The Institution of Engineers, Malaysia

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EVENING TALK ON INTEGRATION OF ULS AND SLS BASED DESIGN FOR INTERPRETATION OF SOIL-STRUCTURE INTERACTION

(Organised by the Geotechnical Engineering Technical Division, IEM)

BEM Approved CPD/PDP Hours: 2.0   Ref No: IEM17/HQ/112/T

Day/Date : Thursday, 20th April 2017
Time : 5:30 pm – 7:30 pm
Venue : TUS / C&S Lecture Hall, Wisma IEM, PJ
Presenter : Ir. Assoc. Prof. Dr. Dominic E.L. Ong

Abstract:

Finite Element Method (FEM) is usually used as a performance-based (Serviceability Limit State or SLS) design method to provide in-sights into complex behaviour of soil-structure interaction. The advantage of using FEM in challenging geotechnical projects is the ability to predict movements so as to maintain the functional use of building and infrastructure when they come into service. In this talk, an attempt is made to study the possibility and applicability of FEM in geotechnical Ultimate Limit State (ULS) design using EN1997-1 or otherwise known as Eurocode 7: Geotechnical Design – General Rules. As structural design is mainly done based on ULS, its integration with geotechnical structure, which is usually designed for SLS, remains a challenge. From the 2 idealised case studies carried out involving a shallow foundation and an anchored sheetpile wall, it is confidently shown that FEM has a place in ULS design for strength and SLS design for serviceability of geotechnical structures, but not without good understanding of geotechnical knowledge. However, its application must be prudently scrutinised especially when complex soil model is adopted as it may involve development of artificial yield surfaces, thus increasing the complexity of interpretation of the problem in hand. Therefore, sound geotechnical skills, experience and field observations are required when making the overall judgment.

Profile of Speaker:

Ir. Assoc. Prof. Dr. Dominic Ong obtained his B.E. (Hons.) in Civil Eng. from the University of Western Australia (UWA) and his PhD in Geotechnical Engineering from the National University of Singapore (NUS). Currently, he is an Associate Professor and Director of the Research Centre for Sustainable Technologies, Swinburne University of Technology Sarawak Campus. He is also actively involved in geotechnical consultancy works within the local industry and previously in Singapore. Ir. Dr. Ong has particular interests in the fields of deep excavation, tunnelling, soil-structure interaction, ground improvement & field instrumentation. He is an EXCO Member of ACEM Sarawak Branch, Vice-Chairman IEM Sarawak Branch and is also a Founding Member of both the Malaysian Geotechnical Society (MGS). He is an Editorial Board Member of the UK's ICE journal, *Geotechnical Research* and SEAGC-AGSSEA *Geotechnical Engineering* journal. Recently, he serves in the International Society for Soil Mechanics & Geotechnical Engineering (ISSMGE) Technical Committees, namely, TC104 Physical Modelling and TC207 Soil-Structure Interaction & Retaining Walls.

Ir. Yee Thien Seng
Chairman, Geotechnical Engineering Technical Division, IEM

ANNOUNCEMENTS TO NOTE
- **Non-IEM members** may also attend the talk but will need to pay a registration fee of **RM50** and an administrative fee of **RM15.** GST is inclusive.
- Limited seats are available on a "first come first served" basis (maximum 100 participants). **To secure your seat, kindly register online at www.myiem.org.my.**

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