Modelling of Soil Behaviour in Geotechnical Engineering Practice

Organised by: Centre for Infrastructure Engineering and Management and School of Engineering, Griffith University Gold Coast Campus

Module 1: February 15-16, 2010 - Saturated Soil Behaviour

Module 2: February 17-18, 2010 - Unsaturated Soil Behaviour

Module 3: February19, 2010 - Seismic Soil behaviour and Geotechnical Earthquake Engineering

Date: February 15 – 19, 2010

Venue: Griffith University Gold Coast Campus G17_Theatre3

See "Registration form" for daily registration

PLEASE NOTE THAT ONLINE REGISTRATION IS NOW AVAILABLE
https://www.conferenceonline.com/index.cfm?page=booking&object=conference&id=14711&categorykey=1238CCAC%2DF18B%2D434E%2D95A8%2DF7CCE3A9169A&clear=1

For additional information please contact (preferably by e-mail)

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INTRODUCTION

Following the most successful International Advanced Course by Plaxis from 30 November - 4 December, 2009, it became very clear and evident, that a proper understanding of the soil behaviour is the key to the success of using closed form and numerical analyses in geotechnical engineering practice. As such a Workshop on Soil behaviour is arranged from February 15-19. The Workshop is in three modules: Saturated soil modelling by Prof. David Muir Wood; Unsaturated soil modelling by Prof. Eduardo Alonso and Seismic soil behaviour and geotechnical earthquake engineering by Prof. Thevanayagam. The details are as follows:

Module 1: Saturated soil modelling
Prof. David Muir Wood
University of Dundee

Prof. David Muir Wood with excellent experience on soil modelling will deliver lectures in Module 1. The details are

Day 1: Monday, 15th February, 2010

08:30	–	09:00am	Registration
09:00	–	10:00am	Introduction to modelling: soil behaviour
10:00	–	11:00am	Elastic modelling
11:00	–	11:15am	Coffee break
11:15	–	12:15pm	The most widely used soil model: Mohr-Coulomb
12:15	–	01:00pm	Lunch
01:00	–	02:15pm	Cam clay I
02:15	–	03:30pm	Cam clay II
03:30	–	03:45pm	Coffee break
03:45	–	05:15pm	Practical exercise : choice of soil parameters

Day 2: Tuesday, 16th February, 2010

09:00 –	10:00am	Cam clay improved: nonlinearity and structure
10:00 –	11:00am	Mohr-Coulomb improved: nonlinearity and critical states
11:00 –	11:15am	Coffee break
11:15 –	12:15pm	Practical exercise: stress paths and laboratory testing
12:15 –	01:00pm	Lunch
01:00 –	02:15pm	Modelling of effects of particle breakage
02:15 –	03:30pm	Modelling of effects of erosion of fine particles
03:30 –	03:45pm	Coffee break
03:45 –	05:15pm	Modelling of sand/fibre mixtures. Concluding remarks.

Module 2: Unsaturated soil modelling
Prof. Eduardo Alonso
Polytechnic University of Catalunya, Barcelona

Prof. Eduardo Alonso, a world authority on the modelling of unsaturated soil behaviour will give lectures. The details are as follows:

Day 3: Wednesday, 17th February, 2010

08:30–	09:00am	Registration
09:00–	10:00am	Unsaturated soil mechanics in geotechnical engineering: the range of materials involved
10:00–	11:00am	The state of water. Suction. Effective stress
11:00–	11:15am	Coffee break
11:15–	12:15pm	A reference material: low plasticity, open structure. experimental behaviour
12:15–	01:00pm	Lunch
01:00–	02:15pm	An idealized unsaturated granular soil
02:15–	03:30pm	A reference elastoplastic model: BBM (Barcelona Basic

		Model)
03:30–	03:45pm	Coffee break
03:45–	05:15pm	Advanced elastoplastic models. Hydro-mechanical coupling

Day 4: Thursday, 18th February, 2010

09:00–	10:00am	Rockfill behaviour
10:00–	11:00am	Rockfill modelling
11:00–	11:15am	Coffee break
11:15–	12:15pm	Features of expansive soil behaviour
12:15–	01:00pm	Lunch
01:00–	02:15pm	Elastoplastic modelling of expansive soils
02:15–	03:30pm	Balance equations
03:30–	03:45pm	Coffee break
03:45–	05:15pm	Field problems. Case histories

Module 3: Seismic Soil Behaviour and Soil Liquefaction

Theva S. Thevanayagam
State University of New York, Buffalo, USA

Day 5: Friday, 19th February

Prof. S. Thevanayagam (Theva), a renowned research leader in the study of soil liquefaction, screening, and liquefaction mitigation in sands and silty soils will give these lectures.

