

A NZGS 1-day short course on

DESIGN AND ANALYSIS OF DEEP EXCAVATIONS *with Professor Wong Kai Sin* *Nanyang Technological University, Singapore*

This short course focuses on issues related to deep excavations in fine grained soils. It provides an overview of deep excavation in soil and an understanding of the uncertainties and variables affecting the performance of the earth retention system. Its main emphasis is on the design and analysis using the limit equilibrium and the finite element methods and the range of applications and limitations of the Mohr-Coulomb soil model. Some topics will be covered in detail while others will be highlighted on the important points. This course has been taught in Australia, Indonesia, Vietnam and extensively in Singapore.

AUCKLAND University of Auckland. **Wednesday 25 November 2009 (9am – 5pm)**

WELLINGTON West Plaza Hotel. **Friday 27 November 2009 (9am – 5pm)**

CHRISTCHURCH University of Canterbury. **Tuesday 1 December 2009 (9am – 5pm)**

KEY TOPICS:

SESSION 1 – OVERVIEW

- › Major geotechnical considerations
- › Types of retaining wall system and method of construction
- › Understanding the soil-structure interaction in deep excavation
- › Field monitoring and the observational approach
- › Site investigation

SESSION 2 – METHOD OF ANALYSIS

- › Design considerations
- › Limit equilibrium methods: basal heave, toe stability and hydraulic uplift
- › Empirical methods: strut forces; wall deflections and ground settlement
- › Finite element method: 1-D, 2-D and 3-D
- › Common problems associated with FEA

SESSION 3 – MOHR-COULOMB MODEL

- › Modelling undrained behaviour of clay
 - › Modelling drained behaviour of clay
 - › Limitations and range of applications
- ### SESSION 4 – REDUCTION OF WALL DEFLECTIONS AND GROUND MOVEMENTS
- › Varying wall stiffness and strut spacing
 - › Cross-walls; circular openings
 - › Soil improvement with jet grouting and deep cement mixing

PROFESSOR WONG KAI SIN

WONG Kai Sin, graduated in 1972 with a BS degree from the University of Illinois. He received his MS and PhD degrees from the University of California at Berkeley in 1975 and 1978 respectively. He practiced geotechnical engineering in California before joining NTU in 1984. Prof Wong is currently a technical advisor to the Land Transport Authority of Singapore and several international consultancy and construction companies.

His major areas of interest are deep excavations, deep foundations, slope stability, soil improvement, land reclamation and soil-structure interaction problems. He was involved in the design and construction of many temporary works for deep excavations in Singapore. He was on the Independent Investigation Panel for the Land Transport Authority on the Nicoll Highway collapse.

REGISTER by filling out the form below and sending payment to: Amanda Blakey, NZGS Secretary, 81 Esperance Road, Glendowie, Auckland 1071 or emailing form to nzgeotechnicalsociety@xtra.co.nz by Wednesday 18th November 2009. No refunds will be given for cancellations.

REGISTRATION FEES: NZGS Members \$250 including GST, Non-Members \$350 including GST, NZSEE, SESOC and NZSOLD 10% discount off full price \$315 including GST

this event is hosted by

THE NEW ZEALAND GEOTECHNICAL SOCIETY INC



REGISTRATION FORM



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OF DEEP EXCAVATIONS**
with Professor Wong Kai Sin
**Nanyang Technological University,
Singapore**

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