

Titolo del corso: Advanced soil mechanics

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Programma:

1. Introduction on modelling in geomechanics (1h, Ceccato)
2. Mathematical models (2h, Ceccato)
 - a. Governing equations of 1phase continua
 - b. 2phase formulations
3. Discretization strategies (2h, Ceccato)
 - a. Overview of numerical methods (mesh and meshless)
 - b. Basic concepts of MPM
4. Exercise (4h, Ceccato)
 - a. Tutorial on use of MPM software (Anura3D)
5. Introduction to discrete element method (1h, Gabrieli)
6. DEM theory/background overview (3h, Gabrieli):
 - a. Contact detection and contact mechanics
 - b. Rigid body dynamics and time integration
 - c. From micro to macro: basic concepts
7. Applications (1h, Gabrieli)
8. DEM scripting languages and exercises (Matlab, Python, Yade) (4h, Gabrieli)