

Faculty of Engineering and Architecture  
Master of Science in Chemical Engineering

Language of instruction: English

Programme version 13

## 1 General Courses 66 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E071200 Unit Operations in Chemical Industry <i>Geraldine Heynderickx -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: unknown</a>	6		1	B:1	180
2	E071131 Sustainable Chemical Production Processes <i>Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: unknown</a>	6		1	A:1	180
3	E068900 Structure and Dynamics of Polymers <i>Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	6		1	B:1	180
4	E048500 Thermal Machines <i>Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering</i> <a href="#">Indicative price: € 0</a>	6		1		180
5	E072110 Chemical Reactors: Fundamentals and Applications <i>Paul Van Steenberghe -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	6		1	B:2	180
6	E073760 Chemical Process Design <i>Georgios Bellas -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: unknown</a>	6		1	B:2	180
7	E071170 Process Control <i>Dana Copot -- Department of Electromechanical, Systems and Metal Engineering</i> <a href="#">Indicative price: € 0</a>	6		1	A:2	180
8	E071140 Catalysis and Kinetics <i>Mark Saeys -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	6		1	A:2	180
9	E073720 Industrial Project <i>Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: unknown</a>	6		2	B:1	180
10	E072302 Safety, Health and Environmental Management <i>Paul Van Steenberghe -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	3		2	A:2	90
11	E071190 Process Intensification <i>Yi Ouyang -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	3		2	A:2	90
12	E028700 Thermal Installations <i>Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering</i> <a href="#">Indicative price: € 50</a>	6		1	A:1	180

## 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	E073770 Process Safety: Reactor Technology, Intrinsic Hazards and Process Safety Hazard Analysis <i>Paul Van Steenberghe -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	3				90
2	E021525 Statistical Physics [nl] <i>Louis Vanduyfhuys -- Department of Applied Physics</i> <a href="#">Indicative price: € 7</a>	3			A:2	90
3	E071230 Advanced Catalysts Characterisation <a href="#">Indicative price: € 0</a>	3			A:2	90
4	E064950 Polymer Reaction Engineering <i>Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	6			A:2	180
5	E074200 Kinetic Modelling and Simulation <i>Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: unknown</a>	6			A:1	180
6	E071181 Chemistry of Industrial Processes <a href="#">Indicative price: € 0</a>	6			B:2	180
7	E071341 Molecular Modelling of Industrial Processes <i>Veronique Van Speybroeck -- Department of Applied Physics</i> <a href="#">Indicative price: € 0</a>	6			A:2	180
8	E040533 Computational Fluid Dynamics in Chemical Technology <i>Geraldine Heynderickx -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: unknown</a>	3			A:2	90

## 2.2 Broadening Elective Courses

18 credits

Subscribe to at most 18 credit units from no less than 1 and no more than 9 modules from the following list. Subject to approval by the faculty.

### 2.2.1 Cluster Analytical Chemistry

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I003079 Chemical Structure Determination <i>Christian Stevens -- Department of Green Chemistry and Technology</i> <a href="#">Indicative price: € 20</a>	4			A:1	120
2	E070650 Advanced Instrumental Techniques for Chemical Analysis <i>Laszlo Vincze -- Department of Chemistry</i> <a href="#">Indicative price: unknown</a>	3			A:1	90
3	C004159 Advanced X-ray Spectroscopy <i>Laszlo Vincze -- Department of Chemistry</i> <a href="#">Indicative price: € 8</a>	3			A:2	90
4	C004157 Principle and Applications of Stable Isotope Analysis <i>Frank Vanhaecke -- Department of Chemistry</i> <a href="#">Indicative price: € 0</a>	3			A:2	90

