INTERNATIONAL MASTER OF SCIENCE IN SUSTAINABLE AND INNOVATIVE NATURAL RESOURCE MANAGEMENT

PROGRAMME JOINTLY OFFERED BY GHENT UNIVERSITY, TU BERGAKADEMIE FREIBERG, UPPSALA UNIVERSITY

MAJORS: MA SINR 00 UPPSALAU GEORESOURCE EXPLORATION - MA SINR 00 UPPSALAU ENTREPRENEURSHIP - MA SINR 00 UGENT CIRCULAR SOCIETIES - MA SINR 00 UGENT RECOURCE RECOVERY - MA SINR 00 TUBFREIBERG

120 ECTS CREDITS - LANGUAGE: ENGLISH

WHAT

The rapidly increasing demand for specialty metals and minerals – caused by an increasing electrification of the industry, new information and communication technologies, and green energy and sustainable mobility solutions (e.g. car batteries, solar panels and windfarms) – calls for a more economic, socially and environmentally sustainable supply of raw materials.
The limited availability of metals and mineral raw materials, in combination with global phenomena, such as geopolitical base metal and high-tech metal supply risks, fossil fuel depletion and climate change, urges us to develop more sustainable management strategies for these resources. These challenges can be translated into economic opportunities and business models that require advanced training.
There is currently a wide variety of specialists that act within the boundaries of their own discipline. These specialists often lack the broader overview on the available alternative techniques to make the entire value chain more sustainable, and to tackle specific supply risk challenges by looking at the issues from a global value chain perspective within a multidisciplinary context. There is thus a clear need for professionals with a global mindset and a holistic overview of the raw materials value chain, who can apply sustainability assessment tools and develop new management strategies and technologies for resource exploration, mining, chemical processing and recycling. SINReM delivers this type of T-shaped professionals: our graduates have a basic expertise in, and understanding of every aspect in the entire raw materials value chain, in combination with a specialised expertise in one particular field.

STRUCTURE

Students take a three-week introductory course to the programme at TU Freiberg in September. The course introduces them to the process chain of mineral resources. The subsequent first term at Ghent University introduces the students to the economic aspects of the circular economy, multicriteria decision-making and sustainability assessment tools. In addition, the students become familiar with sustainable materials and technologies used to extract and recover raw materials from industrial byproducts and waste streams.
During the second term at Uppsala University, the students are trained in georesource exploration and entrepreneurship, and are stimulated to excel in creativity with an entrepreneurial mindset and innovative problem-based technology development skills.
At the end of the first academic year, the students take the modular Resources Chemistry course unit at TU Freiberg. This course unit covers fundamentals in chemistry of ore deposits, kinetic aspects of precipitation and extraction, and chemical foundations of hydro- and pyrometallurgical processes.
In the first year, all students move as a cohort between the three partner, resulting in significant networking and social cohesion advantages.
In the second year, the students choose one of the three partner universities to take one of the five elective majors consisting of mandatory and optional course units in a particular field of sustainable and innovative natural resource management:

- Resource Recovery and Sustainable Materials (Ghent University)
- Circular Societies (Ghent University)
- Sustainable Processes (TU Freiberg)
- Georesource Exploration (Uppsala University)
- Sustainable Entrepreneurship (Uppsala University)

Moreover, the students conduct a work placement outside academia and work on their 30-credit Master's dissertation.

LABOUR MARKET

SINReM graduates are qualified for a professional career in the private, research (applied research at universities, research institutes or companies) or public sector. They are particularly attractive for employers as they can support companies in making processes, products and services more sustainable. In addition, they can aid local, regional and (inter) national administrations to define and implement sustainable development policies. Furthermore, our graduates have benefited from the international, multicultural environment and from the close links between education, research and innovation, the three components of the knowledge triangle, in the study programme. This is reflected in the significant study time dedicated to innovation management and entrepreneurship skills and to project work aimed at

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stimulating creative and multidisciplinary thinking
with active involvement of the non-academic
partners in student supervision.

