Stability of Natural and Man-Made Slopes: Analyses, Shear Strengths, Testing, Stability Methods, and Stabilization

Dr. Timothy D. Stark – University of Illinois at Urbana-Champaign
Dr. Ning Lu – Colorado School of Mines
Dr. Kord Wissmann – Geopier Foundation Company & Tensar Corporation

Thursday, February 11, 2016

Scott Conference Center
6450 Pine Street
University of Nebraska
Omaha, Nebraska
Check-in begins: 7:45 a.m.
Course: 8:15 a.m. – 5:15 p.m.

Sponsored By:
33rd GEO-Omaha 2016
Nebraska ASCE Geotechnical Section
&
Embankments, Dams, and Slopes Committee of ASCE Geo-Institute

Registration Fee: $135.00 on or before February 5, 2016, $150.00 after this date. A certificate verifying 7.5 Professional Development Hours will be provided to registered attendees. Costs Cover coffee breaks, lunch and handout material. A part of the proceeds benefit the ASCE funded Peck/Benak Engineering Achievement Scholarship, Future City Competition, and local ASCE Student Section.
Please register at www.neasce.org **by Friday, February 5.**
Refunds will be made if the conference is canceled or if the applicant cancels no later than five working days prior to the conference date.

Why You Should Attend:

After completing this course, you should:

- Have a knowledge of current geotechnical engineering practices for slope stability investigations and applicable shear strengths, shear strength testing, and static and seismic stability analyses for natural and man-made slopes
- Selection of drained v. undrained shear strengths for stability analyses
- Understand the measurement and selection of the drained peak, fully softened, and residual shear strengths for use in stability analyses
- Understand the importance and application of a cohesion value and stress dependent strength envelopes in stability analyses
- Become more proficient in reviewing and analyzing slope stability problems

Short Course Topics will include:

- Critical Cross-Section and Failure Surface
    - Examples and interpretation of slope inclinometers
    - Applicability of different types of failure surfaces
- 2D and 3D Stability Methods
    - Static and seismic slope stability methods
    - Use of cohesion and stress dependent strength envelopes
- Selection and Types of Drained and Undrained Shear Strengths
- Principle of Effective Stress in Unsaturated Soils
- Unsaturated Slope Stability Analyses for Hillslopes
- Slope Stabilization and Reinforcement Techniques
- Slope Case Histories
    - Fully Softened Shear Strength – Natural and Man-Made
    - Residual Strength and Walls
    - Highway Embankment on Soft Soils
    - Housing Development Decisions
    - Geosynthetic Lines Slopes

Course Instructors:

Timothy D. Stark, Ph.D., P.E. has been a Professor of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign since 1991. His research interests include the static and seismic stability of natural and manmade slopes, three-dimensional slope stability analyses, shear strengths for slope stability analyses, and earthquake-induced liquefaction and post-liquefaction strength of cohesionless soils. Dr. Stark has received a number of awards for his research, teaching, and service activities including the 2015 James M. Hoover Lecturer, Iowa State University; Thomas A. Middlebrooks Award from the American Society of Civil Engineers (ASCE), 2013 and 1998; Associated Editor of the Year by ASCE Journal of Geotechnical and Geoenvironmental Engineering, 2011; Best Scholarly Paper from Journal of Legal Affairs of ASCE, 2011; R.M. Quigley Award from the Canadian Geotechnical Society, 2003; R.S. Ladd ASTM Standards Development Award from the ASTM, 2013, 2011, and 2002; Walter L. Huber Research Prize from ASCE, 1999.

Ning Lu, Ph.D., is a Professor of Civil Engineering at Colorado School of Mines and an international expert on stresses in and stability of unsaturated porous media. His primary research interest is relating and combining basic soil physical phenomena, e.g., fluid flow, chemical transport, heat transfer, stress, and deformation, to understand various engineering problems, such as underground nuclear waste isolation, residential house foundation damage by expansive clays, and, most recently, precipitation-induced shallow landslides. He has co-authored numerous papers and two textbooks titled "Unsaturated Soil Mechanics" (John Wiley and Sons, 2004) and "Hillslope Hydrology and Stability" (N. Lu and J.W. Godt, Cambridge University Press, 2012). He teaches regularly on mechanics and hydrology of variably saturated porous media with the textbook Unsaturated Soil Mechanics (John Wiley and Sons, 2004) .He also teaches vadose zone hydrology and landslides with the textbook Hillslope Hydrology and Stability (N. Lu and J.W. Godt, Cambridge University Press, 2012). Dr. Lu has received a number of awards for his research, teaching, and service activities including the Norman Medal and Croes Medal from the American Society of Civil Engineers (ASCE) in 2007 and 2010, respectively.

Kord Wissmann, Ph.D., P.E., M.ASCE, Geo-Institute President and president of Geopier Foundation Company which is a subsidiary of the Tensar Corporation. Dr. Wissmann has over 20 years of geotechnical and civil engineering experience and is actively involved in every aspect of Geopier Foundation Company (GFC), which focuses on intermediate foundation support systems. Dr. Wissmann joined GFC as Chief Engineer in 1998, was promoted to Vice President in 2000 and to President in 2002, the year the company was acquired by Tensar Corporation. GFC is headquartered in Davidson, North Carolina. Kord has both undergraduate and graduate degrees in Civil Engineering, including a B.S. degree from Virginia Tech in 1987, an M.S. degree from University of California-Berkeley in 1988 and a Ph.D. from Virginia Tech in 1995. He received the Outstanding Young Alumnus Award from the Virginia Tech Department of Civil Engineering in 2000. Dr. Wissmann has authored more than 20 articles published in peer-reviewed journals and technical papers.