UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Applied Hydrogeology

2122-2-F7501Q079

Aims

The course aims to convey to the student of Sciences and Technologies for the Environment and the Territory

- knowledge of the basic principles of hydrogeological modeling, 2D and 3D
- the ability to study and quantitatively analyze complex hydrogeological situations
- the ability to develop a work project
- the ability to develop autonomous analysis of situations, developing project proposals

At the end of the course the student is able to

- Model quantitatively simple and complex hydrogeological structures
- Rebuild maps distributed by point data
- Produce hydrogeological forecast scenarios

At the end of the course the student has acquired a judgment autonomy that allows him to a

During the course a learning ability is acquired that can be applied to the application of the knowledge acquired in contexts that are also different from those studied during the course, typical of the world of work.

Contents

The course is aimed at the study of environmental hydrogeological problems, through an applicative approach through the use of IT tools, functional to the world of work.

Detailed program

- basic tools for exploratory analysis and data mapping
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- reconstruction of piezometric with application of experimental variograms;
- statistical tools for hydrochemical analysis of data

- bi-dimensional hydrogeological models to compute and draw flow lines and well capture zones;
- three-dimensional hydrogeological models for groundwater flow simulation in the saturated zone, under natural conditions and modified by the impact of human impact.
- Exercises are planned with applications to real cases of hydrogeological problems.

Exercises with applications to real cases of modeling problems are foreseen, in which the student must analyze different scenarios, variable according to the uncertainty of the data and of the project scenarios.

Prerequisites

Knowledge of the basic concepts of flow and transport hydrogeology

Teaching form

Lessons, 6 credits

The course will take place in a classroom and in a computer lab, with a teaching mixed between theory and practice.

Textbook and teaching resource

Teacher resources

- slides presented in the classroom
- exercises carried out and to be performed independently

Semester

Second semester

Assessment method

Students have to face a real complex hydrogeological project, retracing when developed during the course, demonstrating that they have acquired mastery and competence of the processing tools.

Office hours

Apointment, by email