IEM
The Institution of Engineers, Malaysia

30TH MAY 2024
8AM - 6PM

VENUE :
FOUR POINTS BY SHERATON, PUCHONG

ONE DAY SEMINAR ON "CROSSOVER TECHNOLOGIES FOR RESILIENT AND SUSTAINABLE GEOTECHNICAL ENGINEERING"

BEM Approved CPD: 7
REF. NO.: IEM24/HQ/156/S

SPEAKERS


IR. DR. CHOO CHUNG SIUNG


IR. LAU JOE JIUNN


IR. LEE CHEE KIEN


IR. ALLAN CHWEE


IR. ALBERT LIM

Email to : amira@iem.org.my or
Call at : 03-78900 134

HRD CORP CLAIMABLE
APPROVED DURATION: APPLYING

To register, CLICK HERE

Registration Fee (subject to 8% SST)

GRADE	ONLINE FEE (through IEM Website)	NORMAL FEE (through email)
IEM Student Member	RM 200	RM250
IEM Corporate Member	RM300	RM350
Non-IEM Member	RM600	RM700

PROGRAMME

Time	Description	Speaker
8.00am -8.50am	Registration	
8.50am-9.00am	Welcoming Remarks	Ir. Dr. Chan Swee Huat
9.00am – 10.00am	Lecture 1 – The Use of Deep Soil Mixing Technology Over The Ocean In Singapore's First Polder	Ir. Lee Chee Kien
10.00am - 10.15am	Morning Tea Break	
10.15am - 11.45am	Lecture 2 – Pipe jacking in eccentric highly weathered geology – Challenges, innovative solutions and an AI future	Ir. Dr. Choo Chung Siung
11.45am - 12.45pm	Lecture 3 – Sustainable Working Platform Solution for Wind Energy Development in Vietnam	Ir. Lau Joe Jiunn
12.45pm - 2.00 pm	Lunch	
2.00pm - 3.15pm	Lecture 4 – Geotechnical Design and Restoration Challenges of a Distressed Pier at Sultan Yusuf Bridge	Ir. Allan Chwee
3.15pm - 3.30pm	Afternoon Tea Break	
3.30pm - 5.00pm	Lecture 5 – Monitoring and Instrumentation on the performance of a reinforced geosynthetics wall using saturated residual clay as backfill material	Ir. Albert Lim
5.00pm - 6.00pm	Discussion on Cross Over Technologies Q&A	

REGISTRATION FORM

One Day Seminar on
"Crossover Technologies for Resilient and Sustainable Geotechnical Engineering"
30th May 2024 @ Four Points by Sheraton, Puchong

No	Name (s)	M'Ship Number	IC No.	Fee (RM)
			SUB TOTAL	
			ADD SST @8%	
			TOTAL PAYABLE	

*Fees MUST be fully paid BEFORE the CLOSING DATE. Seats could only be confirmed upon payment. Enclosed herewith a crossed cheque No: _____for the sum of RM _____ issued in favour of "The Institution of Engineers, Malaysia" and crossed 'A/C payee only'. I/We understand that the fee is not refundable if I/We withdraw after my/our application is accepted by the Organising Committee as stated in the cancellation term. If I/We fail to attend the seminar, the paid registration fee will not be refunded.

Name_____ Designation: _____

Adress:

_____

_____

_____

Tel No:_____ Email: _____

_____ _____

Signature & Stamp Date

Kindly email the registration form to **amira@iem.org.my**

IMPORTANT:

Participant / company that **APPLY THROUGH HRDC, MUST EMAIL the Registration Form** to IEM Secretariat and no need to register and pay through IEM portal.

STRICTLY, secretariat **will not entertain** shall you wish to **CHANGE TO HRDC AFTER PAID THROUGH THE IEM PORTAL.**

Your cooperation is highly appreciated.

CANCELLATION POLICY

IEM reserves the right to postpone, reschedule, allocate or cancel the course. Full refund if cancellation is received in writing more than 7 days before start date of the event. No cancellation will be accepted prior to the date of the event. However, replacement or substitute may be made at any time with prior notification and substitute will be charged according to membership status.

PERSONAL DATA PROTECTION ACT

I have read and understood the IEM's Personal Data Protection Notice published on IEM's website at http://www.myiem.org.my" and I agree to IEM's use and processing of my personal data as set out in the said notice.

