GHENT UNIVERSITY

# Study Programme

Academic year 2023-2024

Faculty of Bioscience Engineering

Master of Science in Bioscience Engineering: Environmental Technology

Language of instruction: Dutch

Programme version 15

## 1 General Courses — 60 credits

### 1.1 Environmental Analysis and Diagnostics — 14 credits

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|
| 1 | I002668 | Analytical Inorganic Chemistry: Instrumental Techniques<br>*Gijs Du Laing -- Department of Green Chemistry and Technology* | 3 | | 1 | A:1 | 90 |
| 2 | I002676 | Analysis of Organic Micropollutants<br>*Kristof Demeestere -- Department of Green Chemistry and Technology* | 3 | | 1 | A:2 | 90 |
| 3 | I002535 | Applied Marine Ecology [en]<br>*Colin Janssen -- Department of Animal Sciences and Aquatic Ecology* | 3 | | 1 | A:1 | 90 |
| 4 | I002606 | Environmental Risk Assessment [en]<br>*Karel De Schamphelaere -- Department of Animal Sciences and Aquatic Ecology* | 5 | | 1 | A:1 | 150 |

### 1.2 Environmental Technology and Engineering — 36 credits

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|
| 1 | I002618 | Process Engineering 2 [en]<br>*Paul Van der Meeren -- Department of Green Chemistry and Technology* | 5 | | 1 | A:1 | 150 |
| 2 | I002672 | Process Control [en]<br>*Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling* | 5 | | 1 | A:2 | 150 |
| 3 | I002682 | Environmental Technology: Air<br>*Christophe Walgraeve -- Department of Green Chemistry and Technology* | 5 | | 1 | A:1 | 150 |
| 4 | I002683 | Environmental Technology: Soil<br>*Ellen Van De Vijver -- Department of Environment* | 5 | | 1 | A:1 | 150 |
| 5 | I002607 | Resource Recovery Technology [en]<br>*Ramon Ganigué -- Department of Biotechnology* | 6 | | 1 | A:2 | 180 |
| 6 | I002702 | Clean Technology: Assessment Methods [en]<br>*Sophie Huysveld -- Department of Green Chemistry and Technology* | 3 | | 1 | A:1 | 90 |
| 7 | I002684 | Environmental Constructions in Practice<br>*Eveline Volcke -- Department of Green Chemistry and Technology* | 7 | | 2 | A:J | 210 |

### 1.3 Environmental Legislation and Socio-Economic Aspects — 10 credits

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|
| 1 | I002619 | Management for Engineers [en]<br>*Jeroen Buysse -- Department of Agricultural Economics* | 4 | | 2 | A:1 | 120 |
| 2 | I002685 | Legal Framework for Environmental Technology<br>*Hildegard Deweerdt -- Department of Agricultural Economics* | 6 | | 2 | A:1 | 180 |

## 2 Elective Courses — 30 credits

Subscribe to 30 credit units from the 1 to 5 modules from the following list. Subject to approval by the faculty.
To obtain the minor, all courses listed in that minor have to be taken.

Full-time standard learning track:
Students can choose which of the elective course units are taken in the first respectively the second standard learning track year (unless otherwise specified); in combination with the general course units, students take a total of 54 to 66 credits per standard learning track year. The sum of the total number of credits taken up over the 2 standard learning track years must be 120 credits.

### 2.1 Minor Environmental Coordination

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|
| 1 | F000752 | Environmental Economics and Policy<br>*Brent Bleys -- Department of Economics* | 4 | | | B:2 | 120 |
| 2 | I001439 | Environmental Noise [en]<br>*Timothy Van Renterghem -- Department of Information Technology* | 3 | | | A:1 | 75 |
| 3 | I002716 | Environmental Impact Assessment<br>*Sophie Huysveld -- Department of Green Chemistry and Technology* | 4 | | | A:2 | 120 |
| 4 | I002748 | Environmental Coordination<br>*Hildegard Deweerdt -- Department of Agricultural Economics* | 5 | | | A:2 | 150 |

## 2.2 Master Specific Courses

### 2.2.1 Environmental Diagnostics and Management

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|
| 1 | I002749 | Metals and Metalloids in Environment and Technology [en]<br>*Filip Tack -- Department of Green Chemistry and Technology* | 6 | | | A:1 | 180 |
| 2 | I002750 | Isotopes in Biosciences [en]<br>*Pascal Boeckx -- Department of Green Chemistry and Technology* | 5 | | | A:1 | 150 |
| 3 | I002586 | Multidisciplinary Analysis of Climate Change [en]<br>*Pascal Boeckx -- Department of Green Chemistry and Technology* | 3 | | | A:2 | 90 |
| 4 | I002691 | Nature Conservation<br>*Lander Baeten -- Department of Environment* | 4 | | | A:1 | 120 |
| 5 | I002698 | Water Quality Management [en]<br>*Peter Goethals -- Department of Animal Sciences and Aquatic Ecology* | 4 | | | A:2 | 120 |
| 6 | I002751 | Principles of Quantitative Water Management<br>*Niko Verhoest -- Department of Environment* | 3 | | | A:2 | 90 |
| 7 | I002604 | Oceans and Human Health [en]<br>*Jana Asselman -- Department of Animal Sciences and Aquatic Ecology* | 3 | | | A:1 | 90 |

