

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> Indicative price: unknown | 6 | | 1 | B:1 | 180 |
| 2 | E071131 Sustainable Chemical Production Processes <i>Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: unknown | 6 | | 1 | A:1 | 180 |
| 3 | E068900 Structure and Dynamics of Polymers <i>Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 6 | | 1 | B:1 | 180 |
| 4 | E048500 Thermal Machines <i>Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering</i> Indicative price: € 0 | 6 | | 1 | | 180 |
| 5 | E072110 Chemical Reactors: Fundamentals and Applications <i>Paul Van Steenberghe -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 6 | | 1 | B:2 | 180 |
| 6 | E073760 Chemical Process Design <i>Georgios Bellas -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: unknown | 6 | | 1 | B:2 | 180 |
| 7 | E071170 Process Control <i>Clara Ionescu -- Department of Electromechanical, Systems and Metal Engineering</i> Indicative price: € 0 | 6 | | 1 | A:2 | 180 |
| 8 | E071140 Catalysis and Kinetics <i>Mark Saeys -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 6 | | 1 | A:2 | 180 |
| 9 | E073720 Industrial Project <i>Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: unknown | 6 | | 2 | B:1 | 180 |
| 10 | E072302 Safety, Health and Environmental Management <i>Paul Van Steenberghe -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 3 | | 2 | A:2 | 90 |
| 11 | E071190 Process Intensification <i>Yi Ouyang -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 3 | | 2 | A:2 | 90 |
| 12 | E028700 Thermal Installations <i>Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering</i> Indicative price: € 50 | 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> Indicative price: € 0 | 3 | | | | 90 |
| 2 | E021525 Statistical Physics [nl] <i>Louis Vanduyfhuys -- Department of Applied Physics</i> Indicative price: € 7 | 3 | | | A:2 | 90 |
| 3 | E071230 Advanced Catalysts Characterisation <i>Vladimir Galvita -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 3 | | | A:2 | 90 |
| 4 | E064950 Polymer Reaction Engineering <i>Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 6 | | | A:2 | 180 |
| 5 | E074200 Kinetic Modelling and Simulation <i>Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: unknown | 6 | | | A:1 | 180 |
| 6 | E071181 Chemistry of Industrial Processes <i>Vladimir Galvita -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 6 | | | B:2 | 180 |
| 7 | E071341 Molecular Modelling of Industrial Processes <i>Veronique Van Speybroeck -- Department of Applied Physics</i> Indicative price: € 0 | 6 | | | A:2 | 180 |
| 8 | E040533 Computational Fluid Dynamics in Chemical Technology <i>Geraldine Heynderickx -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: unknown | 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> Indicative price: € 20 | 4 | | | A:1 | 120 |
| 2 | E070650 Advanced Instrumental Techniques for Chemical Analysis <i>Laszlo Vincze -- Department of Chemistry</i> Indicative price: unknown | 3 | | | A:1 | 90 |
| 3 | C004159 Advanced X-ray Spectroscopy <i>Laszlo Vincze -- Department of Chemistry</i> Indicative price: € 8 | 3 | | | A:2 | 90 |
| 4 | C004157 Principle and Applications of Stable Isotope Analysis <i>Frank Vanhaecke -- Department of Chemistry</i> Indicative price: € 0 | 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> Indicative price: € 75 | 3 | | | B:2 | 90 |
| 2 | E061330 Machine Learning <i>Joni Dambre -- Department of Electronics and Information Systems</i> Indicative price: € 0 | 6 | | | B:1 | 180 |
| 3 | E045240 Computational Fluid Dynamics <i>Joris Degroote -- Department of Electromechanical, Systems and Metal Engineering</i> Indicative price: € 75 | 6 | | | A:2 | 180 |
| 4 | I001280 Experimental Design <i>Stijn Luca -- Department of Data Analysis and Mathematical Modelling</i> Indicative price: € 15 | 3 | | | A:2 | 75 |
| 5 | E005220 Linear Systems <i>Gert De Cooman -- Department of Electronics and Information Systems</i> | 6 | | | A:1 | 180 |

[Indicative price: € 0](#)

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> Indicative price: unknown | 6 | | | A:1 | 180 |
| 2 | E045930 Modelling of Turbulence and Combustion <i>Alexander Snegirev -- Department of Structural Engineering and Building Materials</i> Indicative price: unknown | 3 | | | A:1 | 90 |
| 3 | E038320 Nuclear Reactor Technology <i>Matthias Vanderhaegen -- Department of Electromechanical, Systems and Metal Engineering</i> Indicative price: unknown | 6 | | | (A:2) ^d | 180 |
| 4 | E035421 Sustainable Energy <i>Jan Mertens -- Department of Electromechanical, Systems and Metal Engineering</i> Indicative price: unknown | 3 | | | A:2 | 90 |
| 5 | E039110 Technical Thermodynamics [nl] <i>Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering</i> Indicative price: € 50 | 6 | | | A:1 | 180 |