SYNOPSIS & SPEAKERS' BIODATA

Ir. Dr. Choo Chung Siung **is currently a Senior Lecturer at Swinburne Sarawak and educates future civil engineers on soil mechanics and geotechnical engineering. Through his authentic blended teaching experience, he is able to bring real geotechnical engineering challenges into the classroom, by researching into current challenges faced by practising geotechnical engineers. His current experience and research interests are in the areas of tunnelling, trenchless technologies, numerical modelling of complex soil-structure interaction problems using finite element modelling, discrete element modelling and material point method, and machine learning applied to geotechnical engineering. He also explores methods of upcycling industrial wastes into useful construction materials, and innovations in geo-education through immersive technologies. Ir Dr Choo currently serves as a co-opted member of Engineers Australia Malaysia Chapter, and as a Committee Member of the Malaysian Geological Society. He also represents Malaysia at the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE), as a national nominated member for TC105 Geo-Mechanics from Micro to Macro and TC309 Machine Learning and Big Data.**

SYNOPSIS - PIPE JACKING IN ECCENTRIC HIGHLY WEATHERED GEOLOGY – CHALLENGES, INNOVATIVE SOLUTIONS AND AN AI FUTURE

Trenchless technologies (or 'no-dig' methods) are crucial in the construction of buried infrastructure, particularly in densely populated urban centres. Land is scarce in urbanised environments, thus conventional trenching methods will trigger many adverse socioeconomic consequences, such as rerouting of traffic (leading to even heavier traffic jams), damage to existing roads and buried utilities, damaged properties due to differential settlement, and increased danger of accidents. This is further aggravated when new buried pipelines need to be installed at great depths, for which conventional trenching is not feasible. An increasingly popular trenchless technology is pipe jacking, which utilises microtunnel boring machines (mTBMs) to lead a string of pipes that are propelled from the rear through the use of hydraulic jacks. A crucial factor in pipe jacking operations is the jacking force required to propel the pipe string. Established predictive models utilise soil mechanics theories, with limited applicability to pipe jacking in rocks. This presentation describes the (i) challenges presented by eccentric highly weathered geology, along with (ii) innovations in geotechnical characterisation of the highly weathered rocks through laboratory and in-situ testing, (iii) the development of strength parameters through a generalised tangential approach coupled with the power law, and (iv) the application of the developed parameters to pipe jacking case studies. This led to the finding of arching theory in the behaviour of eccentric highly weathered geology during pipe jacking. It was also found that jacking forces (and other operational parameters) were dependent on the lithological units. Current efforts are focused on the use of deep learning to quantify the influence of operational parameters (lubrication, jacking speed, slurry pressures, etc.) and lithological units on jacking forces. Insights will be shared on the importance of these parameters through the visualisation of machine attention, with the aim of improving on-site decision-making during pipe-jacking operations.

Ir. Lau Joe Jiunn **received his Bachelor of Engineering with Honors BEng (Hons) First Class Honors from the University of Putra Malaysia. He is a registered Professional Engineer with BEM and is a corporate member of IEM. He also serves the Geotechnical Engineering Technical Division (GETD) as a committee member. Upon graduation, he served as a Design Engineer in the geotechnical division of a consultancy firm and was actively involved in design and project management work. His experience includes the design and construction of earthwork, ground improvement work, shallow and deep foundation and basement, slope stability analysis, retaining structures and highway alignment. Ir Lau is currently the Design Manager at Tensar International Limited and is responsible for the EA region. He specializes in soil stabilisation, reinforced soil structures and advanced geotechnics.**

SYNOPSIS - SUSTAINABLE WORKING PLATFORM SOLUTION FOR WIND ENERGY DEVELOPMENT IN VIETNAM

Vietnam has emerged as one of the strongest adopters of wind energy among the ASEAN countries in recent years, benefiting from the long coastline with high wind velocity. However, construction near the coast is challenging; the combination of soft soils and high-water level leads to costly construction. Heavy cranes are required to hoist the turbine components, and a thick working platform is necessary. In addition, the conventional design methods for working platforms, usually developed empirically with imprecise assumptions and limitations, lead to an uneconomical design. This increases the carbon footprint of construction activities and undercuts the benefit of developing wind energy schemes. Thispresentation will discuss the use of multi-axial stabilisation geogrids to form a Mechanically Stabilised Layer (MSL) in a wind farm project in Vietnam to reduce the platform's thickness. A new design method called the "T-value" method for the working platform is adopted, allowing users to incorporate the beneficial effect. The carbon footprint reduction of stabilised (with MSL) and conventional solution will be evaluated.

