

Geotechnical Engineering Lecture Series

Speaker: Dr. Antonio Gens

Technical University of Catalunya, Barcelona

Dates: April 6 (Lectures 1 & 2) and April 7 (Lectures 3 & 4)

Time: 3:30 - 7 pm

Location: Mason 142A

Lecture 1: Unsaturated soils. Mechanical behaviour and constitutive modeling (2 hrs)

Stress variables. Basic features of behaviour. A basic elasto-plastic model: BBM. Recent developments in constitutive modelling.

Lecture 2: Construction processes using micropiles. Case histories (1 hr)

Introduction: definition and classification. Construction. Typical applications. Design issues. Case histories.

Lecture 3: Coupled analyses for unsaturated soils (2 hrs)

Coupled phenomena and coupled processes. THM (thermo-hydro-mechanical) formulation. Constitutive models and equilibrium restrictions. Numerical implementation. Applications.

Lecture 4: Recent experience of underground and deep excavations in Barcelona (1 hr)

The construction of a new metro line in Barcelona (Deep large diameter bored tunnels. TBM equipment. Ground movement control procedures. Case histories). Deep excavation: Diagonal Mar case history (Summary of the project. History of excessive displacements. Numerical modelling. Safety analysis)

Prof. A. Gens has been involved in geotechnical research, consulting and education for more than 20 years. His main research topics have been in the fields of numerical analysis of geotechnical problems, constitutive modelling of soils, study of soil behaviour by laboratory testing and behaviour of partially saturated soils. He has consulted widely in projects involving deep excavations, tunnels, diaphragm walls, ground improvement techniques, dams, power stations, foundations, slope stability and site investigations.

Free admission. Space limited. Contact: C. Maddox carol.maddox@ce.gatech.edu, (404) 894-2282