

## 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 2023-2024

A (semester 1)

English

Gent

### Lecturers in academic year 2023-2024

Burchardt, Steffi

UPPSAL01 lecturer-in-charge

Jeanneret, Pauline

UPPSAL01 co-lecturer

### Offered in the following programmes in 2023-2024

[International Master of Science in Sustainable and Innovative Natural Resource Management](#)

**crdts**

5

**offering**

A

### Teaching languages

English

### Keywords

### Position of the course

Georesource Exploration and Characterisation

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, i.e. 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

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, i.e. 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

### Initial competences

### Final competences

- 1 Construct 3D digital outcrops model from acquired field photographs
- 2 Combine a range of existing and new data from different sources
- 3 Construct, analyse, and interpret 3D geological maps
- 4 Acquire and analyse quantitative data from digital outcrops model and 3D geological maps
- 5 Discuss sources of uncertainty and errors of different methods
- 6 Discuss how modern mapping techniques contribute to make exploration and mining more sustainable
- 7 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, Fieldtrip (only if the conditions permit). The participation in group sessions is compulsory.

**Learning materials and price**

Syllabus

**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, Participation, Written assessment, Assignment

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

Oral assessment, Participation, Written assessment, Assignment

**Examination methods in case of permanent assessment**

Oral assessment, Participation, Written assessment, 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**