SOIL QUALITY INVESTIGATION - CONSULTANCY TOOLS

LEVEL: MASTER 1
PERIOD: SEMESTER 2
LANGUAGE: EN
ECTS: 3
TEACHER/COORDINATOR: JULIEN CASTELIN

1-Main objectives

› To provide knowledge on soil quality investigation, through an exploration of general approaches in this field, and through a comparison of 2 specific approaches: the Dutch one and the French one.

› Understand the main issues and goals linked with soil investigations;

› Be aware of different kind of sampling methods and equipment;

› Learn about conservation methods and about main analytical techniques.

2-Skills developed

› Be able to build a financial and technical proposal for a classical pollution diagnosis case;

› Be able to make interpretations and evaluations based on the analysis reports;

› Technical skills in the field of soil quality investigation (sampling tools…)

› Practice collaborative group work.

3-General content

Courses, lectures and field visits:

› **Lecture about French approach on soil quality investigation**
This lecture will first give a definition of the goal of investigation in the French approach. The different kind of sampling strategies will be presented, and the way to choose the type and the number of chemical analyses that have to be done. A lot of real cases and examples will be brought to the students during this lecture in support.

› **Lecture about Dutch approach on soil quality investigation**
Those lectures will first propose an introduction to soil pollution problems in the Netherlands. Then, the soil protection policy and legislation in the Netherlands will be highlighted.
Next, a definition of the goal of investigation in the Dutch approach will be given.
Then, the standard protocol for preliminary soil quality investigation will be detailed. The different kind of sampling strategies will be presented, and the way to choose the type and the number of chemical analyses that have to be done.
During the final part of this lecture the techniques for writing a summary report will be presented and the case study will be introduced.

› **Case study – soil investigation "Garage de Vries"**
Following those first lectures, students will have to work on a specific case study. Students will be split in different groups and will have to play the role of young engineers working in a consulting agency (One group of students = one consulting agency).

Based on the same document introducing the site, each group will have to build the best proposal (from the technical and financial point) according to the customer needs. This proposal, presenting a sampling plan with the different drillings and chemical analysis proposed, will have to be justified and explained during a short oral presentation. There will be opportunities for class comments/feedback/discussion after each presentation.
The exercise will have to be done using both the French and Dutch methodology. An open discussion about the main differences observed will then be done with the students.

› **Lecture on soil quality standards and risk assessment & interpretation of the results of chemical analysis**

During these last lectures within Dutch framework, the topics of soil quality standards and interpretation of results will be presented and discussed.

› **Field visit: On-going soil investigations**

Students will have the opportunity to visit a site where soil investigations are held. This will be a good opportunity to observe the way this is done and the drilling and sampling equipment.

› **Study tour (to be confirmed) – Cooperation with AVANS Breda and TAMPERE Finland**

The cooperation will consist of a two day project case, scheduled in January.
The detailed content will be updated in due time.)

4- Evaluation

Group oral presentation and individual written exam based on the lectures.