GHENT UNIVERSITY

Study Programme

Academic year 2026-2027

Faculty of Engineering and Architecture

Master of Science in Chemical Engineering

Language of instruction: Dutch

Programme version 18

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	A:1	180
2	E071131	Sustainable Chemical Production Processes *Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering*	6		1	B:1	180
3	E068900	Structure and Dynamics of Polymers *Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering*	6		1	A:1	180
4	E072110	Chemical Reactors: Fundamentals and Applications *Paul Van Steenberge -- Department of Materials, Textiles and Chemical Engineering*	6		1	A:1	180
5	E028700	Thermal Installations *Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering*	6		1	B:2	180
6	E073760	Chemical Process Design *Georgios Bellos -- Department of Materials, Textiles and Chemical Engineering*	6		1	A:2	180
7	E071140	Catalysis and Kinetics *Mark Saeys -- Department of Materials, Textiles and Chemical Engineering*	6		1	B:2	180
8	E071170	Process Control [en] *Dana Copot -- Department of Electromechanical, Systems and Metal Engineering*	6		1	A:2	180
9	E073720	Industrial Project *Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering*	6		2	A:1	180
10	E072303	Safety, Health, Environment and Quality in the Chemical Industry [en, nl] *Paul Van Steenberge -- Department of Materials, Textiles and Chemical Engineering*	3		2	B:2	90
11	E071190	Process Intensification [en] *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.

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 [en] *Paul Van Steenberge -- Department of Materials, Textiles and Chemical Engineering*	3			A:1	90
2	E021525	Statistical Physics *Louis Vanduyfhuys -- Department of Applied Physics*	3			A:2	90
3	E071230	Advanced Catalysts Characterisation [en] *Hilde Poelman -- Department of Materials, Textiles and Chemical Engineering*	3			A:1	90
4	E064950	Polymer Reaction Engineering *Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering*	6			B:2	180
5	E074200	Kinetic Modelling and Simulation [en] *Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering*	6			A:1	180
6	E071181	Chemistry of Industrial Processes [en]	6			B:2	180

7	E071341	Molecular Modelling of Industrial Processes [en] *Veronique Van Speybroeck -- Department of Applied Physics*	6		A:2	180
8	E040533	Computational Fluid Dynamics in Chemical Technology [en] *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 [en] *Christian Stevens -- Department of Green Chemistry and Technology*	4			A:1	120
2	E070650	Advanced Instrumental Techniques for Chemical Analysis [en] *Laszlo Vincze -- Department of Chemistry*	3			A:1	90
3	C004159	Advanced X-ray Spectroscopy [en] *Laszlo Vincze -- Department of Chemistry*	3			A:2	90
4	C004157	Principle and Applications of Stable Isotope Analysis [en] *Pascal Boeckx -- Department of Green Chemistry and Technology*	3			A:2	90

2.2.2 Cluster Artificial Intelligence and Computational Techniques

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E016350	Artificial Intelligence [en] *Aleksandra Pizurica -- Department of Telecommunications and Information Processing*	3			B:2	90
2	E061331	Machine Learning: Learning from Data [en] *Joni Dambre -- Department of Electronics and Information Systems*	6			A:1	180
3	I001280	Experimental Design [en] *Stijn Luca -- Department of Data Analysis and Mathematical Modelling*	3			A:2	75
4	E005220	Linear Systems [en] *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 [en] *Filip Verplaetsen -- Department of Structural Engineering and Building Materials*	6			A:1	180
2	E045930	Modelling of Turbulence and Combustion [en] *Bart Merci -- Department of Structural Engineering and Building Materials*	3			A:1	90
3	E038321	Nuclear Reactor Technology [en] *Matthias Vanderhaegen -- Department of Electromechanical, Systems and Metal Engineering*	3			A:2	90
4	E035421	Sustainable Energy [en] *Jan Mertens -- Department of Electromechanical, Systems and Metal Engineering*	3			A:2	90
5	E039110	Technical Thermodynamics *Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering*	6			A:1	180
6	E073771	Sustainable Technology Transition in the Antwerp Industry	3				90

