Van Der Voort -- Department of Chemistry	6		A:1	180
7	C004157	Principle and Applications of Stable Isotope Analysis Pascal Boeckx -- Department of Green Chemistry and Technology	3		A:2	90
8	C004155	Analytical Methods for Material Characterization Mieke Adriaens -- Department of Chemistry	9		A:1	270

2.2.1.1.5 Cluster Technology

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002700 Clean Technology Sophie Huysveld -- Department of Green Chemistry and Technology	5			A:1	150
2	E039060 Sustainable Energy and Rational Use of Energy Jeroen Beeckman -- Department of Electronics and Information Systems	4			A:2	120
3	I002618 Process Engineering 2 Paul Van der Meeren -- Department of Green Chemistry and Technology	5			A:1	150
4	I002934 Technology of Plant-based Foods Koen Dewettinck -- Department of Food Technology, Safety and Health	5			A:2	150
5	I002677 Thermochemical Conversion of Biomass [nl] Frederik Ronsse -- Department of Green Chemistry and Technology	4			A:2	120
6	E065472 Metal Extraction and Recycling Inge Bellemans -- Department of Materials, Textiles and Chemical Engineering	6			A:2	180
7	E073770 Process Safety: Reactor Technology, Intrinsic Hazards and Process Safety Hazard Analysis Paul Van Steenberge -- Department of Materials, Textiles and Chemical Engineering	3				90
8	I002776 Processes in Practice Eveline Volcke -- Department of Green Chemistry and Technology	3			A:1	90
9	I002752 Advanced Wastewater Treatment Process Design Eveline Volcke -- Department of Green Chemistry and Technology	3			A:1	90
10	I002507 Environmental Technology: Solid Waste Streams [nl] Frederik Ronsse -- Department of Green Chemistry and Technology	4			A:2	120
11	I002683 Environmental Technology: Soil [nl] Ellen Van De Vijver -- Department of Environment	5			A:1	150
12	I002682 Environmental Technology: Air [nl] Christophe Walgraeve -- Department of Green Chemistry and Technology	5			A:1	150
13	E064761 Textile Functionalization Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering	6			A:2	180

2.2.1.1.6 Cluster Research Internship

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E099400 Research Internship Patrick Segers -- Department of Electronics and Information Systems	6			A:J	180
2	E099400 Research Internship Patrick Segers -- Department of Electronics and Information Systems	3			B:J	90

2.2.1.2 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 Jeroen Beeckman -- Department of Electronics and Information Systems	4			A:2	120

6	E078310	Sustainable Use of Materials: Metals [nl] Kim Verbeke -- 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		A:1	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] Stef Craps -- Department of Literary Studies	6	UKV	A:1	180
17	E076450	Basic Entrepreneurship [nl]	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	E076460	Dare to Venture Johan Verrue -- Department of Marketing, Innovation and Organisation	4		A:2	120
20	E076471	Dare to Start Frank Gielen -- 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	E076431	Introduction to Entrepreneurship Petra Andries -- Department of Marketing, Innovation and Organisation	3		A:1	90
24	H002169	Powerful Learning Environments [nl] Bram De Wever -- Department of Educational Studies	6		A:1	180
25	H002196	Classroom Management and Reflection [nl] Melissa Tuytens -- Department of Educational Studies	4		A:2	120
26	H002197	The Teacher within School and Society [nl] Melissa Tuytens -- Department of Educational Studies	4		A:1	120
27	H002198	Psychology of Adolescence [nl] Wim Beyers -- Department of Developmental, Personality and Social Psychology	4		A:1	120
28	F000083	Macroeconomics [nl] Freddy Heylen -- Department of Economics	6		A:1	180
29	H001010	Introduction Industrial Psychology [nl] Bart Wille -- Department of Developmental, Personality and Social Psychology	5		A:2	150
30	F000551	Business Skills Mieke Audenaert -- Department of Marketing, Innovation and Organisation	4		C:2	120
31	A003001	Academic English Geert Jacobs -- Department of Linguistics	3	UKV	B:1, A:2	90
32	E075800	Communication [nl] Leen Pollefliet -- Department of Information Technology	3		A:1	90

2.2.1.3 Elective Courses Ghent University

[Subscribe to no more than 12 credit units from Elective Courses Ghent University. Subject to approval by the faculty.](#)

[List of Ghent University Elective Courses](#)

2.2.2 Broadening Elective Courses: Option 2

18 credits

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

2.2.2.1

Subscribe to 18 credit units from the following list, with 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

2.2.2.2

Subscribe to 18 credit units from the following list, with no less than 8 credit units with reference a. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E092623 Modelling of Physiological Systems Patrick Segers -- Department of Electronics and Information Systems	5	a		A:2	150
2	E092662 From Genome to Organism Fransiska Malfait -- Department of Biomolecular Medicine	3	a		A:1	90
3	E074011 Quantitative Cell and Tissue Analysis Andre Skirtach -- Department of Biotechnology	6	a		A:1	180
4	E063671 Biomaterials and Tissue Engineering Peter Dubrueel -- Department of Organic Chemistry	5			A:1	150
5	E063682 Biomechanics Charlotte Debbaut -- Department of Electronics and Information Systems	6			A:1	180
6	E010371 Medical Imaging Stefaan Vandenberghie -- Department of Electronics and Information Systems	6			A:1	180

2.2.2.3

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	I002700 Clean Technology 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 Jeroen Beeckman -- 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

3 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 2025-2026	f: annually, from 2026-2027	i: annually, from 2027-2028
b: tri-annually	d: bi-annually, from 2025-2026	g: bi-annually, from 2026-2027	j: bi-annually, from 2027-2028
	e: tri-annually, from 2025-2026	h: tri-annually, from 2026-2027	k: tri-annually, from 2027-2028