UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Geotechnical Modelling for Slope Stability and Underground Geostructures

2425-1-124R032

Title

Geotechnical modelling for slope stability and underground geostructures

Teacher(s)

Riccardo Castellanza

Language

English

Short description

Provide to students a general overview of advanced numerical modelling (3D FEM based) in geotechnical engineering and engineering geology.

A specific and detailed critical discussion on existing and new techniques for numerical analyses of instable slopes and underground geostructures will be provided. The course is suggested for the 1st and 2nd year.

Detailed program

1-Introduction to numerical modelling of geotechnical problems

2-Definition of the global PDE (Partial Differential Equations) system to cope with complex geotechnical problems including slopes and geostructures.

3-New trend related to the numerical modelling for geostructures and geo-materials.

4-3D Finite Element Method (3D FEM) introduction and specific aspects

5-Explicative cases studies on instable 3D slopes

6-Explicative cases studies on 3D geostructures

7-New trends in numerical modelling in geomechanics: MPM (Material Point Method) and PFEM (Particles Finite Element Methods)

Evaluation: YES

CFU / Hours

2 CFU - 20 Hours (8h lecture - 12h laboratory training)

Teaching period

II semester

Sustainable Development Goals