IES Virtual Classroom Preventing Sinkholes with Ground Improvement Techniques and Next Gen Safety Landscape 1st Run

***** This course is NOT UTAP Funded***

*****This course is NOT SFC Supported***

IES Academy Virtual

Challenges of Unknown Ground Condition and Construction Activities that Could Lead to Sinkholes, and Design and Construction Supervision of Ground Treatment to Prevent Sinkholes, illustrated with Case Study (Structural Aspects : 6 Hours)

Part 1: Introduction of Singapore Geological Conditions and Challenges of Unknown Ground Conditions and Construction Activities that could lead to Sink Holes

This session will give an introduction to the geological conditions of Singapore based on the latest geological mapping and classification of Singapore ground and compared with the conventional geological mapping and classifications. Based on the current understanding of the geological conditions of Singapore, we will explore the risk we are facing in terms of unknown ground conditions in Singapore. The potential problems of unknown sub-surface ground conditions that could lead to sink holes on ground surface will be elaborated in this session. This 1.5hour session will prepare the participants to be able to have good understanding of Singapore geological conditions, challenges of unknown ground conditions and construction activities that could lead to sink holes on ground surface

1. Introduction of Singapore Geological Conditions based on the Latest Geological Mapping and Classifications compared with conventional geological mapping and classifications
2. Understanding the Risks of Unknown Ground Conditions that could lead to sink holes and other issues
3. Understanding of the various Construction Activities that could lead to potential sink holes and other issues
4. Mitigation measures to prevent sink holes due to unknown ground conditions and various Engineering Activities
5. Authorities Requirement in implementation of Appropriate Ground Investigation for any Proposed Engineering Projects in Singapore

Details

Date : 29 & 30 May 2025, Thur & Fri
Time : 1.00pm to 6.30pm
Duration: 10 Hours(Excluding Breaks)

Delivery Mode: Zoom Webinar

CPD:

2 STU(Safety) – Confirmed

6 STU(Structural) – Confirmed

10 PDU(PEB & CEng) – Confirmed

This course DO NOT HAVE SDU POINTS

Course Fee (Include GST)
IES Member: $359.70 nett
Non-member: $403.30 nett

E-certificate of Attendance will be awarded to participants who have completed the course survey and assessment.

Target Audience

- Resident Engineer & Resident Technical Officer
- Contractor PM, Site Engineer

IES Academy@Jurong East
80 Jurong East Street 21, #04-10
Devan Nair Institute for Employment and Employability Singapore 609607

Contact Person: Karen Phua
DID: 6461 1239 Main Line: 6463 9211
E-mail: karen@iesnet.org.sg

Part 2: Introduction of Various Methods of Ground Treatment and Basic Principles of Application of Ground Treatment as well as their area of effectiveness and objectives

There are many methods of ground treatment which are used in Singapore for different purposes. These ground treatment methods are such as jet grouting, compaction grouting, compensation grouting, deep soil cement mixing, wet soil mixing, grout mix piles, stone columns, prefabricated vertical drain with surcharging and vacuum, vibro-flotation and dynamic compaction. This session will illustrate the characteristics, effectiveness and purpose of these various method of ground treatment so that the participants will have an in-depth understanding of the various ground treatment methods in terms of their effectiveness in various conditions and applications. With this understanding the participants will be able to make the correct decisions on the appropriate method of ground treatment in various situations.

1. Introduction of objectives of ground treatment
2. Introduction of ground treatment methods for reclamation projects
3. Introduction of ground treatment methods for deep excavation projects
4. Introduction of ground improvement methods for bore tunnelling projects
5. Understanding of how ground treatment can be used to prevent sink holes
6. Understanding of how to detect possible void underground that could lead to sink holes and how to carry out the appropriate ground treatment to avoid sink holes from occurring

Part 3: Design and Supervision of Ground Treatment to Ensure Effectiveness of Ground Treatment illustrated with case history

In this session, the participants will learn about the basic principles for the design of ground treatment and how to supervise the construction of ground treatment works at construction site. Different method of ground treatment will require different attention to different details to ensured during construction to ensure its optimum performance. In this session, the participants will learn about the important factors to be specified in design drawings. The participants will learn about the design and construction supervision of various ground treatment through illustration of valuable case studies for projects in Singapore.

