COURSE OVERVIEW SE0070
Mastering the Groundwork: Understanding and Managing Soil Improvement Installation

Course Title
Mastering the Groundwork: Understanding and Managing Soil Improvement Installation

Course Date/Venue
Session 1: April 21-25, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: September 21-25, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
SE0070

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

The Geotechnical Investigation is critical, essential and integral to any successful construction project. Construction of any new facility requires an understanding of how the new construction will interact with the subsurface, the local geology and soil conditions, typical construction practices and common problems encountered.

This five-day course is designed to illustrate on exploration, soil sampling, cavities, grouting techniques, borings, laboratory testing, geotechnical and groundwater investigations and reporting. Soil improvement techniques/technologies will also be discussed.

This course is targeted for Civil, Structural, Geotechnical Personnel and working professionals and will focus on engineering principles of soil improvement as they relate to applications in geotechnical engineering.

Course Objectives

Upon the successful completion of the course, each participant will be able to:-

- Apply and gain an in-depth knowledge on soil geotechnical investigation and soil improvement
- Describe different types of soil, soil classification and AASHTO soil classification system
- Carryout proper procedures on sampling of soils, sample handling techniques & procedures and describe the definition and functions of soil samplers
- Employ proper soil exploration and soil testing methods and discuss the phenomena behind the swelling of soil, the effect of swelling on structures, the stabilization of soil swelling and the methods of stabilization
- Explain the concept of soil erosion and apply methods adopted for erosion control and enumerate the different soil cavities/grouting techniques
- Carryout proper groundwater investigations which include measurements of groundwater, computation of bearing capacity and settlement, excavation etc
- Employ proper procedure for geotechnical investigations which include planning and identifying relevant requirements in projects of new structures and roads as well as preparing geotechnical investigation reports
- List the requirements for boring logs/layout/depth and analyze data obtained from boring logs/soil report and geotechnical engineer recommendation
- Employ different soil improvement technology such as blast densification, deep soil mixing, electro-osmosis, freezing and heating

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of soil geotechnical investigations and soil improvement for civil, structural and geotechnical engineering and engineering geologists.

Course Fee

US$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Professor Engin Aktas, PhD, MSc, BSc, is an **international expert** with over **25 years** of extensive experience in **Structural Reliability**, **Earthquake Engineering**, **Design of Concrete and Steel Structures**, **Structural Damage Assessment & Safety Evaluation** and **Structural Health Monitoring**. He has been a **Senior Professor** to all personnel ranging from students to post graduate students at Universities and industrial clients. He has been teaching in the areas of **Theory of Matrix Structural Analysis**, **Engineering Mechanics**, **Mechanics of Materials**, **Civil Engineering System Analysis**, **Statistics for Civil Engineers**, **Structural Dynamics**, **Operations Research**, **Structural Optimization**, **Design of Reinforced Concrete Structures**, **Design of Steel Structures and Structural Reliability**.

During his career life, Professor Aktas performed the design, construction and installation of numerous buildings and industrial structures. Previously, he was the **Structural Design Engineer** with an international company handling multi-million design projects. He is renowned for his enthusiasm and tremendous instructing skills. Moreover, he had been a **Post-Doctoral Fellow** of **NRL/ASEE** and the recipient of the **Naval Research Laboratory/American Society for Engineering Education Fellowship** for his dedication and contributions to his field and was engaged with the **US Naval Research** for a project on "**Damage Detection on Composite Wing of Unmanned Air Vehicle using FBG sensors**".

Professor Aktas has **PhD** and **Master** degrees in **Civil Engineering** from the **University of Pittsburgh** (**USA**) and **Bachelor** degree in **Civil Engineering** from **Middle East Technical University** (**Turkey**). Further, he had served as a **Post-Doctorate** in **US Naval Research Laboratory** (**ASEE/NRL Fellow**) in **Washington DC**, **USA**. Moreover, he is a **Certified Instructor/Trainer** and a well-respected member of the **Union of Chambers of Engineers and Architects of Turkey**, the **Earthquake Engineering Association of Turkey** and the **International Association for Bridge Maintenance and Safety** (**IABMAS**).

