The Institution of Engineers, Malaysia

HALF DAY WEBINAR ON "TUNNELLING CHALLENGES IN BUILT-UP ENVIRONMENT WITH SIMPLIFIED APPROACH FOR COMPLEX ASSESSMENT"

OUR SPEAKER

Dr. OSKAR SIGL

10TH NOVEMBER 2022 (Thursday)

9.00 a.m. – 1.30 p.m.

GoToWebinar

BEM Approved CPD/PDP Hours: 4.0
(IEM22/HQ/403/w)

Organized & Hosted by:
Tunneling and Underground Space Technical Division (TUSTD), IEM

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SPEAKER

Dr. Oskar Sigl graduated as Diploma Engineer (MSc.) 1985 from Technical University of Graz (Austria), in Civil Engineering specializing in geotechnics and soil mechanics.

In 1991, after working for five years as Teaching Assistant at the Institute for Geomechanics and Tunnelling, he achieved with distinction the PhD in mining engineering at the Mining University of Leoben (Austria).

Oskar's more 35 years of experience cover a wide range of underground infra structure projects such as subways, railways, roads, power transmission cables, sewerage mains, underground storage schemes and caverns.

Oskar has been working in Singapore since 1997, where he was involved in the detailed design of almost all major underground infra structure projects. This includes the North East Line, Circle Line, Downtown Line, Thomson-East Coast Line, Cross-Island Line MRTs, the SPPA high voltage transmission cable tunnels, the Kallang Paya Lebar and Marine Costal Expressways, the Deep Tunnel Sewer System, and many more.

Outside of Singapore, Dr. Sigl was involved in leading roles in the design of underground subway systems in Kuala Lumpur, Dubai, Perth, Hong Kong, as well as the design of underground oil and fuel storage cavern schemes in Saudi Arabia, India and the UAE.

SYNOPSIS

The seminar will be split into two main parts:

1. Challenges of Underground Construction in the Built-up Environment

The talk intends to direct the focus on the application of unusual construction methods and related design and construction challenges highlighting solutions to major challenges of planning underground projects in the heavily built-up zones of urban environments. This is presented in the form of examples from the viewpoint of a practitioner, who is deeply involved in the actual design for the implementation of such projects. Infrastructure in large cities is getting denser over time. Therefore, interference with existing structures is becoming a very common feature during the implementation process of new projects. As consequence, actual geotechnical challenges often relate to the application of innovative methods of construction to minimize potential construction impact or disruption.

Duration: 2 hours

2. Simplified Approaches for Complex Assessments Related Top TBM Tunnelling

For very complex and complicated situations, related design tasks can be carried out based on simplified approaches when they are derived using proper engineering analysis. These simplified approaches are especially relevant for preliminary assessments, such as tender designs, when too detailed analyses are either too time consuming or, due to lack of detailed

information, would need to be based on too many assumptions, anyhow. In such cases, relevant design results can be obtained efficiently by applying simplified methods.

Therefore, the main aim of this talk is making the auditorium remember some of the basic analysis tools, which they might have heard during their engineering training. With proper engineering judgment, many of which could be used to derive such simplified analysis approaches.

This is demonstrated with the help of three practical examples.

a) Large diameter rock TBM under high water head

Driving a large diameter TBM in rock conditions under high water head conditions requires assessment of ground water inflows during driving and stoppage for cutterhead intervention. This becomes particularly important when defining the detailed requirements of the TBM during a tender whether the expected inflow quantities can be managed and what pumping capacities are required. Based on numerical analysis of few selected cross sections, assessment in different overburden and water head scenarios can be made and results simplified to be applied to varying conditions without further numerical analyses.

b) Preliminary assessment settlements of complicated excavations

Complicated cross sections such as NATM excavation are excavated in many sub-stages with staged ground support application following these stages. Therefore, numerical analysis of such an excavation result in complicated models and time-consuming analyses. This can be simplified by analyzing only an “incremental” tunnel advance which than can be superimposed with each other applying a generalized volume loss approach.

c) Special tools for assessment of monitoring results.

Tools for assessing the longitudinal distribution of settlement monitoring results along a tunnel drive to derive data which can be used to make decisions related to tunnel driving.

Duration: 2 hours

PROGRAMME OUTLINED

Time	Programme
8:30 am – 9:00 am	Registration of Participants – Please log in using the IEM’s Invitation Email Link O N L Y that will be emailed to your registered email before the event. (NO sharing of link as the ‘ invitation link’ is designated for REGISTERED EMAIL ONLY)
9:00 am – 9:05 am	Welcoming Address and Introduction by TUSTD.
9:05 am – 10.45 am	**Part 1: Challenges of Underground Construction in the Built-up Environment**
10.45 pm – 11.00 am	Morning Coffee Break
11.00 am – 13.00 pm	**Part 2: Simplified Approaches for Complex Assessments Related Top TBM Tunnelling**
13.00 pm – 1.30 pm	Q&A
1.30 pm	End of Webinar

*** IEM reserves the right to postpone, reschedule, allocate or cancel the course.**

REGISTRATION FORM

HALF DAY WEBINAR ON "TUNNELLING CHALLENGES IN BUILT-UP ENVIRONMENT WITH SIMPLIFIED APPROACH FOR COMPLEX ASSESSMENT"

10TH NOVEMBER 2022 (Thursday)

Email: shahrul@iem.org.my, parimala@iem.org.my, suriani@iem.org.my

	ONLINE	NORMAL FEE (RM)
IEM Student Member	40.00	50.00
IEM Graduate Member	75.00	90.00
IEM Corporate Member	125.00	150.00
Non-IEM Member	240.00	300.00

No	Name(s)	Membership No.	Grade	Fee (RM)*
			SUB TOTAL	
			+ 6% SST	
			TOTAL PAYABLE	

PAYMENT DETAILS :

☐ Cash RM _____

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(SHOULD PAYMENT IS MADE, KINDLY EMAIL THE 'BANK-IN-SLIP' TO IEM FOR VERIFICATION BEFORE THE EVENT FOR EASY REGISTRATION)

FULL PAYMENT must be settled before commencement of the seminar, otherwise participants will not be allowed to enter the hall. If a place is reserved and the intended participant fails to attend the course, the fee is to be settled in full. If the participant failed to attend the course, the fee paid is non refundable. The Registration Fee includes lecture notes, refreshment and lunch (which ever available).

For **ONLINE REGISTRATIONS**, please note that payment **MUST** be made **BEFORE the closing date**. If payment is not received within the stipulated time, the registration fee will be reverted to the normal registration fee.

Contact Person : _____ Designation : _____

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Telephone No. : _____ (O) Fax No : _____ (O)

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- Payment via CASH / CHEQUE / BANK-IN TRANSMISSION / BANK DRAFT / MONEY ORDER / POSTAL ORDER / LO / WALK -IN will be considered as NORMAL REGISTRATION
- The Organising Committee reserves the right to cancel, alter, or change the program due to unforeseen circumstances. Every effort will be made to inform the registered participants of any changes. In view of the limited places available, intending participants are advised to send their registrations as early as possible so as to avoid disappointment.
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For further details, kindly contact:
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