2.2.4 Cluster Environmental Engineering

| Nr | Course | CRDT | Ref | MT1 | Session | Study |
|----|--|------|-----|-----|----------|-------|
| 1 | C004164 Chemical Risk Assessment <i>Vrije Universiteit Brussel, Marc Elskens</i> Indicative price: unknown | 3 | | | A:2 | 90 |
| 2 | I690011 End-of-Life Management of Packaging <i>Steven De Meester -- Department of Green Chemistry and Technology</i> Indicative price: € 0 | 5 | | | A:J | 150 |
| 3 | I002752 Advanced Wastewater Treatment Process Design <i>Eveline Volcke -- Department of Green Chemistry and Technology</i> Indicative price: € 0 | 3 | | | A:1 | 90 |
| 4 | I003060 Sustainable Systems Engineering <i>Sophie Huysveld -- Department of Green Chemistry and Technology</i> Indicative price: € 0 | 5 | | | A:1 | 150 |
| 5 | I002754 Environmental Chemistry: Organic Pollutants [nl] <i>Christophe Walgraeve -- Department of Green Chemistry and Technology</i> Indicative price: € 105 | 3 | | | A:1 | 90 |
| 6 | C002275 Environmental Law [nl] <i>Hendrik Schoukens -- Department of European, Public and International Law</i> Indicative price: € 0 | 5 | | | A:1 | 125 |
| 7 | I002682 Environmental Technology: Air [nl] <i>Christophe Walgraeve -- Department of Green Chemistry and Technology</i> Indicative price: € 70 | 5 | | | A:1 | 150 |
| 8 | I002683 Environmental Technology: Soil [nl] <i>Ellen Van De Vijver -- Department of Environment</i> Indicative price: € 0 | 5 | | | A:1 | 150 |
| 9 | I002507 Environmental Technology: Solid Waste Streams [nl] <i>Frederik Ronsse -- Department of Green Chemistry and Technology</i> Indicative price: € 0 | 4 | | | A:2 | 120 |
| 10 | I002679 Green Chemistry of Renewable Resources <i>Sven Mangelinckx -- Department of Green Chemistry and Technology</i> Indicative price: € 12 | 4 | | | A:1 | 120 |
| 11 | E065472 Metal Extraction and Recycling [en, nl] <i>Inge Bellemans -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 6 | | | A:2, B:2 | 180 |
| 12 | I002677 Thermochemical Conversion of Biomass [nl] <i>Stef Ghysels -- Department of Green Chemistry and Technology</i> Indicative price: € 0 | 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> Indicative price: unknown | 3 | | A:1 | 75 |
| 2 | C004155 | Analytical Methods for Material Characterization <i>Mieke Adriaens -- Department of Chemistry</i> Indicative price: € 0 | 9 | | A:1 | 270 |
| 3 | E066662 | Environmentally Assisted Degradation of Materials [nl, en] <i>Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 10 | 6 | | B:2, A:2 | 180 |
| 4 | C004145 | Functional Ceramics <i>Klaartje De Buysser -- Department of Chemistry</i> Indicative price: € 7 | 4 | | A:2 | 110 |
| 5 | C004141 | Materials Physics <i>Zeger Hens -- Department of Chemistry</i> Indicative price: € 0 | 6 | | A:1 | 180 |
| 6 | E065340 | Micro-analysis and Structure Determination in Materials Science [en, nl] Indicative price: unknown | 6 | | A:2, B:2 | 180 |
| 7 | C004140 | Nanomaterials Chemistry <i>Klaartje De Buysser -- Department of Chemistry</i> Indicative price: € 100 | 6 | | A:1 | 180 |
| 8 | E064961 | Polymer Processing and Circularity <i>Dagmar D'hooge -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 6 | | A:2 | 180 |
| 9 | C004142 | Surface Topology, Internal Structure and Composition <i>Mieke Adriaens -- Department of Chemistry</i> Indicative price: € 0 | 6 | | A:1 | 180 |
| 10 | E064761 | Textile Functionalization <i>Karen De Clerck -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 6 | | A:2 | 180 |
| 11 | C004144 | Topics in Nanoscience <i>Pieter Geiregat -- Department of Chemistry</i> Indicative price: € 0 | 4 | | A:2 | 120 |
| 12 | E024730 | Complex Materials and Rheology <i>Flavio Marchesini de Oliveira -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: unknown | 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> Indicative price: € 0 | 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> Indicative price: € 60 | 6 | | A:1 | 180 |
| 3 | E076820 | Project Management <i>Mario Vanhoucke -- Department of Business Informatics and Operations Management</i> Indicative price: € 75 | 6 | | A:2 | 180 |
| 4 | E060240 | Quality Engineering and Industrial Statistics <i>Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design</i> Indicative price: € 50 | 6 | | 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> Indicative price: unknown | 6 | | A:J | 180 |
| 2 | E099400 | Research Internship <i>Patrick Segers -- Department of Electronics and Information Systems</i> Indicative price: unknown | 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] <i>Patrick Segers -- Department of Electronics and Information Systems</i> Indicative price: unknown | 6 | | | A:J | 180 |
| 2 | E098010 Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i> Indicative price: € 50 | 6 | | | A:J | 180 |
| 3 | E098010 Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i> Indicative price: € 50 | 3 | | | B:J | 90 |
| 4 | E037810 Safety of Electrical and Mechanical Installations [nl] <i>Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering</i> Indicative price: € 30 | 3 | | | A:2 | 90 |
| 5 | E039060 Sustainable Energy and Rational Use of Energy <i>Filip Strubbe -- Department of Electronics and Information Systems</i> Indicative price: € 7 | 4 | | | A:2 | 120 |
| 6 | E078310 Sustainable Use of Materials: Metals [nl] <i>Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 8 | 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> Indicative price: € 15 | 3 | | | A:2 | 90 |
| 8 | E078010 Technology and Environment <i>Luc Martens -- Department of Information Technology</i> Indicative price: € 0 | 3 | | | A:1 | 90 |
| 9 | E078752 Water and Air Quality Management <i>Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering</i> Indicative price: € 0 | 4 | | | A:2 | 120 |
| 10 | E092100 Biosystems [nl] <i>Pascal Verdonck -- Department of Electronics and Information Systems</i> Indicative price: unknown | 3 | | | A:1 | 90 |
| 11 | E075310 Ethics, Engineering and Society [nl] <i>Seppe Segers -- Department of Philosophy and Moral Sciences</i> Indicative price: unknown | 3 | | | A:2 | 90 |
| 12 | C004009 History and Philosophy of Sciences [nl] <i>Maarten Van Dyck -- Department of Philosophy and Moral Sciences</i> Indicative price: € 0 | 3 | | | B:2 | 90 |
| 13 | E076320 The Information Society and ICT [nl] <i>Erik Mannens -- Department of Electronics and Information Systems</i> Indicative price: unknown | 3 | | | A:2 | 90 |
| 14 | A001900 Introduction to Psychology [nl] <i>Wim Notebaert -- Department of Experimental Psychology</i> Indicative price: unknown | 3 | | | A:1 | 90 |
| 15 | H001977 Coaching and Diversity [nl] <i>Elisabeth De Schauwer -- Department of Special Education</i> Indicative price: € 0 | 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> Indicative price: € 0 | 6 | UKV | | A:1 | 180 |
| 17 | F001021 Basic Entrepreneurship [nl] <i>Evy Van Lancker -- Department of Marketing, Innovation and Organisation</i> Indicative price: € 0 | 3 | UKV | | A:1 | 90 |
| 18 | A005646 Introduction to Corporate Law [nl] <i>Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law</i> Indicative price: unknown | 3 | | | A:1 | 90 |
| 19 | F001022 Dare to Venture <i>Johan Verrue -- Department of Marketing, Innovation and Organisation</i> Indicative price: unknown | 4 | | | A:2 | 120 |