2.2.4 Cluster Environmental Engineering

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004164	Chemical Risk Assessment [en] *Marc Elskens -- Vrije Universiteit Brussel*	3			A:2	90
2	I002752	Advanced Wastewater Treatment Process Design [en] *Eveline Volcke -- Department of Green Chemistry and Technology*	3			A:1	90
3	I003060	Sustainable Systems Engineering [en] *Jo Dewulf -- Department of Green Chemistry and Technology*	5			A:1	150
4	I002754	Environmental Chemistry: Organic Polluents *Christophe Walgraeve -- Department of Green Chemistry and Technology*	3			A:1	90
5	C002275	Environmental Law *Hendrik Schoukens -- Department of European, Public and International Law*	5			A:1	125
6	I002682	Environmental Technology: Air *Christophe Walgraeve -- Department of Green Chemistry and Technology*	5			A:1	150

7	I002683	Environmental Technology: Soil *Ellen Van De Vijver -- Department of Environment*	5			A:1	150
8	I002507	Environmental Technology: Solid Waste Streams *Steven De Meester -- Department of Green Chemistry and Technology*	4			A:2	120
9	E065472	Metal Extraction and Recycling *Inge Bellemans -- Department of Materials, Textiles and Chemical Engineering*	6			B:2	180
10	I002677	Thermochemical Conversion of Biomass *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 [en] *Filip Du Prez -- Department of Organic Chemistry*	3			A:1	75
2	C004155	Analytical Methods for Material Characterization [en] *Mieke Adriaens -- Department of Chemistry*	9			A:1	270
3	E066662	Environmentally Assisted Degradation of Materials *Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering*	6			B:2	180
4	C004145	Functional Ceramics [en] *Klaartje De Buysser -- Department of Chemistry*	4			A:2	110
5	C004141	Materials Physics [en] *Zeger Hens -- Department of Chemistry*	6			A:1	180
6	E065340	Micro-analysis and Structure Determination in Materials Science [en] *Hossein Beladi -- Department of Electromechanical, Systems and Metal Engineering*	6			A:2	180
7	C004140	Nanomaterials Chemistry [en] *Iwan Moreels -- Department of Chemistry*	6			A:1	180
8	E064961	Polymer Processing and Circularity [en] *Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering*	6			A:2	180
9	C004142	Surface Topology, Internal Structure and Composition [en] *Mieke Adriaens -- Department of Chemistry*	6			A:1	180
10	E064761	Textile Functionalization [en] *Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering*	6			A:2	180
11	C004144	Topics in Nanoscience [en] *Pieter Geiregat -- Department of Chemistry*	4			A:2	120
12	E024730	Complex Materials and Rheology [en] *Flavio Marchesini de Oliveira -- Department of Materials, Textiles and Chemical Engineering*	6			A:2	180
13	E900069	Composites [en] *Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering*	6			A:1	180

2.2.6 Cluster Operations Management

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E076221	Manufacturing Planning and Control [en] *Birger Raa -- Department of Industrial Systems Engineering and Product Design*	6	a		A:1	180
2	E004255	Operations Research Models and Methods [en] *El-Houssaine Aghezzaf -- Department of Industrial Systems Engineering and Product Design*	6			A:1	180
3	F000707	Project Management [en] *Mario Vanhoucke -- Department of Business Informatics and Operations Management*	6			B:2	180
4	E060240	Quality Engineering and Industrial Statistics *Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design*	6			B:2	180
5	E773770	Maintenance and Shutdown in the Process Industry [en] *Paul Van Steenberge -- Department of Materials, Textiles and Chemical Engineering*	3			A:1	90

