COURSE OVERVIEW SE0097
Advanced Concrete Technology

Course Title
Advanced Concrete Technology

Course Date/Venue
Session 1: May 25-29, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
Session 2: November 03-07, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
SE0097

Course Duration/Credits
Five days/3.0 CEUs/30.0 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of advanced concrete technology. It covers the concrete technology and concrete design mix; the high strength concrete and high performance concrete; the special constituent materials and admixtures; the concrete quality control and construction practices for concrete in the Middle East; the concreting process in the Middle East hot environment; the precautions for different concreting operations in Middle East hot weather; and the standard test methods for non-conventional concretes and reinforcement.

Further, the course will also cover the high strength concrete (HSC), slag (GGBS), fly ash and silica fume; batching and mixing high strength concrete; placing and compacting high strength concrete; the corrosion phenomena in steel bars; the chloride cause corrosion; the carbonation process and technical specifications for concrete and reinforcement; the sample concrete and reinforcement specifications; protecting steel reinforcement from corrosion by advanced materials; the non-traditional types of reinforcement used in concrete structures; and the galvanized and epoxy coated bars.

During this interactive course, participants will learn the fiber reinforced plastic (FRP) reinforcement for concrete; the standard test methods for fresh and hardened special concretes; the rubber concrete, light weight concrete and concrete with fiber; evaluating the existing structure; the latex modified concrete; and the mix proportioning, mixing, placing, finishing and curing.

Course Objectives

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

- Apply and gain advanced knowledge on concrete technology
- Review concrete technology and discuss concrete design mix
- Differentiate high strength concrete and high-performance concrete and discuss special constituent materials and admixtures
- Carryout concrete quality control and construction practices for concrete in the Middle East
- Explain the concreting process in the Middle East hot environment and identify the precautions for different concreting operations in Middle East hot weather
- Apply standard test methods for non-conventional concretes and reinforcement
- Determine the high strength concrete (HSC), slag (GGBS), fly ash, silica fume batching and mixing high strength concrete
- Carryout placing and compacting high strength concrete
- Discuss the corrosion phenomena in steel bars and chloride cause corrosion
- Illustrate carbonation process and review technical specifications for concrete and reinforcement
- Recognize sample concrete and reinforcement specifications
- Protect steel reinforcement from corrosion by advanced materials
- Identify non-traditional types of reinforcement used in concrete structures
- Recognize galvanized and epoxy coated bars and fiber reinforced plastic (FRP) reinforcement for concrete
- Apply standard test methods for fresh and hardened special concretes
- Identify rubber concrete, light weight concrete and concrete with fiber
- Evaluate the existing structure and recognize latex modified concrete
- Apply mix proportioning, mixing, placing, finishing and curing

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 advanced concrete technology for civil engineers, structure engineers, project engineers, construction engineers, project managers, engineering managers and construction managers.

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:

Prof. 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 & Civil 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's** 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 - 0900	***Review of Concrete Technology***
0900 – 0930	***Concrete Design Mix***
0930 – 0945	*Break*
0945 – 1045	***High Strength Concrete & High Performance Concrete***
1045 – 1145	***Special Constituent Materials & Admixtures***
1145 – 1215	***Concrete Quality Control***
1215 – 1230	*Break*
1230 – 1420	***Construction Practices for Concrete in the Middle East***
1420 – 1430	***Recap***
1430	*End of Day One*

Day 2

0730 – 0830	***Concreting Process in the Middle East Hot Environment***
0830 – 0930	***Precautions for Different Concreting Operations in the Middle East Hot Weather***
0930 – 0945	*Break*
0945 – 1045	***Standard Test Methods for Non-Conventional Concretes & Reinforcement***
1045 – 1145	***High Strength Concrete (HSC)***
1145 – 1215	***Slag (GGBS), Fly Ash, & Silica Fume***
1215 – 1230	*Break*
1230 – 1420	***Batching & Mixing High Strength Concrete***
1420 – 1430	***Recap***
1430	*End of Day Two*

Day 3

0730 – 0830	***Placing & Compacting High Strength Concrete***
0830 – 0930	***Corrosion Phenomena in Steel Bars***
0930 – 0945	*Break*
0945 – 1045	***Chloride Cause Corrosion***
1045 – 1145	***Carbonation Process***
1145 – 1215	***Technical Specifications for Concrete & Reinforcement***
1215 – 1230	*Break*
1230 – 1420	***Sample Concrete & Reinforcement Specifications***
1420 – 1430	***Recap***
1430	*End of Day Three*

Day 4

0730 – 0830	***Protecting Steel Reinforcement from Corrosion by Advanced Materials***
0830 – 0930	***Non-Traditional Types of Reinforcement Used in Concrete Structures***
0930 – 0945	*Break*
0945 – 1045	***Galvanized & Epoxy Coated Bars***

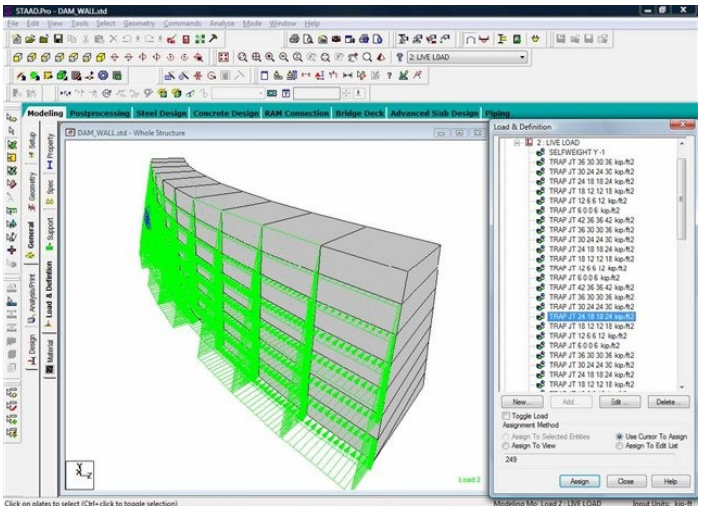
1045 – 1145	***Fiber Reinforced Plastic (FRP) Reinforcement for Concrete***
1145 – 1215	***Standard Test Methods for Fresh & Hardened Special Concretes***
1215 – 1230	*Break*
1230 – 1420	***Rubber Concrete***
1420 – 1430	***Recap***
1430	*End of Day Four*

Day 5

0730 – 0930	***Light Weight Concrete***
0930 – 0945	***Concrete with Fiber***
0945 – 1045	*Break*
1045 – 1145	***Evaluating the Existing Structure***
1145 – 1215	***Latex Modified Concrete***
1215 – 1230	*Break*
1230 – 1345	***Mix Proportioning, Mixing, Placing, Finishing & Curing***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*End of Course*

Simulators (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using one of our state-of-the-art simulator "STAAD-PRO".



STAAD-PRO SOFTWARE

Course Coordinator

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