GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Applied 3D Geological Modeling and Mapping (I002883)

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 1) English Gent

Lecturers in academic year 2026-2027

Burchardt, Steffi	UPPSALO1	lecturer-in-charge
Jeanneret, Pauline	UPPSALO1	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

This course introduces state-of-the-art geological mapping and modelling methods that are currently used by for instance the mining and building industry. These methods include data acquisition with UAVs (Unmanned Aerial Vehicles, e.g. drones), digital outcrop construction, construction of 3D geological maps, and data analysis and modelling. The course will give the opportunity to explore the possibilities of these methods by working on example projects where new data will be collected and combined with existing data. The course mainly uses examples from the mining industry.

Contents

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Initial competences

120 credits. Georesource Exploration and Characterisation, 5 credits.
Proficiency in English equivalent to the Swedish upper secondary course English 6.

Final competences

1 After completion of the course the student should be able to:
- acquire geological field information using standard and modern methods

2 • construct 3D digital outcrops from acquired field photographs
3 • Combine a range of existing and new data from different sources
4 • Construct, analyse, and interpret 3D geological maps
5 • Acquire and analyse quantitative data from digital outcrops model and 3D geological maps
6 • Discuss sources of uncertainty and errors of different methods
7 • Discuss how modern mapping techniques contribute to make exploration and mining more sustainable

8 • Present results in a way relevant to potential industry employers.

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

Group work, Seminar, Excursion, Lecture

Extra information on the teaching methods

Lectures, seminars, case based learning and practical exercises. The participation in group sessions is compulsory.

Study material

None

References

Course content-related study coaching

Assessment moments

end-of-term and continuous assessment

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

Oral assessment, Presentation, Assignment

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

Oral assessment, Presentation, Assignment

Examination methods in case of permanent assessment

Participation, Presentation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

Examination during or at the end of the course. Seminar presentation (3 credits) and a written report (2 credits).

Calculation of the examination mark