

Unsaturated Seepage and Contaminant Transport Modeling Made Easy

Instructors:

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Description:

This course aims to provide participants with modern numerical modelling techniques for the analysis and design associated with geotechnical engineering projects. The proven techniques covered in this course have been shown to reduce overall modeling time between 50-80%.

Computer-based methods of analysis will be presented and discussed. The main emphasis will be placed on the application of numerical modelling techniques to soil systems where part of the soil profile may be saturated while the remaining portion is unsaturated. New procedures that utilize the concepts of automatic mesh generation and refinement will be presented and demonstrated for solving highly nonlinear partial differential equations. Specific new concepts covered in this course include:

- Automatic mesh generation applications
- Automatic mesh optimization applications
- Stochastic analysis applied to finite element analysis
- Stochastic determination of unsaturated seepage soil properties
- Measurement of unsaturated soil properties
- Advanced convergence techniques – solving difficult problems
- Mesh optimization applied to earth cover design
- Design and solution of large 3D finite element models – when is it required?
- Evaporation calculations

Fees

The course registration fees are \$200 each. On-site registration will be on a space available basis. The registration fee includes course notes and coffee breaks.

Agenda

8:30 a.m.	<i>Registration and Continental Breakfast</i>
9:00	Historical overview of mesh optimization Review of seepage and contaminant transport theory
10:15	<i>Break</i>
10:30	Design and solution of complex 2D seepage models using automatic mesh refinement Contaminant transport modeling using automatic mesh refinement Measurement of the soil-water characteristic curve
12:00 noon	<i>No-Host Lunch</i>
1:30 p.m.	Cover design Soil suction measurement techniques Design and solution of complex 3D seepage models using automatic mesh refinement and pinching out of soil layers
2:45	<i>Break</i>
3:00	Performance monitoring of cover design Overview of SVHeat, SVSolid, and SVDynamic software packages
4:30	<i>Course Adjourns</i>