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

1 **Na onderzoek van de bekwaamheid van de student om de opleiding te volgen:**
- Een diploma van een bacheloropleiding in het academisch onderwijs binnen één van de volgende studiegebieden (of een combinatie ervan):
  - Biotechniek
  - Industriële Wetenschappen en Technologie
  - Toegepaste Biologische Wetenschappen
  - Toegepaste Wetenschappen
  - Wetenschappen

Additional Information on Admission (Flemish Degree)

All prospective students must register with the Management Board no later than May 31 prior to the academic year in which they wish to enroll.

ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

SINReM is particularly suited for (but not limited to): bioscience engineers, biotechnology scientists, chemical engineers, chemists, environmental scientists and engineers, geologists, geophysicists, mining engineers, mineralogists, materials scientists, metallurgists and process engineers.

To be admitted to the SINReM programme, you need to:

1. hold a Bachelor degree (equivalent to at 180 ECTS) in a discipline closely related to the SINReM scope (see above for examples);*
2. have a strong background in science (equivalent to at least 15 ECTS in mathematics and/or physics and 10 ECTS in chemistry);*
3. have completed your previous degree(s) with good or very good grades (typically top 30% of the students);
4. submit a convincing motivation letter with your application, which shows that the SINReM scope matches your previous education and future goals;
5. fulfil the English language requirements listed below.

* If you do not fully meet criteria 1 and 2, you may still be admitted if you have excellent grades (typically top 10% of the students) in your previous degree(s). Please note that in this case you will have to invest more time within the first year to catch up with fundamentals of science and engineering.
For more information on specific academic and language requirements consult the programme website.
Information on admission requirements and the administrative procedure for admission on the basis of a diploma obtained abroad, can be found on the following page: www.ugent.be/prospect/en/administration/enrolment-or-registration.

LANGUAGE REQUIREMENTS

Language requirements Dutch: no language requirements

Language requirements for this study programme differ from the required standard level for English taught study programmes as specified in the Ghent University Education and Examination Code:
English:
Nationals of* all EU and EEA countries, Australia, Botswana, Cameroon, Canada, Eritrea, Gambia, Ghana, Guyana, India, Jamaica, Kenya, Liberia, Malawi, Namibia, New Zealand, Nigeria, Pakistan, Philippines, Rwanda, Sierra Leone, South Africa, Sri Lanka, Tanzania, Uganda, UK, USA, Zambia, and Zimbabwe, can provide a stamped and signed certificate of English as the language of instruction during at least 1 year (equal to 60 ECTS) of higher education issued by the home university.
* exemptions have to be approved by the SINReM Student Selection Committee
Candidates from any other nationality need to present test results of one of the following tests (validity of 5 years):
- TOEFL iBT 86
- TOEFL pBT 570
- Academic iELTS 6,5 overall score with a min. of 6 for writing
- Cambridge Certificate of Advanced English (CAE)

The above-mentioned language requirements can be changed yearly before the start of the applications period, after approval by the MB and by the partner universities.

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FACULTY OF BIOSCIENCE ENGINEERING

2021-22

PRACTICAL INFORMATION

Study programme

studiekiezer.ugent.be/international-master-of-science-in-sustainable-and-innovative-natural-resource-management-en/programma

Information sessions

Graduation Fair

afstudeerbeurs.gent/en/students/further-studies

Open Days

28 April 2022 19u30 - 21u30 - Campus Coupure, Coupure Links 653, 9000 Gent (Building E, Oehoe and Agora)

Enrolling institution

Ghent University, TU Bergakademie Freiberg, Uppsala University

Enrolment to SINReM is only possible after having received a Ghent University Letter of Admission. This Letter of Admission is issues after having successfully passed the application procedure as described on https://sinrem.eu/admission-applying/.

Application Deadline (for International degree students)

More information on programme specific application procedures and deadlines for both **Belgian and international students.**

Tuition fee

More information is to be found on: www.ugent.be/tuitionfee

Contact

Ghent University
Faculty of Bioscience Engineering
International Training Centre
SINReM secreatriat
Coupure Links 653
9000 Gent
sinrem@ugent.be

Learning path counsellor

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www.sinrem.eu

GHENT UNIVERSITY

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