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|----|---------|---|---|-----|----------|-----|
| 20 | E076471 | Dare to Start <i>Wouter Haerick -- Department of Information Technology</i> Indicative price: unknown | 3 | | A:2 | 90 |
| 21 | E076621 | Principles of Law and Construction Law [nl] <i>Jelle Laverge -- Department of Architecture and Urban Planning</i> Indicative price: € 341 | 3 | | A:1 | 90 |
| 22 | E076951 | Engineering Economy <i>Sofie Verbrugge -- Department of Information Technology</i> Indicative price: € 60 | 6 | | A:1 | 180 |
| 23 | F001020 | Introduction to Entrepreneurship <i>Petra Andries -- Department of Marketing, Innovation and Organisation</i> Indicative price: € 33 | 3 | | A:1 | 90 |
| 24 | H002476 | Powerful Learning Environments [nl] <i>Bram De Wever -- Department of Educational Studies</i> Indicative price: € 50 | 6 | | A:1 | 180 |
| 25 | H002477 | The Teacher within Class, School and Society [nl] <i>Melissa Tuytens -- Department of Educational Studies</i> Indicative price: € 50 | 6 | | A:2 | 180 |
| 26 | H002478 | The Student: Development and Motivation [nl] <i>Wim Beyers -- Department of Developmental, Personality and Social Psychology</i> Indicative price: € 75 | 6 | | A:1 | 180 |
| 27 | F000083 | Macroeconomics [nl] <i>Freddy Heylen -- Department of Economics</i> Indicative price: € 65 | 6 | | A:1 | 180 |
| 28 | H001010 | Introduction Industrial Psychology [nl] <i>Bart Wille -- Department of Developmental, Personality and Social Psychology</i> Indicative price: € 55 | 5 | | C:1 | 150 |
| 29 | F000551 | Business Skills <i>Mieke Audenaert -- Department of Marketing, Innovation and Organisation</i> Indicative price: € 46 | 4 | | C:2 | 120 |
| 30 | A003001 | Academic English <i>Geert Jacobs -- Department of Linguistics</i> Indicative price: € 0 | 3 | UKV | B:1, A:2 | 90 |
| 31 | E075800 | Communication [nl] <i>Leen Pollefliet -- Department of Information Technology</i> Indicative price: € 68 | 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> Indicative price: € 0 | 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 Indicative price: unknown | 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.