SYNOPSIS & SPEAKERS' BIODATA

Ir. Lee Chee Kien (CK) **is a professional civil engineer with practicing certificate (PEPC Civil), and also an associate member of the Chartered Institute of Arbitrators (ACIArb). He graduated from The University of Nottingham in 2015, after which he joined ONE SMART Engineering (Malaysia) as a graduate engineer. He is currently a geotechnical engineer in Arup Malaysia. His key roles include the management of various contracts and subcontracts within Arup, and is currently acting as the geotechnical engineering lead for several key projects in the country. Throughout his career, he has made several publications in geotechnical engineering.**

SYNOPSIS - THE USE OF DEEP SOIL MIXING TECHNOLOGY OVER THE OCEAN IN SINGAPORE'S FIRST POLDER CONSTRUCTION

When the Singaporean Government decided to protect their Tekong Island from rising sea levels, while expanding their useable land area to the north of the Tekong Island, they looked to the Dutch for the polder construction method. This talk explores the construction of the Stormwater Collection Pond in Tekong Polder, specifically delving into the engineering aspects of the deep soil mixing (DSM) technology. The deployment of the DSM technology over the ocean was made possible via purpose-built barges fitted with cluster DSM augers that were long enough to reach the seabed. Positioning of the barge on the ocean to deliver the DSM columns at the desired position also demanded the use of accurate and precise positioning technologies. Sensors fitted on the barge allowed the as-built information of the DSM clusters, such as coordinates, termination depth, and auger logs such as cement injection rate, auger rotation speed, etc to be uploaded to a web-based platform for quality control. While cement reinforced soil can be considered as an advanced material, uncertainties in mixture demanded meticulous monitoring and quality control. Some rudimentary understanding of the DSM will be discussed, while shedding light on the challenging construction methodology of DSM over water.

Ir. Allan Chwee **graduated from Universiti Teknologi Malaysia (UTM) with Bachelor of Civil Engineering and obtained his Master of Engineering in Geotechnical in 2017. He started his career as a civil site engineer for a high-rise project before he joined a geotechnical consultant. He is now an engineering manager and country lead at Geoinventions Consulting Services Sdn Bhd, a consulting firm specializing in Geotechnical Engineering. He has published many technical papers on geotechnical engineering in international and local conferences. He has more than 10 years of technical experience and has involved in major infrastructure projects such as Tanjung Jati Cirebon Power Plant (Indonesia), Gemas – Johor Bahru Electrified Double Track, KL – Singapore High Speed Rail (HSR), MRT Line 2 Underground, Klang Valley Double Track Phase 2, etc. He is a professional engineer with practising certificate registered with Board of Engineer (BEM), Malaysia and also registered as ASEAN Chartered Professional Engineer (ACPE) and Chartered Professional Engineer of Australia (CPEng). Ir. Allan is also active in professional community. He has been a committee member of the Geotechnical Engineering Technical Division (GETD) and Membership Drive & Promotion (MDP) of the Institution of Engineers, Malaysia (IEM) since 2019.**

SYNOPSIS - GEOTECHNICAL DESIGN AND RESTORATION CHALLENGES OF A DISTRESSED PIER AT SULTAN YUSUF BRIDGE

Yusuf Bridge is located near to the town of Teluk Intan which is about 160km North of Kuala Lumpur. The bridge was built in 1988 to cross the Perak River and link the Teluk Intan town and Setiawan town via the west coast road. The Perak River is the second longest river in Peninsular Malaysia, and is about 350m wide and up to 21m deep. The main bridge is a three-span structure supported by 2 piers in the Perak River. The rest of the viaducts on land are supported by piers on reinforced concrete piles. In 2017, one of the piers located at the riverbank on Teluk Intan side showed excessive movement which triggered an investigation. It was found that the bearing of the pier had experienced offset from its original centroid position and multiple distress cracks were identified around the pier head. The distress observed and continuous movement of the affected pier have caused an alarm to the Public Work Department (PWD) Malaysia as the bridge is heavily used by public and industrial transportation vehicles. Monitoring instruments which include manual and real-time monitoring were immediately installed after the distresses were found. Further to the monitoring, it was discovered that the pier together with the pile group had started to move actively toward the river. The pier had been observed to move more than 10mm per day towards the river which indicated a catastrophic failure to happen soon. This talk presents the attempts adopted in stopping the pier movement and discusses on the permanent restoration solution as well as the challenges faced during the restoration journey.

