

COURSE OVERVIEW SE0071

The Groundwork: Pile and Foundation Installation in Construction Projects

Course Title

The Groundwork: Pile and Foundation Installation in Construction Projects

Course Date/Venue

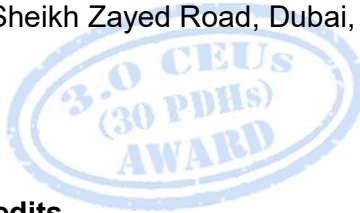
Session 1: April 07-11, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: September 28-October 02, 2025/ Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



Course Reference

SE0071



Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description



This practical and highly-interactive course includes practical sessions and exercises where participants will visit the Fugro Yard. Practical sessions will be performed in order to apply the theory learnt in the class.



This course is designed to provide the geotechnical analysis, pile design and soil improvement. It covers the fundamental of soil mechanics, type of soil and soil classification; the soil characterization and AASHTO soil classification system; and the sample handling techniques and procedure, soil analysis, soil exploration and testing, in-situ testing and laboratory testing.



Further, the course will also discuss the geotechnical investigation and testing; the geotechnical design parameters for analysis and engineering reports; the geophysical methods and applications; the swelling phenomenon, swelling potential and pressures; the indicator of swell potential and the effect of swelling on structures; the stabilization of swelling soils/methods of stabilization; the main factors of erosion; the methods adapted for erosion control and soil improvement; and the different types of soil cavities, grouting and methods and techniques adopted for soil grouting.

During this interactive course, participants will learn the groundwater investigations, methods of determining groundwater and computation of bearing capacity and settlement; the geotechnical investigations and relevant requirements in projects of new structures and roads; the requirements of boring logs/types/layout/depth/specification; interpreting data obtained from boring logs/soil reports and geotechnical engineer recommendation; the different methods of soil improvement, pile foundations testing and validation including special types of piles and design methods; the ground improvement, soil seismic parameters, liquefaction and liquefaction vulnerability assessment; the design of some ground improvement techniques; and the topographic survey and survey to detect U/G utilities in unpaved, concrete paved and tile paved areas.

Course Objectives

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

- Apply and gain an in-depth knowledge on soil and geotechnical investigation and soil improvements
- Provide an overall knowledge about geotechnical engineering, survey methods, parameters used for soil improvement and foundation design
- Provide knowledge of UG detection surveys, basics of metocean and bathymetry and topographic survey
- Discuss the fundamental of soil mechanics, type of soil and soil classification
- Characterize soil and recognize AASHTO soil classification system
- Carryout sample handling techniques and procedure, soil analysis, soil exploration and testing, in-situ testing and laboratory testing
- Employ geotechnical investigation and testing, geotechnical design parameters for analysis and engineering reports and geophysical methods and applications
- Identify swelling phenomenon, swelling potential and pressures, indicator of swell potential and the effect of swelling on structures
- Apply stabilization of swelling soils/methods of stabilization, identify the main factors of erosion and perform methods adapted for erosion control and soil improvement
- Recognize the different types of soil cavities including grouting and methods and techniques adopted for soil grouting
- Employ groundwater investigations, methods of determining groundwater and computation of bearing capacity and settlement
- Apply geotechnical investigations and identify relevant requirements in projects of new structures and roads
- Discuss the requirements of boring logs/types/layout/depth/specification and interpret data obtained from boring logs/soil reports and geotechnical engineer recommendation
- Carryout different methods of soil improvement, pile foundations testing and validation including special types of piles and design methods
- Apply ground improvement, soil seismic parameters, liquefaction and liquefaction vulnerability assessment and design of some ground improvement techniques
- Illustrate topographic survey and survey to detect U/G utilities in unpaved, concrete paved and tile paved areas

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 a deeper appreciation and wide understanding of soil & geotechnical investigation and soil improvements for civil and structural design engineers. Further, the course is also beneficial for AGP managers, engineers, specialist and other professionals who are response for their function or subject area.

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.

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 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: -

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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.

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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)**.



