COURSE OVERVIEW SE0125(AD6)

Waterfront Structural Design

Course Title
Waterfront Structural Design

Course Date/Venue
Session 1: June 29-July 03, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
Session 2: November 24-28, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
SE0125(AD6)

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

Course Description

This practical, 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.

All over the world, the number of Infrastructures Waterfront Structures, Bridges and marine structures, requiring rehabilitation is increasing at an alarming rate. Addressing this problem consumes an ever-growing percentage of government budgets. Bridges need to be rehabilitated for variety of causes, such as deterioration due to environmental effects, the need to carry heavier vehicular loads, or deficiencies in the original design or construction.

Those responsible for maintaining structures need keep abreast of the latest techniques available for assessing the condition of their structures, as well as the methods and techniques for repairing or strengthening them. At this seminar you focus on the technical aspects of concrete rehabilitation, such as the use of bridge inspection equipment, condition survey procedures, and the latest, practical methods of repairing and strengthening existing bridges. You are also expected to case studies and design examples. The course will be an excellent exposure of the international Design Codes with respect to structure evaluation, rehabilitation and the use of fiber-reinforced polymer (FRP) technology in infrastructure repair.

Also presenting practical and economical methods for evaluating, inspecting, strengthening and rehabilitating Infrastructures Waterfront Structures, Coastal Protection, Bridges and marine structures. Code limitations, new technologies for protection and repair processes.

This course is designed to provide civil and structural engineers/supervisors with professional knowledge, design codes, standards, and specifications, detailed design procedure with sample calculations for infrastructures, waterfront structures, coastal protection and bridges. It covers the drainage systems and methodology for drainage systems design; the design return periods, rainfall study and drainage elements; and the concept of drainage report for the storm drainage at Khalifa towns, storm drainage – sewage systems, design formula, material of pipeline and velocity limits.

Further, this course will also discuss the culverts and bridges covering shapes and material of construction of culverts, hydraulic analysis and structural analysis; the calculation of straining action; the protection works, design and classification of bridges; designing the retaining walls; the structural loads and straining actions; the coastal structures, coastal engineering, sea walls and break waters; and the groins and jetties, delta coasts and muddy coasts, density currents, berthing and mooring and layout consideration.

During this interactive course, participants will learn the functional classification of roads, design controls and criteria; the rural and urban arterials, collector roads and streets, pavement and road-cross sections/components; the road construction techniques; and the airport geometry, design considerations, airport pavements and environment assessment.

Course Objectives

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

- Apply and gain in-depth knowledge on infrastructures, waterfront structures, coastal protection and bridges
- Carryout drainage systems and methodology for drainage systems design
- Identify design return periods, rainfall study and drainage elements
- Describe the concept of drainage report for the storm drainage at Khalifa towns, storm drainage – sewage systems, design formula, material of pipeline and velocity limits
- Discuss culverts and bridges covering shapes and material of construction of culverts, hydraulic analysis and structural analysis
- Calculate straining action and apply protection works and design and classification of bridges
- Design retaining walls and apply structural loads and straining actions
- Illustrate the coastal structures covering coastal engineering, sea walls and break waters
- Determine groins and jetties, delta coasts and muddy coasts, density currents, berthing and mooring and layout consideration

- Identify the functional classification of roads, design controls and criteria
- Discuss rural and urban arterials, collector roads and streets, pavement and road-cross sections/components
- Employ road construction techniques
- Illustrate airport geometry, design considerations, airport pavements and environment assessment

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 infrastructures, waterfront structures, coastal protection and bridges for bachelor's degree or higher diploma and reasonable level of English.

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: -

- 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**).

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	***Drainage Systems*** *Methodology for Drainage Systems Design • Design Return Periods • Rainfall Study • Drainage Elements*
0930 – 0945	*Break*
0945 – 1045	***Drainage Systems (cont'd)*** *Case Study • Drainage Concept Report for the Storm Drainage at Khalifa Towns • Storm Drainage – Sewage Systems • Design Formula • Material of Pipeline • Velocity Limits*
1045 – 1245	***Culverts & Bridges*** *Design of Storm Drainage Culverts • Shapes and Material of Construction of Culverts • Hydraulic Analysis • Structural Analysis • Calculation of Straining Action*
1245 – 1300	*Break*
1300 –1420	***Culverts & Bridges (cont'd)*** *Protection Works • Case Study • Bridges Design/Classification*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***Retaining Walls*** *Design of Retaining Walls*
0930 – 0945	*Break*
0945 – 1100	***Retaining Walls (cont'd)*** *Structural Loads*
1100 – 1215	***Retaining Walls (cont'd)*** *Straining Actions*
1215 – 1230	*Break*
1230 – 1420	***Retaining Walls (cont'd)*** *Problems and Case Study*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Coastal Structures*** *Coastal Engineering (Coastal Area and Chore Line Erosion and Migration) • Sea Walls (Functions, Concrete Block Work Sea Walls, Caisson Seawalls and Sheet Pile Seawalls)*
0930 – 0945	*Break*