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Soil Description/Soil Classification*** *Consistency and Apparent Density ● Water Content (Moisture) ● Color*
0930 – 0945	*Break*
0945 – 1100	***Soil Description/Soil Classification (cont'd)*** *Type of Soil ● AASHTO Soil Classification System*
1100 – 1215	***Sampling of Soils*** *Disturbed Samples ● Undisturbed Samples ● Sample Handling Techniques and Procedures*
1215 – 1230	*Break*
1230 – 1420	***Soil Samplers***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***Soil Exploration*** *Soil Drilling ● Soil and Rock Exploration*
0930 – 0945	*Break*
0945 – 1100	***Soil Tests*** *In-Situ Testing ● Laboratory Testing*
1100 – 1215	***Swelling of Soil*** *Swelling Phenomenon ● Identifying Swelling Potential and Pressures ● Indicator of Swell Potential*
1215 – 1230	*Break*
1230 – 1420	***Swelling of Soil (cont'd)*** *Effect of Swelling on Structures ● Stabilization of Swelling ● Soils/Methods of Stabilization*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Erosion of Soil*** *Erosion Phenomenon ● Identifying Main Factors of Erosion ● Methods Adopted for Erosion Control*
0930 – 0945	*Break*
0945 – 1100	***Soil Cavities/Grouting Techniques*** *Different Types of Cavities, Grouting ● Methods and Techniques Adopted for Soil Grouting*

1100 – 1215	***Groundwater Investigations*** *Methods of Determining Groundwater ● Measurements of Groundwater*
1215 – 1230	*Break*
1230 – 1420	***Groundwater Investigations (cont'd)*** *Impact of Groundwater on Stability Analysis ● Computation of Bearing Capacity and Settlement*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

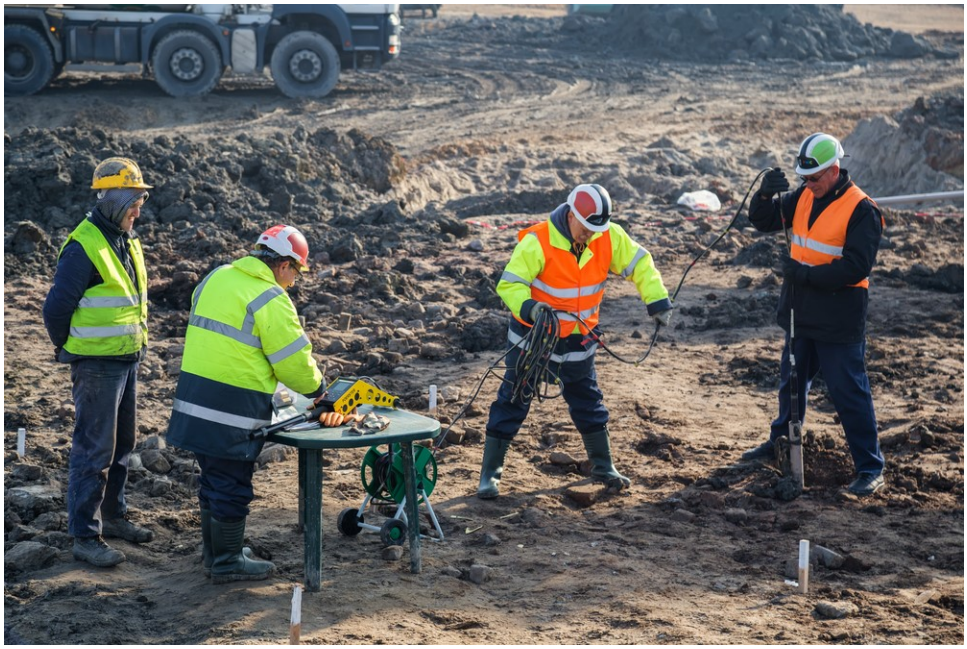
0730 – 0930	***Groundwater Investigations (cont'd)*** *Excavation ● Construction of Foundations and Structures*
0930 – 0945	*Break*
0945 – 1100	***Geotechnical Investigations*** *Significance ● Initiation*
1100 – 1215	***Geotechnical Investigations (cont'd)*** *Planning ● Identifying Relevant Requirements in Projects of New Structures and Roads*
1215 – 1230	*Break*
1230 – 1420	***Boring*** *Requirements for Boring Logs/Layout/Depth ● Interpreting Data Obtained From Boring Logs/Soil Report and Geotechnical Engineer Recommendation*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Geotechnical Investigation Reports***
0930 – 0945	*Break*
0945 – 1100	***Soil Improvement Technology*** *Blast Densification ● Compaction Piles ● Deep Dynamic Compaction ● Vibro-compaction ● Vibro-stone Columns*
1100 – 1215	***Soil Improvement Technology (cont'd)*** *Deep Soil Mixing ● Permeation Grouting ● Compaction Grouting ● Jet Grouting*
1215 – 1230	*Break*
1230 – 1345	***Soil Improvement Technology (cont'd)*** *Gravel Drains ● Electro-osmosis ● Freezing ● Heating*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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