Course Specifications
Valid as from the academic year 2020-2021

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size
Credit: 3.0
Study time: 85 h
Contact hrs: 24.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2) Dutch Gent self-reliant study activities
lecture 6.0 h
guided self-study 6.0 h

Lecturers in academic year 2020-2021
Vandedrinck, Frank TW14 lecturer-in-charge

Offered in the following programmes in 2020-2021

Master of Science in Land Survey Engineering Technology
3 A

Teaching languages
Dutch

Keywords
Soil science, Soil map, soil classification, soil characteristics, soil cleaning (act)

Position of the course
This course provides a basic knowledge of soil science and the associated terminology. Insight is given into the major soil characteristics and the reactions and processes occurring in soils, in relation to the environmental conditions and from an earth science perspective.
Classification and evaluation of the soil types for agricultural and other purposes, in order to build up a basic knowledge in the matter of Land Capability.
The major soil types of Belgium are shortly treated.

Contents

Part 1: Soil Science
- Geology and mineralogy: fundamentals and general concepts;
- Pedology: definition of soil, soil profile, soil horizons, soil genesis;
- Basic soil components - solid mineral and organic parts - pores, air, water;
- Main soil characteristics: acidity, structure, colour, temperature, capacity of adherence, absorption and exchange;
- Soil humification - fauna and micro-organisms;
- Soil dynamics: main reactions and processes;
- Soil structure - structural decay and recovery techniques;
- Major soil genetic processes;
- Environmental degradation and pollution - abatement;
- Soil Analysis - factors of soil understanding - soil classification;
- Soil Survey - Soil map of Belgium - soils of Belgium.

Part 2: Applied Soil Science
- Soil Policy;
- Soil Cleaning Act; soil exploration and investigation; soil decontamination and purification; environmental remediation and rehabilitation.

Initial competences
No previous academic courses required, but some elementary knowledge of Chemistry and Geography is needed.

Final competences
1 The student distinguishes the different types of soil pollution and has good
knowledge of the processes of soil investigation, soil analysis, decontamination, clean up and rehabilitation;
2 The student analyses and interprets the elements of the soil map of Belgium, while consulting the legend, and is able to recognize the most important soil forming processes;
3 The student handles in correspondence with the Soil Cleaning Act;
4 The student communicates the results of research and problem solving techniques in a proper manner.

5 The student situates projects of civil engineering in a coherent soil policy context.

6 The student is able to participate actively in elementary discussions on soil data and soil processes in the context of national environmental policies, throughout the principles of the World Soil Charter.

Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract
This course unit cannot be taken via an exam contract

Teaching methods
Guided self-study, lecture, self-reliant study activities, online group work, online lecture

Extra information on the teaching methods
Theoretical aspects of soil science: partly coached self-study;
Applied soil science: project work (on an individual base and in a team): research, reflection, analysis, report and presentation.

Learning materials and price
Courseware (optional): Ameryckx, J., Verheye W., Vermeire R., Bodemkunde, 1995;
Dutch language (available Geological Institute UGent);
Documentation and supplementary courseware: available on e-learning platform.

References
See references in the (supplementary) courseware.

Course content-related study coaching

1. Guidance and coaching by lecturer: possibility to make an appointment or contact by e-mail, by chat or discussion forum;

2. E-learning platform: students can visit an electronic workspace for supplementary courseware and possible examination questions.

Evaluation methods
end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period
Oral examination

Examination methods in case of periodic evaluation during the second examination period
Oral examination

Examination methods in case of permanent evaluation
Assignment, peer assessment, report

Possibilities of retake in case of permanent evaluation
examination during the second examination period is possible in modified form

Extra information on the examination methods
Periodic evaluation: Theoretical aspects of soil science: Oral examination (open questions);
Non-periodic evaluation: peer-assessment based upon team report and individual presentation.

Calculation of the examination mark
Periodic evaluation: 50%.
Non-periodic evaluation: 50%.
The assessment and the final assignment of quotas of course components happens by means of the mathematical average according to the apportioned coefficients.
When the student does not participate in the evaluation of one or more components or
the student scores less than 8/20 for one of the components, he/she can no longer pass the entire course unit. If the total score is a mark of ten or more out of twenty, then this is reduced to the highest failing mark.