GHENT UNIVERSITY

Study Programme

Academic year 2025-2026

Programme jointly offered by Ghent University,TU Bergakademie Freiberg,Uppsala University

International Master of Science in Sustainable and Innovative Natural Resource Management

Language of instruction: English

Programme version 9

1 General Courses — 65 credits

1.1 Ghent University — 22 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002766	Introduction to the Circular Economy, Economics and Management of Natural Resources *Stijn Speelman -- Department of Agricultural Economics*	4		1	A:1	120
2	I003060	Sustainable Systems Engineering *Sophie Huysveld -- Department of Green Chemistry and Technology*	5		1	A:1	150
3	I002919	Sustainable Development and Multicriteria Decision-making *Gijs Du Laing -- Department of Green Chemistry and Technology*	3		1	A:1	75
4	E065460	Rational Use of Materials *Tom Depover -- Department of Materials, Textiles and Chemical Engineering*	5		1	A:1	150
5	I002767	Resource Recovery and Recycling Technologies *Tom Hennebel -- Department of Biotechnology*	5		1	A:J	150

1.2 TU Bergakademie Freiberg — 18 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002920	Financial and Sustainability Reporting, Financial Planning and Business Valuation *TU Bergakademie Freiberg, Karina Sopp*	5		2	A:J	150
2	I003018	Chemical Principles and Sustainable Technologies along the Raw Materials Value Chain *TU Bergakademie Freiberg, Gero Frisch*	13		1	A:J	390

1.3 Uppsala University — 25 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002921	Mineral Exploration *Uppsala University, Daniel Buczko*	10		1	A:2	300
2	I002770	Innovation Management and Entrepreneurship *Uppsala University, Jens Eklinder Frick*	10		1	A:2	300

1.3.1 Elective courses — 5 credits

Subscribe to 5 credit units from the following list. Subject to approval by the faculty.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002194	Environmental Assessment *Uppsala University, Christian Zdanowicz*	5		1	A:2	150
2	I002195	Physical–Chemical Properties of Rocks, Minerals and Materials *Uppsala University, Bjarne Almqvist*	5		1	A:2	150
3	I002922	Geological Field Project *Uppsala University, Jaroslaw Majka*	5		1	A:2	150
4	I003019	Technological Developments for Economic Valuation and Sustainability of Mineral Resources *Uppsala University, Glen Nwaila*	5		1	A:2	150

2 Majors 15 credits

Subscribe to 1 major from the following list. Subject to approval by the faculty.

2.1 Georesource Exploration – Uppsala University 15 credits

Subscribe to 15 credit units from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002197	Critical Metals and Minerals *Uppsala University, Erik Jonsson*	5		2	A:1	150
2	I002409	Challenges of Deep and High Stress Mining *Uppsala University, Raymond Durrheim*	5		2	A:1	150
3	I002883	Applied 3D Geological Modeling and Mapping *Uppsala University, Steffi Burchardt*	5		2	A:1	150
4	I002923	Exploration Geochemistry *Uppsala University, Abigail Barker*	5		2	A:1	150
5	I003020	Applied Geophysics and Rock Physics *Uppsala University, Alireza Malehmir*	15		2	A:1	450