2.2.7 Cluster Research Internship

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E099400	Research Internship [en] *Patrick Segers -- Department of Electronics and Information Systems*	6			A:J	180
2	E099400	Research Internship [en] *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 *Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering*	3			A:2	90
5	E039060	Sustainable Energy and Rational Use of Energy [en] *Filip Strubbe -- Department of Electronics and Information Systems*	4			A:2	120
6	E078310	Sustainable Use of Materials: Metals *Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering*	3			A:1	90
7	E078320	Sustainable Use of Materials: Plastics and Derived Materials *Lode Daelemans -- Department of Materials, Textiles and Chemical Engineering*	3			A:2	90
8	E078010	Technology and Environment [en] *Luc Martens -- Department of Information Technology*	3			A:1	90
9	E078752	Water and Air Quality Management [en] *Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering*	4			A:2	120
10	E092100	Biosystems *Pascal Verdonck -- Department of Electronics and Information Systems*	3			A:1	90
11	E075310	Ethics, Engineering and Society *Seppe Segers -- Department of Philosophy and Moral Sciences*	3			A:2	90
12	C004009	History and Philosophy of Sciences *Maarten Van Dyck -- Department of Philosophy and Moral Sciences*	3			B:2	90
13	E076321	Digital Innovation for People and Society *Erik Mannens -- Department of Electronics and Information Systems*	3			A:2	90
14	A001900	Introduction to Psychology *Wim Notebaert -- Department of Experimental Psychology*	3			A:1	90
15	H001977	Coaching and Diversity *Elisabeth De Schauwer -- Department of Special Education*	3	UKV		A:J	90
16	A005503	Context and Nuance. A Critical Reflection on Current Topics *July De Wilde -- Department of Translation, Interpreting and Communication*	6	UKV		A:1	180
17	F001021	Basic Entrepreneurship *Evy Van Lancker -- Department of Marketing, Innovation and Organisation*	3	UKV		A:1	90
18	A005646	Introduction to Business Law *Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law*	3			A:1	90
19	F001022	Dare to Venture [en] *Johan Verrue -- Department of Marketing, Innovation and Organisation*	4			A:2	120
20	E076471	Dare to Start [en] *Wouter Haerick -- Department of Information Technology*	3			A:2	90
21	E076621	Principles of Law and Construction Law *Jelle Laverge -- Department of Architecture and Urban Planning*	3			A:1	90
22	E076951	Engineering Economy [en] *Sofie Verbrugge -- Department of Industrial Systems Engineering and Product Design*	6			A:1	180
23	F001020	Introduction to Entrepreneurship [en] *Petra Andries -- Department of Marketing, Innovation and Organisation*	3			A:1	90
24	H002476	Powerful Learning Environments *Bram De Wever -- Department of Educational Studies*	6			A:1	180
25	H002477	The Teacher within Class, School and Society *Melissa Tuytens -- Department of Educational Studies*	6			A:2	180
26	H002478	The Student: Development and Motivation *Wim Beyers -- Department of Developmental, Personality and Social Psychology*	6			A:1	180
27	F000083	Macroeconomics *Freddy Heylen -- Department of Economics*	6			A:1	180
28	H002668	Introduction Industrial Psychology *Bart Wille -- Department of Developmental, Personality and Social Psychology*	4			A:1	120

29	F000551	Business Skills [en] *Mieke Audenaert -- Department of Marketing, Innovation and Organisation*	4			C:2	120
30	A003001	Academic English [en] *Geert Jacobs -- Department of Linguistics*	3	UKV		B:1, A:2	90
31	E037830	Basics of Health and Safety at Work for Engineers *Sofie Van Volsem -- Department of Industrial Systems Engineering and Product Design*	3			A:1	90

2.2.9 Elective Courses Ghent University

Credits to be selected from the UGent study programs or university-wide electives. Subject to approval by the faculty.
List of Ghent University Elective Courses

3 Master's Dissertation 24 credits

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