### 2.2.2 Cluster Artificial Intelligence

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E016350 Artificial Intelligence <i>Aleksandra Pizurica -- Department of Telecommunications and Information Processing</i> <a href="#">Indicative price: € 75</a>	3			B:2	90
2	E061330 Machine Learning <i>Joni Dambre -- Department of Electronics and Information Systems</i> <a href="#">Indicative price: € 0</a>	6			B:1	180
3	E045240 Computational Fluid Dynamics <i>Joris Degroote -- Department of Electromechanical, Systems and Metal Engineering</i> <a href="#">Indicative price: € 75</a>	6				180
4	I001280 Experimental Design <i>Stijn Luca -- Department of Data Analysis and Mathematical Modelling</i> <a href="#">Indicative price: € 15</a>	3			A:2	75
5	E005220 Linear Systems <i>Gert De Cooman -- Department of Electronics and Information Systems</i> <a href="#">Indicative price: € 0</a>	6			A:1	180

### 2.2.3 Cluster Energy Engineering

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E051540 Explosions and Industrial Fire Safety <i>Filip Verplaetsen -- Department of Structural Engineering and Building Materials</i> <a href="#">Indicative price: unknown</a>	6			A:1	180
2	E045930 Modelling of Turbulence and Combustion <i>Alexander Snegirev -- Department of Structural Engineering and Building Materials</i> <a href="#">Indicative price: unknown</a>	3			A:1	90
3	E038320 Nuclear Reactor Technology <i>Matthias Vanderhaegen -- Department of Electromechanical, Systems and Metal Engineering</i> <a href="#">Indicative price: unknown</a>	6				180
4	E035421 Sustainable Energy <i>Jan Mertens -- Department of Electromechanical, Systems and Metal Engineering</i> <a href="#">Indicative price: unknown</a>	3			A:1	90
5	E039110 Technical Thermodynamics [nl] <i>Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering</i> <a href="#">Indicative price: € 50</a>	6			A:1	180

### 2.2.4 Cluster Environmental Engineering

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004164 Chemical Risk Assessment <i>Marc Elskens -- Vrije Universiteit Brussel</i> <a href="#">Indicative price: unknown</a>	3			A:2	90
2	I690011 End-of-Life Management of Packaging <a href="#">Indicative price: € 0</a>	5				150
3	I002752 Advanced Wastewater Treatment Process Design <i>Eveline Volcke -- Department of Green Chemistry and Technology</i> <a href="#">Indicative price: € 0</a>	3			A:1	90
4	I003060 Sustainable Systems Engineering <i>Sophie Huysveld -- Department of Green Chemistry and Technology</i> <a href="#">Indicative price: € 0</a>	5			A:1	150
5	I002754 Environmental Chemistry: Organic Polluents [nl] <i>Christophe Walgraeve -- Department of Green Chemistry and Technology</i> <a href="#">Indicative price: € 105</a>	3			A:1	90
6	C002275 Environmental Law [nl] <i>Hendrik Schoukens -- Department of European, Public and International Law</i> <a href="#">Indicative price: € 0</a>	5			A:1	125
7	I002682 Environmental Technology: Air [nl] <i>Christophe Walgraeve -- Department of Green Chemistry and Technology</i> <a href="#">Indicative price: € 70</a>	5			A:1	150
8	I002683 Environmental Technology: Soil [nl] <i>Ellen Van De Vijver -- Department of Environment</i> <a href="#">Indicative price: € 0</a>	5			A:1	150
9	I002507 Environmental Technology: Solid Waste Streams [nl] <i>Frederik Ronsse -- Department of Green Chemistry and Technology</i> <a href="#">Indicative price: € 0</a>	4			A:2	120
10	I002679 Green Chemistry of Renewable Resources <i>Sven Mangelinckx -- Department of Green Chemistry and Technology</i> <a href="#">Indicative price: € 12</a>	4			A:1	120
11	E065472 Metal Extraction and Recycling [en, nl] <i>Inge Bellemans -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	6			A:2, B:2	180
12	I002677 Thermochemical Conversion of Biomass [nl] <i>Stef Ghysels -- Department of Green Chemistry and Technology</i> <a href="#">Indicative price: € 0</a>	4			A:2	120

### 2.2.5 Cluster Materials and Nanochemistry

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C002965 Advanced Polymer Chemistry <i>Filip Du Prez -- Department of Organic Chemistry</i>	3			A:1	75