### 2.2.2 Environmental Technology and Engineering

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|
| 1 | I002608 | Decentralized Sanitation and Treatment Technologies for Developing Economies [en]<br>*Diederik Rousseau -- Department of Green Chemistry and Technology* | 6 | | | A:1 | 180 |
| 2 | I002752 | Advanced Wastewater Treatment Process Design [en]<br>*Eveline Volcke -- Department of Green Chemistry and Technology* | 3 | | | A:1 | 90 |
| 3 | I002599 | Digitalisation for Resource Recovery [en]<br>*Ingmar Nopens -- Department of Data Analysis and Mathematical Modelling* | 5 | | | B:1 | 150 |
| 4 | I002677 | Thermochemical Conversion of Biomass<br>*Frederik Ronsse -- Department of Green Chemistry and Technology* | 4 | | | A:2 | 120 |
| 5 | I002679 | Green Chemistry of Renewable Resources [en]<br>*Sven Mangelinckx -- Department of Green Chemistry and Technology* | 4 | | | A:1 | 120 |
| 6 | I002510 | Reaction Kinetics and Reactor Design<br>*Paul Van der Meeren -- Department of Green Chemistry and Technology* | 5 | | | A:2 | 150 |

### 2.2.3 Multidisciplinary Engineering Tools

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|
| 1 | I002452 | Geographic Information Systems: Basics<br>*Frieke Vancoillie -- Department of Environment* | 3 | | | A:2 | 90 |
| 2 | I002932 | Machine Learning for Life Sciences [en]<br>*Willem Waegeman -- Department of Data Analysis and Mathematical Modelling* | 5 | | | A:1 | 150 |
| 3 | I002636 | Spatio-temporal Models [en]<br>*Jan Baetens -- Department of Data Analysis and Mathematical Modelling* | 5 | | | A:2 | 150 |
| 4 | I002719 | Modelling and Simulation with Partial Differential Equations in Practice [en]<br>*Ingmar Nopens -- Department of Data Analysis and Mathematical Modelling* | 5 | | | A:1 | 150 |
| 5 | I001280 | Experimental Design [en]<br>*Stijn Luca -- Department of Data Analysis and Mathematical Modelling* | 3 | | | A:2 | 75 |

## 2.3 Entrepreneurship and Management

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | I001949 | Entrepreneurship<br>*Petra Andries -- Department of Marketing, Innovation and Organisation* | 3 | | A:2 | 75 |
| 2 | E076460 | Dare to Venture [en]<br>*Johan Verrue -- Department of Marketing, Innovation and Organisation* | 4 | | A:2 | 120 |
| 3 | E076471 | Dare to Start [en]<br>*Frank Gielen -- Department of Information Technology* | 3 | | A:2 | 90 |
| 4 | E076930 | Financial and Cost Price Reporting in Companies<br>*Faculteit Economie en Bedrijfskunde* | 6 | | | 180 |
| 5 | I002720 | Consumer Behaviour and Marketing of Bio-industrial products<br>*Wim Verbeke -- Department of Agricultural Economics* | 5 | | A:2 | 150 |
| 6 | I001967 | Intellectual Property and Valorization [en]<br>*Benedikt Sas -- Department of Food Technology, Safety and Health* | 3 | | A:2 | 90 |
| 7 | C000833 | Project Management<br>*Mario Vanhoucke -- Department of Business Informatics and Operations Management* | 4 | | A:2 | 120 |

## 2.4 Skills and Attitudes

Subscribe to course units from the following list, with no more than 10 credit units with reference a.

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|
| 1 | I002637 | Internship [en, nl]<br>*Paul Van der Meeren -- Department of Green Chemistry and Technology* | 5 | a | | A:J | 150 |
| 2 | I002638 | International Internship [en, nl]<br>*Paul Van der Meeren -- Department of Green Chemistry and Technology* | 5 | a | | A:J | 150 |
| 3 | I002639 | Extended Internship [en, nl]<br>*Paul Van der Meeren -- Department of Green Chemistry and Technology* | 10 | a | | A:J | 300 |
| 4 | I002640 | Extended International Internship [en, nl]<br>*Paul Van der Meeren -- Department of Green Chemistry and Technology* | 10 | a | | A:J | 300 |
| 5 | I001944 | Bio-ethics [en]<br>*Farah Focquaert -- Department of Philosophy and Moral Sciences* | 3 | | | A:1 | 75 |
| 6 | C002668 | Scientific Communication in English [en]<br>*Geert Jacobs -- Department of Linguistics* | 5 | | | A:2 | 150 |
| 7 | I001784 | Seminar [en, nl]<br>*Mieke Uyttendaele -- Department of Food Technology, Safety and Health* | 3 | | | A:J | 75 |

## 2.5 Open Choice

Subscribe to course units from courses offered at Ghent University and at the alliance partner VUB, including the Ghent University Elective Courses.
A maximum of 2 such courses is allowed.
Maximum 8 credit units language courses are allowed within this master programme.
Subject to approval by the Faculty.

# 3 Master's Dissertation 30 credits

| Nr | Course | | CRDT | Ref | MT1 | Session | Study |
|---|---|---|---|---|---|---|---|
| 1 | I001479 | Master's Dissertation<br>*Kristof Demeestere -- Department of Green Chemistry and Technology* | 30 | | 2 | A:J | 900 |

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 2024-2025 | f: annually, from 2025-2026 | i: annually, from 2026-2027 |
| b: tri-annually | d: bi-annually, from 2024-2025 | g: bi-annually, from 2025-2026 | j: bi-annually, from 2026-2027 |
| | e: tri-annually, from 2024-2025 | h: tri-annually, from 2025-2026 | k: tri-annually, from 2026-2027 |