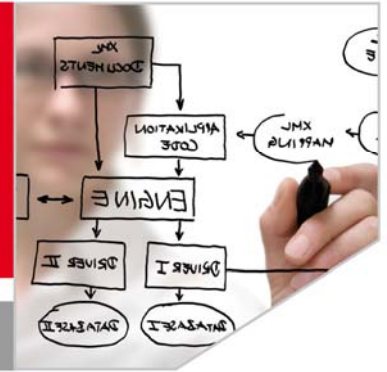


Probabilities of Failure and Factors of Safety in Geotechnical Engineering

Professor Vaughan Griffiths Colorado School of Mines, USA

Australian Geomechanics Society, Western Australia Chapter



EVENT DETAILS

Date:

Wednesday, 15 February 2012

Time:

5.30 pm for 6.00 pm start

Venue:

Auditorium
Engineers Australia
712 Murray Street
West Perth

Cost:

Free

RSVP:

Not Required

You are invited to stay a while longer after the talk and join the speaker for pizza and drinks, courtesy of the AGS



*Australian Geomechanics Society
Western Australian Chapter*

SUMMARY

There has been a rapid growth of interest in both academe and industry in the use of probabilistic methods in geotechnical engineering. In hindsight this is not too surprising, since soils and rocks are among the most variable of all engineering materials, and geotechnical engineers must often make do with materials they are dealt with at any particular site. This inherent variability makes geotechnical analysis highly amenable to a treatment based on statistically described input parameters.

The outcome of a probabilistic analysis typically leads to a probability of failure as opposed to the traditional factor of safety, representing a fundamental change in the way geotechnical engineers need to think about the suitability of their designs. The presentation describes methods of analysis of highly variable soils by numerical methods, and the implications this may have for geotechnical design outcomes. The relationship between the probability of failure and the factor of safety is discussed, and some simple methods of probabilistic analysis are described.

The presentation ends with a brief description of current research in probabilistic geotechnical engineering, and some free software is made available to the audience if they wish to have a go at some of the methodologies for themselves.

ABOUT THE SPEAKER

Professor Vaughan Griffiths Colorado School of Mines, USA

Vaughan Griffiths completed his Masters degree at UC Berkeley and Doctoral degrees at the University of Manchester, U.K. He is currently a Professor of Civil Engineering at the Colorado School of Mines where his primary research interests lie in application of finite element methods to a broad range of geotechnical engineering topics.

He was previously on the Civil Engineering faculty at the University of Manchester, and has held visiting appointments at Princeton University, the University of Sydney, and the University of Canterbury, New Zealand. He has written over 200 research papers and is the co-author of three textbooks, "Programming the Finite Element Method", 4th edition, Wiley (2004), "Numerical Methods for Engineers", 2nd edition, Chapman & Hall/CRC (2006) and "Risk Assessment in Geotechnical Engineering" Wiley (2008). He gives regular short-courses for ASCE Continuing Education on "Risk Assessment in Geotechnical Engineering" and "Finite Elements in Geotechnical Engineering".

He is on the Board of Direction of the ASCE and currently serves as an Editor the Journal of Geotechnical and Geoenvironmental Engineering. Dr. Griffiths is a licensed Professional Engineer in Colorado and a Chartered Engineer in the U.K.

→ 2011 year
of
humanitarian
engineering

712 Murray Street, West Perth WA 6005
Phone: (08) 9321 3340 • Fax: (08) 9481 4332
Website: www.engineersaustralia.org.au/wa



**ENGINEERS
AUSTRALIA**