



Dipartimento di Strutture per l'Ingegneria e l'Architettura (DiSt)

Nell'ambito delle attività del **Corso di Dottorato in
Ingegneria Strutturale Geotecnica e Rischio Sismico**

27-31 maggio 2019

Prof. Claudio Mancuso

(DICEA - Università degli Studi di Napoli Federico II)

terrà un corso breve dal titolo

Remarks on unsaturated soil mechanics

The course focuses on the main aspects of hydraulic and mechanical behaviour of unsaturated soils, i.e. soils where both air and water occupy the voids between solid grains (or between saturated clusters of active fine-grained soil particles).

Starting from basic concepts of saturated soil mechanics, the course introduces the main mechanisms of air-water-solid interaction and the concept of matric suction, discussing the effects of the latter on the mechanical behaviour of fine-grained soils. Some experimental laboratory devices and techniques for an appropriate unsaturated soil testing are then introduced. A tour of the geotechnical laboratory is then proposed in order see first-hand the devices available at UNINA. Based on experimental data and accredited constitutive models from literature, the effect of suction is discussed, introducing the audience to both general and 'special' aspects of fine-grained unsaturated soil behaviour as, for example, the stiffening effects (also small-strains stiffness), the volumetric collapse and the effects of the apparent cohesion on soil strength.

The course also discusses briefly of the effects of unsaturated state on the mechanical behaviour of coarse-grained soils, on the devices and the procedures for the experimental analysis of their response to environmental and mechanical loadings, proposing a tour of the geotechnical laboratory dedicated to the experimental analysis of their behaviour.

Some milestone-papers of unsaturated soil mechanics will be suggested to the audience for a self-made deeper consideration of the various subject treated during the course.

Via Claudio, 21 – aula Manfredi Romano, ed. 6 (1° piano)

Tutti gli interessati sono invitati a partecipare

**Il Coordinatore del Dottorato
Prof. Ing. Iunio Iervolino**