UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Soil and Rock Mechanics Laboratory

2223-3-E3401Q047

Aims

Provide a clear and complete understanding about execution and interpretation of tests for physical and mechanical characterization of soils and rocks. During the course tests will be conducted in the laboratories of mechanics of soils and rocks of the university.

Contents

Training in mechanical testing on soil and rock using standard and non standard devices

Detailed program

Soil mechanics: Elements of soil mechanics and methods of classification. Principles of operation and use of equipment. Execution, reprocessing and interpretation of the following tests: grain size and Atterberg limits. Permeability tests, oedometer compression, direct shear, compression, triaxial, and compaction.

Rock Mechanics: hints of rock mechanics. Execution, reprocessing and interpretation of the following tests: Point Load Test, uniaxial and triaxial compression, direct and Brazilian tensile, bending, measurement of geometric and mechanical properties of joints (JRC, JCS): Direct shear tests of joints.

The laboratory tests will be presented according to the following aspects both for soils and rocks:

1. Classification; 2. Resistance; 3. Stiffness; 4. Hydraulic properties

Prerequisites

Applied Geology

Teaching form

1. Lessons: they are held in the classroom and are related to the description, the purposes, the theoretical aspects and the methods of execution and re-elaboration of the tests provided

2. Exercises: they take place in the classroom with the aim of solving aspects related to the re-elaboration of the tests and the solution of guided exercises

3. Laboratory: these activities are carried out at the Geotechnology laboratories of the U4 building 2nd floor. During these activities most of the scheduled tests will be carried out. Attendance at these planned activities for a total of 28 hours is MANDATORY.

Textbook and teaching resource

Materials supplied by the teacher

Semester

Semester 1

Assessment method

1. SCIENTIFIC LABORATORY REPORT: report that illustrates the methods of carrying out the experimental tests faced during the scientific laboratory courses

2. WRITTEN TEST: questions that require the analysis of a complex phenomenon and its rationalization through the composition of several principles; i particular about the estimation of geomechanical parameters from laboratory tests

3. ORAL EXAM: Questions on the topic discuss in the course

Sufficiency is required in all 3 assessment methods

Office hours

Monday from 16 to 18

Sustainable Development Goals

QUALITY EDUCATION | AFFORDABLE AND CLEAN ENERGY | INDUSTRY, INNOVATION AND INFRASTRUCTURE | LIFE ON LAND