SYNOPSIS & SPEAKERS' BIODATA

Ir. Albert Lim **is an accomplished professional engineer, currently holding the position of Senior Geosynthetics Manager at Solmax. He is responsible for driving the technical capabilities and marketing of geosynthetics products throughout the Asia Pacific region. With previous experience heading the Water and Environment Division, Albert was responsible for overseeing strategic plans, sales, product development, design and marketing plans for geosynthetics across Asia Pacific. Albert holds a Master of Science degree from the University of Mississippi, USA. He is a well-respected collaborator, working closely with renowned universities such as the National University of Singapore, Nanyang Technology University, and Monash University. Over the course of his 25-year technical career, he has authored and co-authored more than 30 technical papers for conferences both locally and overseas. Throughout his free time, he enjoys a cup of black coffee over good conversations.**

SYNOPSIS - MONITORING AND INSTRUMENTATION ON THE PERFORMANCE OF A REINFORCED GEOSYNTHETICS WALL USING SATURATED RESIDUAL CLAY AS BACKFILL MATERIAL

The use of geosynthetics to construct walls and slopes is very common in many parts of the world. In North America, for instance, the use of geogrid as a reinforcement material is very popular. The material along with sand backfill provides an economical and rapid solution to many construction projects. Sand is a free-draining material hence there is not much concern on pore pressure build-up, which might affect the stability of the structure. The material is also cheap due to its abundance in those countries. The same type of system, unfortunately, cannot be easily applied in the Southeast Asian region, in particular Malaysia as sand is expensive. The other option would be to use poor draining residual backfill which is a lateritic in nature and is usually poorly draining in nature. The relatively high fines content in the soil encourages water retention and can cause severe pore pressure build-up especially during heavy rainfall period. This phenomenon will cause a simultaneous decrease in effective stress at the soil-geosynthetic interface and is a major concern to many engineers using this material. There is also insufficient data and experience to support the use of this material. In view of these circumstances, the feasibility of using geosynthetics in this region depends very much not only on the strength but also the drainage capability of the geosynthetics. A permeable geosynthetic material is needed to ensure both the requirements are satisfied. The geosynthetic should be able to drain away excess pore pressure build-up fast and effectively thus maintaining the stability of the structure. A new composite material that that provide the necessary tensile strength and drainage capability was used for the wall construction. In order to strengthen the soil mass, the geosynthetic should be able to carry the stresses generated in the soil through interface friction. The interface friction between a geosynthetic and soil was studied by carrying out the onsite actual pullout test.

ADVERTISEMENT BOOKING FORM

One Day Seminar on "Crossover Technologies for Resilient and Sustainable Geotechnical Engineering"
30th May 2024 @ Four Points by Sheraton, Puchong

PLEASE TICK (√) IN THE APPROPRIATE BOXES BELOW (ALL SUBJECT TO 8% SST):

	Advertisement	Amount (RM)	Entitlement
	Outside back cover (colour)	2000	• Additional 3 complimentary seminar participants
	Inside front cover (colour)	1500	• Additional 2 complimentary seminar participants
	Inside back cover (colour)	1000	• Additional 1 complimentary seminar participants
	Inside page (colour)	500	• Additional 1 complimentary seminar participants
		TOTAL AMOUNT	
		ADD SST @8%	
		TOTAL PAYABLE	

*Fees MUST be fully paid BEFORE the CLOSING DATE. Seats could only be confirmed upon payment.
Enclosed herewith a crossed cheque No: _____for the sum of RM _____ issued in favour of "The Institution of Engineers, Malaysia" and crossed 'A/C payee only'. I/We understand that the fee is not refundable if I/We withdraw after my/our application is accepted by the Organising Committee as stated in the cancellation term. If I/We fail to attend the seminar, the paid registration fee will not be refunded.

CONTACT INFORMATION (FOR INVOICE AND PAYMENT PURPOSES)

We wish to inform that we would like to sponsor the above-said event as ticked in the box and will make payment to 'The Institution of Engineers, Malaysia' for the sum of Ringgit Malaysia _____.

Contact Person : _____ Designation: _____
Address:_____
_____
Company: _____
Tel No:_____ Email: _____

_____ Signature & Stamp

_____ Date

The Institution of Engineers, Malaysia
United Overseas Bank (UOB)
232-303-911-0
amira@iem.org.my /
finance@iem.org.my