GHENT UNIVERSITY

Study Programme

Academic year 2025-2026

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 *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	E048500	Thermal Machines *Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering*	6		1		180
5	E072110	Chemical Reactors: Fundamentals and Applications *Paul Van Steenberge -- Department of Materials, Textiles and Chemical Engineering*	6		1	B:2	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 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 Steenberge -- 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
12	E028700	Thermal Installations *Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering*	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 *Paul Van Steenberge -- Department of Materials, Textiles and Chemical Engineering*	3				90
2	E021525	Statistical Physics [nl]	3			A:2	90
3	E071230	Advanced Catalysts Characterisation *Vladimir Galvita -- Department of Materials, Textiles and Chemical Engineering*	3			A:2	90
4	E064950	Polymer Reaction Engineering *Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering*	6			A:2	180
5	E074200	Kinetic Modelling and Simulation *Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering*	6			A:1	180

6	E071181	Chemistry of Industrial Processes *Maarten Sabbe -- Department of Materials, Textiles and Chemical Engineering*	6	B:2	180
7	E071341	Molecular Modelling of Industrial Processes *Veronique Van Speybroeck -- Department of Applied Physics*	6	A:2	180
8	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 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 *Christian Stevens -- 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	C004159	Advanced X-ray Spectroscopy *Laszlo Vincze -- Department of Chemistry*	3			A:2	90
4	C004157	Principle and Applications of Stable Isotope Analysis *Frank Vanhaecke -- Department of Chemistry*	3			A:2	90

2.2.2 Cluster Artificial Intelligence

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

2.2.3 Cluster Energy Engineering

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E051540	Explosions and Industrial Fire Safety *Filip Verplaetsen -- Department of Structural Engineering and Building Materials*	6			A:1	180
2	E045930	Modelling of Turbulence and Combustion *Alexander Snegirev -- Department of Structural Engineering and Building Materials*	3			A:1	90
3	E038320	Nuclear Reactor Technology *Matthias Vanderhaegen -- Department of Electromechanical, Systems and Metal Engineering*	6			(A:2)[d]	180
4	E035421	Sustainable Energy *Jan Mertens -- Department of Electromechanical, Systems and Metal Engineering*	3			A:1	90
5	E039110	Technical Thermodynamics [nl] *Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering*	6			A:1	180

2.2.4 Cluster Environmental Engineering

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004164	Chemical Risk Assessment *Vrije Universiteit Brussel, Marc Elskens*	3			A:2	90
2	I690011	End-of-Life Management of Packaging *Steven De Meester -- Department of Green Chemistry and Technology*	5			A:J	150
3	I002752	Advanced Wastewater Treatment Process Design *Eveline Volcke -- Department of Green Chemistry and Technology*	3			A:1	90
4	I003060	Sustainable Systems Engineering *Sophie Huysveld -- Department of Green Chemistry and Technology*	5			A:1	150
5	I002754	Environmental Chemistry: Organic Polluents [nl] *Christophe Walgraeve -- Department of Green Chemistry and Technology*	3			A:1	90

6	C002275	Environmental Law [nl] *Hendrik Schoukens -- Department of European, Public and International Law*	5		A:1	125
7	I002682	Environmental Technology: Air [nl] *Christophe Walgraeve -- Department of Green Chemistry and Technology*	5		A:1	150
8	I002683	Environmental Technology: Soil [nl] *Ellen Van De Vijver -- Department of Environment*	5		A:1	150
9	I002507	Environmental Technology: Solid Waste Streams [nl] *Frederik Ronsse -- Department of Green Chemistry and Technology*	4		A:2	120
10	I002679	Green Chemistry of Renewable Resources *Sven Mangelinckx -- Department of Green Chemistry and Technology*	4		A:1	120
11	E065472	Metal Extraction and Recycling [en, nl] *Inge Bellemans -- Department of Materials, Textiles and Chemical Engineering*	6		A:2, B:2	180
12	I002677	Thermochemical Conversion of Biomass [nl] *Stef Ghysels -- Department of Green Chemistry and Technology*	4		A:2	120

2.2.5 Cluster Materials and Nanochemistry

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C002965	Advanced Polymer Chemistry *Filip Du Prez -- Department of Organic Chemistry*	3			A:1	75
2	C004155	Analytical Methods for Material Characterization *Mieke Adriaens -- Department of Chemistry*	9			A:1	270
3	E066662	Environmentally Assisted Degradation of Materials [nl, en] *Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering*	6			B:2, A:2	180
4	C004145	Functional Ceramics *Klaartje De Buysser -- Department of Chemistry*	4			A:2	110
5	C004141	Materials Physics *Zeger Hens -- Department of Chemistry*	6			A:1	180
6	E065340	Micro-analysis and Structure Determination in Materials Science [en, nl] *Roumen Petrov -- Department of Electromechanical, Systems and Metal Engineering*	6			A:2, B:2	180
7	C004140	Nanomaterials Chemistry *Klaartje De Buysser -- Department of Chemistry*	6			A:1	180
8	E064961	Polymer Processing and Circularity *Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering*	6			A:2	180
9	C004142	Surface Topology, Internal Structure and Composition *Mieke Adriaens -- Department of Chemistry*	6			A:1	180
10	E064761	Textile Functionalization *Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering*	6			A:2	180
11	C004144	Topics in Nanoscience *Pieter Geiregat -- Department of Chemistry*	4			A:2	120
12	E024730	Complex Materials and Rheology *Flavio Marchesini de Oliveira -- Department of Materials, Textiles and Chemical Engineering*	6			A:2	180

2.2.6 Cluster Operations Management

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	E076820	Project Management *Mario Vanhoucke -- Department of Business Informatics and Operations Management*	6			A:2	180
4	E060240	Quality Engineering and Industrial Statistics *Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design*	6			A:2	180

2.2.7

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

2.2.8 Elective Social Courses

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 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

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	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