0945 – 1100	***Coastal Structures (cont'd)*** *Break Waters (Functions, Types, Design and Selection) • Groins and Jetties*
1100 – 1215	***Coastal Structures (cont'd)*** *Delta Coasts and Muddy Coasts • Density Currents*
1215 – 1230	*Break*
1230 – 1420	***Coastal Structures (cont'd)*** *Berthing and Mooring • Layout Considerations*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

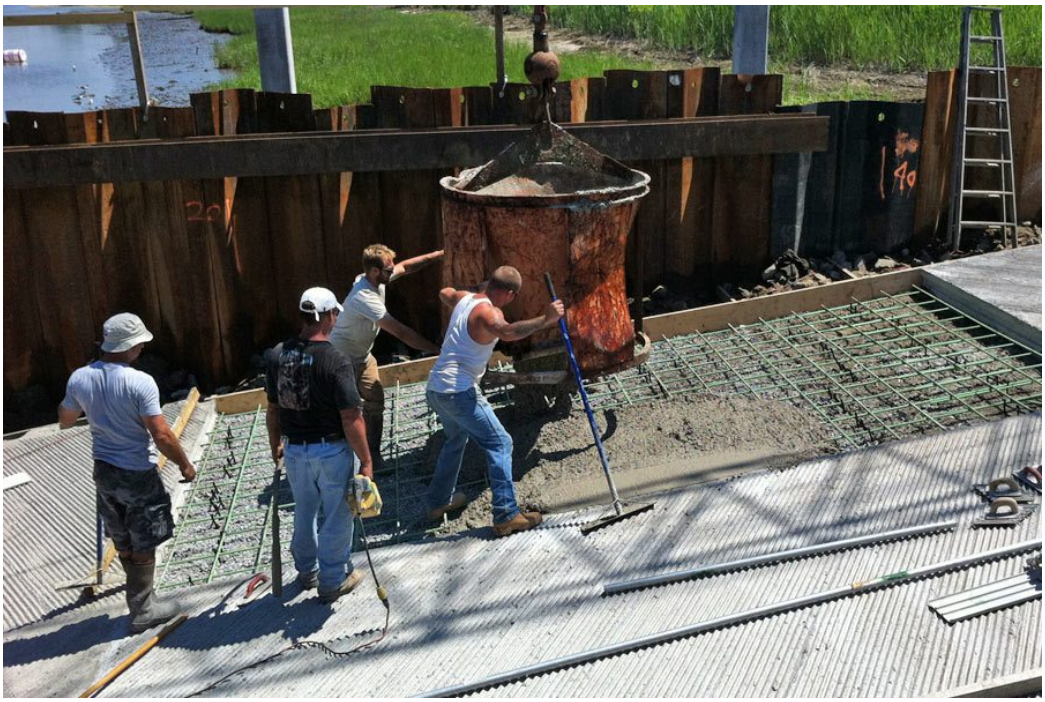
0730 – 0930	***Roads*** *Functional Classification • Design Controls and Criteria*
0930 – 0945	*Break*
0945 – 1045	***Roads (cont'd)*** *Rural and Urban Arterials • Collector Roads and Streets*
1045 – 1200	***Roads (cont'd)*** *Pavement • Road Cross-Sections/Components*
1200 – 1215	*Break*
1215 – 1420	***Roads (cont'd)*** *Road Construction Techniques*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0830	***Airports*** *Airport Geometry*
0830 – 0930	***Airports (cont'd)*** *Design Considerations*
0930 – 0945	*Break*
0945 – 1200	***Airports (cont'd)*** *Airport Pavements*
1200 – 1215	*Break*
1215 – 1345	***Airports (cont'd)*** *Environment Assessment*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

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



Course Coordinator

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