		<a href="#">Indicative price: unknown</a>			
2	C004155	Analytical Methods for Material Characterization <i>Mieke Adriaens -- Department of Chemistry</i> <a href="#">Indicative price: € 0</a>	9	A:1	270
3	E066662	Environmentally Assisted Degradation of Materials [nl, en] <i>Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 10</a>	6	B:2, A:2	180
4	C004145	Functional Ceramics <i>Klaartje De Buysser -- Department of Chemistry</i> <a href="#">Indicative price: € 7</a>	4	A:2	110
5	C004141	Materials Physics <i>Zeger Hens -- Department of Chemistry</i> <a href="#">Indicative price: € 0</a>	6	A:1	180
6	E065340	Micro-analysis and Structure Determination in Materials Science <i>Hossein Beladi -- Department of Electromechanical, Systems and Metal Engineering</i> <a href="#">Indicative price: unknown</a>	6	A:2	180
7	C004140	Nanomaterials Chemistry <i>Klaartje De Buysser -- Department of Chemistry</i> <a href="#">Indicative price: € 100</a>	6	A:1	180
8	E064961	Polymer Processing and Circularity <i>Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	6	A:2	180
9	C004142	Surface Topology, Internal Structure and Composition <i>Mieke Adriaens -- Department of Chemistry</i> <a href="#">Indicative price: € 0</a>	6	A:1	180
10	E064761	Textile Functionalization <i>Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	6	A:2	180
11	C004144	Topics in Nanoscience <i>Pieter Geiregat -- Department of Chemistry</i> <a href="#">Indicative price: € 0</a>	4	A:2	120
12	E024730	Complex Materials and Rheology <i>Flavio Marchesini de Oliveira -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: unknown</a>	6	A:2	180

## 2.2.6 Cluster Operations Management

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> <a href="#">Indicative price: € 0</a>	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> <a href="#">Indicative price: € 60</a>	6		A:1	180
3	E076820	Project Management <i>Mario Vanhoucke -- Department of Business Informatics and Operations Management</i> <a href="#">Indicative price: € 75</a>	6		A:2	180
4	E060240	Quality Engineering and Industrial Statistics [nl, en] <i>Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design</i> <a href="#">Indicative price: € 50</a>	6		B:2, A:2	180

## 2.2.7

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E099400	Research Internship <i>Patrick Segers -- Department of Electronics and Information Systems</i> <a href="#">Indicative price: unknown</a>	6		A:J	180
2	E099400	Research Internship <i>Patrick Segers -- Department of Electronics and Information Systems</i> <a href="#">Indicative price: unknown</a>	3		B:J	90

