



SOILVISION
INNOVATIVE GEO-MODELING SOFTWARE

INTERNATIONAL SHORT COURSE SERIES 2017

2D/3D SLOPE STABILITY, SEEPAGE & STRESS ANALYSIS

PRESENTER



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Dr. Murray Fredlund has, over the past 18 years, guided the development of geotechnical software at SoilVision Systems Ltd. He has directed the development of seven software packages covering saturated-unsaturated soil knowledge-based prediction systems, groundwater flow, contaminant transport, geothermal analysis, air flow analysis, stress/ deformation, and slope stability. More recent projects have involved the release of the SVSLOPE 3D limit equilibrium slope stability software package and the development of 1D/2D/3D large-strain consolidation software.

May 17-18, 2017 | 8:30am - 4:30pm

The Liu Institute for Global Issues | Research Unit Room | Vancouver, BC

<https://soilvision.com/shortcourseregistration.php>

2D/3D SLOPE STABILITY, SEEPAGE & STRESS ANALYSIS

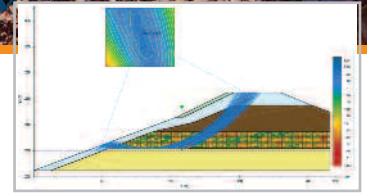
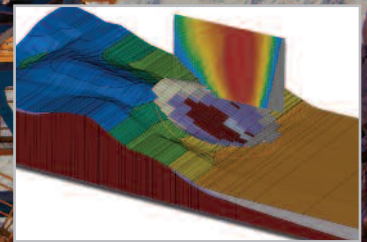
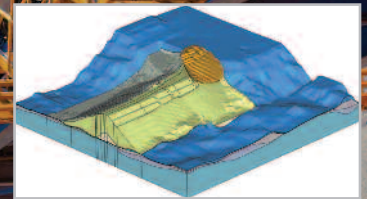
Short Course Fees

The cost for this 2-day Short Course is \$995 USD

Short Course Goals

At the completion of the short course the attendee should be familiar with the following topics:

- Theory of 2D/3D slope stability analysis
- Use of the SVSLOPE® software to analyze 2D / 3D basic models
- Methodologies to verify numerical modeling
- Slope stability analysis using the FE methods



Overview

The benefits associated with performing 3D slope stability analyses were introduced in the 1970s. Over the years a number of 3D methods of analysis have been researched. These methods have ranged from the method of columns to approaches based on variational calculus, and more recently, the use of dynamic programming. Interest in 3D slope stability analysis appears to be driven by the fact that most slope stability failures are inherently three-dimensional in character. That is, the failure surface most often represents a variation on a dish-shaped surface. Two-dimensional representations are a significant simplification of the actual situation. It is somewhat surprising that geotechnical engineers have been as successful as they have been in using two-dimensional simplifications of three-dimensional geometries for slope stability studies.

Industry has largely embraced a two-dimensional approach with respect to slope stability analysis as an accepted method of practice and acceptable design factors of safety generally range between 1.3 and 1.5. The calibration to well-instrumented failures has typically involved performing 2D back-analyzing of failed slopes and accepting the results as a "reasonable calibration", even though the slope failed in a 3D manner.

The first part of the first day will focus on the new conceptual model builder (SVDESIGNER™) which can be used to ease the development of complex 3D numerical models. Methodologies for placing geotechnical designs on complex topologies will be discussed. Methodologies for quickly extracting 2D cross-sections or full 3D numerical models will also be covered.

The second part of the first day will focus on 3D slope stability using SVSLOPE®. This course will present advanced topics related to both 3D slope stability analysis, conceptual model design, seepage analysis, and stress deformation. The course will include a brief theoretical review of 2D theory but focus on 3D theory and applications. The management of complex 3D spatial data will be discussed as well as modeling methodologies related to 3D numerical modeling. The focus will be on advanced concepts of slope stability analysis and their application. Applications of 3D solutions to real-world problems will be covered.

The second day of the course will examine the use of 2D/3D seepage analysis and 2D/3D stress/deformation analysis as a stand-alone analysis or as integrated with slope stability. A focus of the short course will be on the estimation of unsaturated hydraulic properties for seepage analysis using the SVSOILS™ application. The user will come away with a practical knowledge of how to create and solve 3D groundwater seepage and 3D stress/deformation numerical models.

Who Will Benefit

The course is designed for practicing geotechnical and mining engineers that want to utilize the benefit of 3D numerical modeling for increasing the capabilities of their consulting firm or university research. The course also introduces the new SVOFFICE™5/GT Geotechnical Analysis Suite which brings new and improved cutting edge 3D analysis capabilities to the practicing geotechnical engineer. Participants are invited to bring their own laptops to the course. They will be provided with copies of the SVOFFICE™5/GT software to follow along during the short course. 50% of the cost of the short course can be applied to subsequent software purchases made within the following 6 months.

Course Schedule

DAY 1 - SVDESIGNER & SVSLOPE

(AM) - Conceptual Model Design

- SVOFFICE™5/GT - What's changed?
- Conceptual model design using SVDESIGNER™
- Managing complex 3D geometry
- Example 3D conceptual model of tailings dam and facility
- Trends in theory & development of 2D/3D slope stability analysis
- Brief theoretical overview of 2D slope stability analysis

(PM) - Slope Stability Analysis

- Unsaturated slope stability analysis
- Overview of 3D slope stability analysis - why do it?
- Basic theoretical overview of 3D slope stability analysis
- Analysis of 2D/3D slopes using the Shear Strength Reduction (SSR) method
- What are typical variations between a 2D and a 3D analysis?
- Earth slope 3D slope stability analysis
- Open pit: 3D slope stability analysis

DAY 2 - SVFLUX & SVSOLID

(AM) - Groundwater Seepage Analysis

- Modeling unsaturated soils in engineering practice
- Understanding of coupling seepage and slope stability
- Incorporating unsaturated analysis in slope stability
- Solution of typical models with SVFLUX™ & SVSLOPE®
- Estimation of unsaturated hydraulic properties
- Solution of 2D/3D seepage numerical models

(PM) - Stress/Deformation Analysis

- 2D theory of stress/deformation analysis
- Solution of 2D/3D stress deformation numerical models
- Solution of typical 3D numerical models

To Register...please visit:

<https://soilvision.com/shortcourseregistration.php>

Or contact us by:



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