GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Technological Developments for Economic Valuation and Sustainability of Mineral Resources (I003019)

Course size *(nominal values; actual values may depend on programme)*

Credits 5.0 **Study time 150 h**

Course offerings in academic year 2026-2027

A (semester 2) English Gent

Lecturers in academic year 2026-2027

Nwaila, Glen	UPPSAL01	lecturer-in-charge
Masindi, Khuliso	UPPSAL01	co-lecturer

Offered in the following programmes in 2026-2027	**crdts**	**offering**
International Master of Science in Sustainable and Innovative Natural Resource Management	5	A

Teaching languages

English

Keywords

Position of the course

Contents

We investigate the mineral resources of major ore provinces. We use fundamentals of geo-data science and AI for data visualisation, analysis and pattern recognition to aid the assessment of mineral resources. There are many environmental issues associated with mining and mineral processing, including water pollution, soil degradation and loss of biodiversity. Additionally. there is a complex relationship between mining, the environment and issues of sustainability, including climate change, the energy transition. worker safety and other socio-political issues. Furthermore we discuss how mining policies are developed and the relationship between mining and the economy is explored. Throughout the course, we make extensive use of case studies, for techno-socio-economic valuation of mineral resources within the environmental, social, and governance (ESG) framework.

Initial competences

120 credits with 90 credits in science/engineering (physics, chemistry, biology, mathematics, earth science, computer science, material science), including 15 credits in mathematics or physics. Proficiency in English equivalent to the Swedish upper secondary course English 6.

Final competences

1 After completing this course, the students shall be able to:
- critically assess major mineral provinces and resources, their properties and suitability for exploitation,

2 • critically evaluate the potential impacts of mining minerals and processing on the environment, human health, and ways to mitigate the environmental impacts and social challenges of sustainable mining,

3 • manage, digitally process, analyse and visualise geoscientific data using current AI technology.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar, Lecture, Practical

Extra information on the teaching methods

Lectures, computer exercises, case-based learning, seminars.

Study material

None

References

No reading list found.

Course content-related study coaching

Assessment moments

end-of-term assessment

Examination methods in case of periodic assessment during the first examination period

Oral assessment, Written assessment, Assignment

Examination methods in case of periodic assessment during the second examination period

Oral assessment, Written assessment, Assignment

Examination methods in case of permanent assessment

Participation, Presentation

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

Written hand-in assignments (2 hp), written and oral presentation of project work (3p).
If there are special reasons for doing so, an examiner may make an exception from the method of assessment indicated and allow a student to be assessed by another method. An example of special reasons might be a certificate regarding special pedagogical support from the disability coordinator of the university.

Calculation of the examination mark