1. Understanding of basic principles of ground treatment design and how to specify the necessary parameters of the ground treatment on design drawings.
2. Understanding of how to carry out supervision for ground treatment works and what are the important aspects of the ground treatment are to be ensured during the construction of the ground treatment.
3. Case studies to illustrate design, construction and supervision of various ground treatment methods.

Part 4: Case Studies for Various Ground Treatment Methods

In this session, the participants will learn from the various case studies about various methods of ground treatment in terms of their design and construction aspects. These case studies will illustrate the actual ground treatment works carried out for major infrastructure and building projects locally as well as internationally. These ground treatment methods were deployed in the projects to overcome various challenges in the projects such as to enhance stability of the ground with ground treatment to support build up embankment, to reduce ground settlement with ground treatment, to increase the strength and stiffness of the ground to minimise ground movement and retaining wall deflection and to fill void underground to prevent sink holes from occurring.

1. Case study no 1 to illustrate the implementation of ground treatment work to enhance stability of the ground with ground treatment to support build up embankment
2. Case study no 2 to illustrate the implementation of ground treatment work to reduce ground settlement with ground treatment
3. Case study no 3 to illustrate the implementation of ground treatment work to increase the strength and stiffness of the ground to minimise ground movement and retaining wall deflection
4. Case study no 4 to illustrate the implementation of ground treatment work to fill void underground to prevent sink holes from occurring
5. Case study no 5 to illustrate the implementation of ground treatment work to improve the ground to reduce log term settlement of the ground

Speaker's Profile:

Er David Ng is a Professional Engineer (Civil) and Specialist Professional Engineer (Geotechnical) i n Singapore. He has been involved in the publication of more than 100 technical papers in the field of geotechnical and environmental engineering. He has more than 25 years of experience in management, planning, design and construction of major infrastructure and transportation projects in Singapore, Malaysia and India. He is co-founder of One Smart Engineering Pte Ltd which has offices and operations in Singapore, Malaysia and India.

Next Generation Safety Landscape: Industry 5.0 & Emergent of Safety Analytics (Safety: 4 Hours)

Course Objective

The course aims to provide insights into the changing safety landscape in the emerging future workplaces where the concept of Industry 5.0 will see more focuses on man and machine working together to increase resilience, a human-centric approach, and a focus on sustainability. The course will increase awareness of how developing safety technologies will change the way safety is being managed nowadays and how safety analytics will transform safety and health management in future workplaces, enabling participants to be better prepared for the transformation.

Course Outline

1. Overview: The Emergent Business Landscape & Safety Management
2. Industry 5.0: Transforming the New Future-Ready Business Landscape
3. Safety Analytics: Transforming Safety Measures, Metrics and Trend Analysis
4. Safety Technology: Revolutionizing the Management of Safety & Health in Future Workplaces

Associate Professor, Dr. SIN Siang-Meng, Ivan is currently the program chair professor for the MSc (Safety, Health & Environmental Technology) with the Department of Chemical & Biomolecular Engineering, National University of Singapore. As a certified and experienced emergency operation commander, crisis-emergency planner, fire-explosion Investigator, business continuity practitioner, Dr. SIN comes with more than 28 years of experience in government services and industry practices with the Singapore Civil Defence Force (SCDF), Monetary Authority of Singapore (MAS), Consultant Firm as Head (Hazardous Materials Program), Assistant Director (Crisis & Contingency Planning), Regional Head (EHSS & Business Resilience), and Consultant to projects. His areas of interest are in organization & business resilience, enterprise risk & resource management, corporate crisis and emergency management, business continuity & recovery management, workplace safety & health management, and chemical & process safety management. He is actively involved in various capacities with professional organizations such as the Fire Safety Managers' Association of Singapore (FSMAS), Society of Loss Prevention for Process Industries (SLP), Institution of Fire Engineers (IFE-UK), Institution of Chemical Engineers (IChemE-UK), Association of Company Emergency Response Teams Singapore (A-CERTS), and Technical Committee/Workgroups of ESG Singapore Standards.

Target Audience

This course will benefit Construction Stakeholders (especially Resident Engineers, Resident Technical Officers and Resident Architects) involved in supervising safety and health issues relating to the construction work.

Pre-requisites for Zoom session

Prior to attending this course, you should:

- Have a PC / laptop / tablet / smart phone with built-in or external webcam.
- Installed the Zoom client.
- Have Wi-Fi / high speed internet connection available.
- Receive an email with a link for you to submit a registration for webinar 1 week prior to the commencement.
- Receive an email with a link and password for you to join the webinar session after your registration is successful.