## 2.2.8 Elective Social Courses

Nr	Course	CRDT	Ref	MT1	Session	Study
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1	E099300	Industry Internship Engineering and Architecture [en, nl] <i>Patrick Segers -- Department of Electronics and Information Systems</i> <a href="#">Indicative price: unknown</a>	6		A:J	180
2	E098010	Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i> <a href="#">Indicative price: € 50</a>	6		A:J	180
3	E098010	Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i> <a href="#">Indicative price: € 50</a>	3		B:J	90
4	E037810	Safety of Electrical and Mechanical Installations [nl] <i>Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering</i> <a href="#">Indicative price: € 30</a>	3		A:2	90
5	E039060	Sustainable Energy and Rational Use of Energy <i>Filip Strubbe -- Department of Electronics and Information Systems</i> <a href="#">Indicative price: € 7</a>	4		A:2	120
6	E078310	Sustainable Use of Materials: Metals [nl] <i>Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 8</a>	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> <a href="#">Indicative price: € 15</a>	3		A:2	90
8	E078010	Technology and Environment <i>Luc Martens -- Department of Information Technology</i> <a href="#">Indicative price: € 0</a>	3		A:1	90
9	E078752	Water and Air Quality Management <i>Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering</i> <a href="#">Indicative price: € 0</a>	4		A:2	120
10	E092100	Biosystems [nl] <i>Pascal Verdonck -- Department of Electronics and Information Systems</i> <a href="#">Indicative price: unknown</a>	3		A:1	90
11	E075310	Ethics, Engineering and Society [nl] <i>Seppe Segers -- Department of Philosophy and Moral Sciences</i> <a href="#">Indicative price: unknown</a>	3		A:2	90
12	C004009	History and Philosophy of Sciences [nl] <i>Maarten Van Dyck -- Department of Philosophy and Moral Sciences</i> <a href="#">Indicative price: € 0</a>	3		B:2	90
13	E076320	The Information Society and ICT [nl] <i>Erik Mannens -- Department of Electronics and Information Systems</i> <a href="#">Indicative price: unknown</a>	3		A:2	90
14	A001900	Introduction to Psychology [nl] <i>Wim Notebaert -- Department of Experimental Psychology</i> <a href="#">Indicative price: unknown</a>	3		A:1	90
15	H001977	Coaching and Diversity [nl] <i>Elisabeth De Schauwer -- Department of Special Education</i> <a href="#">Indicative price: € 0</a>	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> <a href="#">Indicative price: € 0</a>	6	UKV	A:1	180
17	F001021	Basic Entrepreneurship [nl] <i>Evy Van Lancker -- Department of Marketing, Innovation and Organisation</i> <a href="#">Indicative price: € 0</a>	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> <a href="#">Indicative price: unknown</a>	3		A:1	90
19	F001022	Dare to Venture <i>Johan Verrue -- Department of Marketing, Innovation and Organisation</i> <a href="#">Indicative price: unknown</a>	4		A:2	120
20	E076471	Dare to Start <i>Wouter Haerick -- Department of Information Technology</i> <a href="#">Indicative price: unknown</a>	3		A:2	90

21	E076621	Principles of Law and Construction Law [nl] <i>Jelle Laverge -- Department of Architecture and Urban Planning</i> <a href="#">Indicative price: € 341</a>	3		A:1	90
22	E076951	Engineering Economy <i>Sofie Verbrugge -- Department of Information Technology</i> <a href="#">Indicative price: € 60</a>	6		A:1	180
23	F001020	Introduction to Entrepreneurship <i>Petra Andries -- Department of Marketing, Innovation and Organisation</i> <a href="#">Indicative price: € 33</a>	3		A:1	90
24	H002476	Powerful Learning Environments [nl] <i>Bram De Wever -- Department of Educational Studies</i> <a href="#">Indicative price: € 50</a>	6		A:1	180
25	H002477	The Teacher within Class, School and Society [nl] <i>Melissa Tuytens -- Department of Educational Studies</i> <a href="#">Indicative price: € 50</a>	6		A:2	180
26	H002478	The Student: Development and Motivation [nl] <i>Wim Beyers -- Department of Developmental, Personality and Social Psychology</i> <a href="#">Indicative price: € 75</a>	6		A:1	180
27	F000083	Macroeconomics [nl] <i>Freddy Heylen -- Department of Economics</i> <a href="#">Indicative price: € 65</a>	6		A:1	180
28	H001010	Introduction Industrial Psychology [nl] <i>Bart Wille -- Department of Developmental, Personality and Social Psychology</i> <a href="#">Indicative price: € 55</a>	5		C:1	150
29	F000551	Business Skills <i>Mieke Audenaert -- Department of Marketing, Innovation and Organisation</i> <a href="#">Indicative price: € 46</a>	4		C:2	120
30	A003001	Academic English <i>Geert Jacobs -- Department of Linguistics</i> <a href="#">Indicative price: € 0</a>	3	UKV	B:1, A:2	90
31	E075800	Communication [nl] <i>Leen Pollefliet -- Department of Information Technology</i> <a href="#">Indicative price: € 68</a>	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> <a href="#">Indicative price: € 0</a>	3		A:1	90

## 2.2.9 Elective Courses Ghent University

### 3 Master's Dissertation 24 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E091103 Master's Dissertation <a href="#">Indicative price: unknown</a>	24		2	B:J	720

## Programme related study costs

None

## 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 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

## Learning materials

The prices stated are indicative and subject to fluctuations.

The list of learning materials per course unit can be found in the course sheets.