Technical Programme

08:30 –	09:00am	Registration
09:00 –	10:00am	Introduction to Geotechnical Earthquake Engineering

10:00	–	11:00am	Undrained Monotonic and Cyclic Behaviour of Sands
11:00	–	11:15am	Coffee break
11:15	–	12:15pm	Soil Liquefaction & Liquefaction Screening
12:15	–	01:00pm	Lunch
01:00	–	02:15pm	Post-Liquefaction Behaviour and Lateral Spreading and Case Histories
02:15	–	03:30pm	Ground Improvement Techniques for Soil Liquefaction Mitigation
03:30	–	03:45pm	Coffee break
03:45	–	05:15pm	Lateral spreading Effects on Pile Foundations and Case Histories

Registration Can Now Be Done Online

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(A) SIMPLY FOLLOW THE LINK; YOU WILL BE REQUIRED TO FILL IN YOUR DETAILS AS BELOW:

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(B) BY CLICKING "NEXT STEP", YOU WILL BE ABLE TO SELECT THE MODULE YOU INTEND TO ATTEND.

- □ **AUD $ 440 –Monday, 15th February 2009**
- □ **AUD $ 440 –Tuesday , 16th February2009**
- □ **AUD $ 440 –Wednesday, 17th February2009**
- □ **AUD $ 440 –Thursday, 18th February 2009**
- □ **AUD $ 440 –Friday, 19th February 2009**

By ticking the box, you are now registered for the days you selected.

(C) PLEASE CLICK "NEXT STEP" AGAIN, YOU WILL NOW ABLE TO SELECT THE PAYMENT METHOD YOU WANT TO USE. THESE INCLUDE:

- □ **CREDIT CARD (VISA/ MASTERCARD/ AMEX)**
- □ **CHEQUE**
- □ **DIRECT DEPOSIT (EFT)**

(D) AFTER YOU FILLED IN ALL THESE DETAILS, YOU ARE NOW REGISTERED IN THE WORKSHOP BY CLICKING THE "SUBMIT" BUTTON. AN INVOICE WILL BE SENT TO YOUR EMAIL DIRECTLY.

***For additional information please contact (preferably by e-mail)**
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LECTURERS BIO-DATA

(1) Prof. David Muir Wood:

David Muir Wood read Mechanical Sciences at Peterhouse, Cambridge University, graduating in 1970. He received his PhD there in 1974 for research on the true triaxial behaviour of clays. He was a lecturer and Fellow of Emmanuel College, Cambridge from 1975-1987. In 1987 he moved to Glasgow University where he held the Cormack Chair of Civil Engineering.

In 1995 he was appointed to the Chair of Civil Engineering at Bristol University, becoming Dean of the Faculty of Engineering in 2003. He was elected a Fellow of the Royal Academy of Engineering in 1998. He joined the University of Dundee in 2009.

David Muir Wood's current research explores themes concerned with the particle-continuum duality of soils. He is developing constitutive models for soils with breakable particles, for soils whose finer particles are being transported away by internal flow of water, and for soils whose mechanical response is improved by the addition of short flexible fibres. The ongoing challenge for each of these is to obtain appropriate experimental data to support the modelling hypotheses.

He has written three books: Soil behaviour and critical state soil mechanics (1990), Geotechnical modelling (2004), Soil mechanics: a one-dimensional introduction (2009).

(2) Prof. Eduardo Alonso:

Prof. Eduardo Alonso is the Professor of Geotechnical Engineering at the Technical University of Catalunya, Barcelona in Spain. He had his early education in University of Madrid (1963) and Northwestern University (PhD in 1973) in USA. He was also at McGill University as a Research Fellow in early seventies.

An author of more than 300 publications, Eduardo is the recipient of the prestigious Telford Medal of Institution of Civil Engineers London (ICE) on two occasions in 1994 and 2006. He also won the Crampton prize of ICE and the Geotechnical Research Medal of ICE in 2009. Eduardo was also a Buchanan and Sowers Lecturer at Texas A & M and at Georgia Tech.

Eduardo’s teaching experience are on Theoretical soil and rock mechanics; foundation design; geotechnical construction; reliability in geotechnical engineering; tunnels and underground excavations. Eduardo’s research interests are on Reliability and risk in Geotechnical Engineering; Behaviour of partially saturated soils; expansive soils and rocks; numerical analysis of geotechnical problems (soils and rocks); field measurements and geotechnical back analysis; slope stability. Earth and rockfill dams.

(3) Prof. S.Thevanayagam

Prof. S. Thevanayagam (Theva) is a renowned research leader in the study of soil liquefaction, screening, and liquefaction mitigation in sands and silty soils. Theva is a professor in Civil Engineering at the State University of New York. He was also a key member of the development of the flagship earthquake engineering research facility at the university at Buffalo as part of a network of 15 major state-of-the-art facilities known as the NSF sponsored George E. Brown Network for Earthquake Engineering Simulation, NEES in the USA. He is currently engaged in a large scale research involving several US universities on liquefaction-induced lateral spreading and effects on pile foundation using 6m deep laminar box equipment, centrifuge testing, and FEM simulations. Professor Theva is a member of the American Society of Civil Engineers and International Society of Soil Mechanics and Foundation Engineering. He was also the director of education at the Multi-disciplinary Centre for Earthquake Engineering Research at the University at Buffalo, a US National Science Foundation sponsored agency for earthquake engineering research.