IES Virtual Classroom Preventing Sinkholes with Ground Improvement Techniques and Next Gen Safety Landscape 1st Run

***** This course is NOT UTAP Supported***

***** This course is NOT SFC Funded***

Date: 29 & 30 May 2025, Thursday & Friday

Time: 1.00pm to 6.30pm

Delivery Mode: Zoom Webinar

Course Fee(include GST): IES Member: $359.70 Nett Non-member: $403.30 Nett

Please register online/email the completed form **by 21 May 2025 before 3 pm** to:

Contact Person: Karen Phua
IES Academy@Jurong East
80 Jurong East Street 21, #04-10 Devan Nair Institute for Employment and Employability Singapore 609607
Tel: 6463 9211 Email address: karen@iesnet.org.sg

***Name** : _____ ***NRIC** : _____
(Please written in BLOCK Letter)

Company : _____ ***Designation**_____

***Address** : _____

***Postal Code** : _____ Gender : _____Male / Female _____

***Contact No.** : _____ Email address : _____

Please indicate: ☐ IES Members IES M'ship No.: _____ P.E. No.: _____ (if applicable)

☐ Non Members ☐ Sponsored by company (*Please indicate the Contact person detail)*

Contact Person Details *(if different from participant)*

#Name : _____ #Designation : _____

#Contact No. : _____ Email Address : _____

Payment Details

Payment via bank transfer or PayNow. All Fees are inclusive of 9% GST. *We No Longer accept Cheque*

Beneficiary: IES Academy Pte Ltd **Bank: United Overseas Bank** **SWIFT: UOVBSGSG** **Bank Code: 7375** **Branch Code: 016** **Bank Account number: 339-326-153-4**	**PayNow:** **IES Academy Pte Ltd** **UEN:202026912H**

Acceptance of Terms and Conditions for Registrations of IES Academy's Events

I agree to abide by the Terms and Conditions for Registration of IES Academy's Events.

Name : _____Signature : _____

**Mandatory entry*

#Compulsory Entry for participant who choose to be INVOICE to your company

TERMS & CONDITIONS COURSE REGISTRATION

Registration

Any registration, whether on-line or fax will be on a ***first-come-first-served basis*** and will only be confirmed upon receipt of full payment by **IES Academy Pte Ltd** unless otherwise invoice to company.

All registrations must be submitted with duly completed registration form.

Closing Date

The closing date of the event will be 1 week prior to event commencement date or earlier.

Confirmation of Registration

Confirmation of registration will be given at least 1 week before the commencement date via email. ***If you do not receive the said confirmation email, you are required to contact IESA at 6463 9211 during office hours.***

IESA reserves the right to allow only confirmed registrants to attend the Event.

Withdrawals/Refunds of Fees

Written notice at least 1 week in advance before the commencement of the event
Full course fee shall be refunded subjected to 4.5% transaction charge.

- **NO** refund otherwise.

No show of participant would not be accepted as a valid reason for withdrawal/refund.

One-time replacement is allowed only if written notice is received by us at least 1 week before the commencement of the event. However, when an IES member is replaced by a non-member, the participant has to pay the difference in the relevant fees.

Cancellation/Postponement

Changes in Venue, Dates, Time and Speakers for the Events can occur due to unforeseen circumstances. IES reserves the full rights to cancel or postpone the Event under such circumstances without prior reasons. Every effort, however, will be made to inform the participants or contact person of any cancellation or postponement.

Fees will be refunded in FULL if any Event is cancelled by IESA.

UTAP (Union Training Assistance Programme) is an individual skill upgrading account especially for NTUC members. As a member, you enjoy UTAP funding at 50% of the unfunded course fee capped at $250 every year.

Please visit HERE for more information on UTAP claim.

PERSONAL DATA PROTECTION ACT

I consent to the processing by Institution of Engineers, Singapore of personal data, including sensitive personal data as defined in the Data Protection Act 2014, about me for the proper purposes of Institution of Engineers, Singapore (IES). I undertake to observe the provisions of the Data Protection Act 2014 in relation to any personal data I may myself hold and process as a Members of Institution of Engineers, Singapore, and I agree to indemnify Institution of Engineers, Singapore from liability for any claims or damages that may arise from the processing of this data. For more information kindly refer to here.

Enquiries

For further enquiries, please contact IESA general office at Tel: 6463 9211.