2.2 Circular Societies and Sustainable Materials - Ghent University 15 credits

Subscribe to 15 credit units from the following list, with 4 credit units with reference a.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002882	Sustainable Management of Resources in the Circular Economy *Gijs Du Laing -- Department of Green Chemistry and Technology*	4	a	2	A:J	120
2	E900069	Composites *Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering*	6		2	A:1	180
3	I002607	Resource Recovery Technology *Ramon Ganigué -- Department of Biotechnology*	6		2	A:2	180
4	E065480	Life Cycle Assessment of Materials and Structures *Nele De Belie -- Department of Structural Engineering and Building Materials*	3		2	A:2	90
5	I001571	Environmental Legislation *Hendrik Schoukens -- Department of European, Public and International Law*	3		2	A:1	75
6	B001439	Urban Mobility and Logistics *Giovanni Circella -- Department of Geography*	3		2	A:1	90
7	B001514	Transport Economics and Policy *Frank Witlox -- Department of Geography*	3		2	A:1	90
8	E065472	Metal Extraction and Recycling *Inge Bellemans -- Department of Materials, Textiles and Chemical Engineering*	6		2	A:2	180
9	I003016	Metals and Metalloids in Environment and Technology *Filip Tack -- Department of Green Chemistry and Technology*	5		2	A:1	150
10	I002406	Basics of Process Engineering *Frederik Ronsse -- Department of Green Chemistry and Technology*	3		2	A:2	75
11	E071131	Sustainable Chemical Production Processes *Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering*	6		2	A:1	180
12	E035421	Sustainable Energy *Jan Mertens -- Department of Electromechanical, Systems and Metal Engineering*	3		2	A:2	90
13	I002591	Environmental Technology: Waste *Stef Ghysels -- Department of Green Chemistry and Technology*	3		2	A:2	90
14	I002771	Resource Recovery from Wastewater *Gijs Du Laing -- Department of Green Chemistry and Technology*	3		2	A:J	90
15	I002776	Processes in Practice *Eveline Volcke -- Department of Green Chemistry and Technology*	3		2	A:1	90
16	I002752	Advanced Wastewater Treatment Process Design *Eveline Volcke -- Department of Green Chemistry and Technology*	3		2	A:1	90

2.3 Sustainable Processes – TU Bergakademie Freiberg 15 credits

Subscribe to 15 credit units from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002183	Sensors and Actuators *TU Bergakademie Freiberg, Yvonne Joseph*	4		2	A:J	120

2	I002849	Selective Separation of Strategic Elements *TU Bergakademie Freiberg, Roland Haseneder*	5	2	A:J	150
3	I002848	Resources Chemical Technology *TU Bergakademie Freiberg, Martin Bertau*	5	2	A:J	150
4	I002847	Microbiology for Resource Scientists: Lab Course *TU Bergakademie Freiberg, Sabrina Hedrich*	4	2	A:J	120
5	I002850	Simulation of Sustainable Metallurgical Process *TU Bergakademie Freiberg, Markus Reuter*	6	2	A:J	180
6	I002884	Analysis of High Temperature Processes in Extractive Metallurgy *TU Bergakademie Freiberg, Alexandros Charitos*	5	2	A:J	150
7	I002924	Biotechnology in Metal Extraction and Recycling *TU Bergakademie Freiberg, Sabrina Hedrich*	4	2	A:J	120
8	I002925	Classifying Machines, Crushers, Mills *TU Bergakademie Freiberg, Holger Lieberwirth*	5	2	A:J	150

2.4 Sustainable Entrepreneurship - Uppsala University — 15 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I003037	Organising Knowledge-Intensive Work *Uppsala University, Michal Zawadzki*	5		2	A:1	150
2	I003038	Technology-Based Entrepreneurship *Uppsala University, Serdar Temiz*	5		2	A:1	150
3	I003039	Technology-Based Business Models for Circularity *Uppsala University, Serdar Temiz*	5		2	A:1	150

3 Work Placement — 10 credits

Institution where the internship is to be taken depends on the chosen major:
- major at Uppsala University = internship coordinated by TU Bergakademie Freiberg
- major at Ghent University = internship coordinated by TU Bergakademie Freiberg
- major at TU Bergakademie Freiberg = internship coordinated by Ghent University

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002410	Training in Industry *TU Bergakademie Freiberg, Gero Frisch*	10		2	A:J	300

4 Master's Dissertation — 30 credits

The Master's Dissertation can be taken at either Uppsala University (Sweden) ; TU Bergakademie Freiberg (Germany); Ghent University (Belgium) : to be taken at the institution that offers the chosen major.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002199	Master's Dissertation *Gijs Du Laing -- 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 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