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 – 0900	Introduction to Geotechnical Engineering
	Soil Mechanics
0900 – 0930	The Fundamental of Soil Mechanics • Type of Soil • Distinguish between Different Soil • Soil Classification
0930 – 0945	Break
	Soil Characteristics
0945 – 1100	Consistency and Apparent Density • Water Content (Moisture) • Color • AASHTO Soil Classification System
	Exploration/Sampling of Soil
1100 – 1230	Soil and Rock Exploration • Sampling • Sample Handling Techniques and Procedures • Disturbed Samples • Undisturbed Samples • Soil Samplers • Soil Analysis
1230 – 1245	Break
	Soil Exploration & Testing
1245 - 1420	Soil Drilling • Soil & Rock Exploration • In-Situ Testing • Laboratory Testing
	Recap
1420 - 1430	Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day One

Day 2

0730 – 0830	Geotechnical Investigation & Testing
0830 – 0930	Geotechnical Design Parameters for Analysis & Engineering Reports
0930 – 0945	Break
0945 – 1030	Overview of Geophysical Methods & Applications
	Swelling of Soil
1030 – 1130	Swelling Phenomenon • Identify Swelling Potential & Pressures • Indicator of Swell Potential • Effect of Swelling on Structures • Stabilization of Swelling Soils/Methods of Stabilization
	Erosion of Soil
1130 - 1230	Erosion Phenomenon • Identifying Main Factors of Erosion • Methods Adapted for Erosion Control and Soil Improvement
1230 - 1245	Break
	Soil Cavities
1245 – 1420	Different Types of Cavities • Grouting • Methods and Techniques Adopted for Soil Grouting
	Recap
1420 – 1430	Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Two



Day 3

0730 – 0830	Groundwater Investigations <i>Methods of Determining Groundwater • Measurements of Groundwater • Impact of Groundwater on Stability Analysis • Computation of Bearing Capacity & Settlement • Bearing Capacity, Settlement & Subgrade Modulus, Dynamic Soil Parameters</i>
0830 - 0930	Special Topics in Geotechnical Engineering
0930 – 0945	Break
0945 – 1030	Geotechnical Investigations <i>Significance • Initiation • Planning • Identifying Relevant Requirements in Projects of New Structures & Roads</i>
1030 – 1130	Boring <i>Requirements of Boring Logs/Types/Layout/Depth/Specification • Interpreting Data Obtained from Boring Logs/Soil Reports and Geotechnical Engineer Recommendation</i>
1130 – 1230	Soil Improvements <i>Different Methods of Soil Improvement • Soil Compaction • Soil Cavities • Groundwater • Wick Drain • Erosion Phenomena • The Data to Receive from Geotechnical Report • Pile Foundations • Types of Piles and Piles Design • Pile Foundations Testing & Validation • Special Types of Piles & Design Methods</i>
1230 – 1245	Break
1245 – 1420	Ground Improvement
1420 – 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	Lunch & End of Day Three

Day 4

0730 – 0830	Special Topics in Geotechnical Engineering
0830 – 0930	Soil Seismic Parameters, Liquefaction & Liquefaction Vulnerability Assessment
0930 – 0945	Break
0945 – 1030	Design of Some Ground Improvement Techniques
1030 – 1130	Topographic Survey
1130 – 1230	Survey to Detect U/G Utilities – in Unpaved, Concrete Paved & Tile Paved Areas
1230 – 1245	Break
1245 – 1420	Bathymetry & Met Ocean – Basics, High Level
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 0930	Visit to Fugro Yard for Explanation of Drilling Procedure & Field Tests & Visit to Laboratory for Lab
0930 – 0945	Break
0945 – 1100	Visit to Fugro Yard for Explanation of Drilling Procedure & Field Tests & Visit to Laboratory for Lab (cont'd)
1100 – 1230	Visit to Fugro Yard for Explanation of Drilling Procedure & Field Tests & Laboratory for Lab (cont'd)

1230 – 1245	Break
1245 - 1345	Visit to Fugro Yard for Explanation of Drilling Procedure & Field Tests & Visit to Laboratory for Lab (cont'd)
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions/Site Visit

Site visit will be organized during the course for delegates to practice the theory learnt:-



Course Coordinator

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