



COURSE OVERVIEW SE0180 Structural Engineering

Course Title

Structural Engineering

Course Date/Venue

February 11-15, 2024/Küçükaly Meeting Room, Crowne Plaza Istanbul - Harbiye, an IHG Hotel, Istanbul, Turkey

Course Reference

SE0180

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.



Structural Engineering deals with the analysis and design aspects, the basic purpose of which is to ensure a safe, functional and economical structure. While designing, the designer constantly interacts with specialist like architects, operational managers, etc. Once the design is finalized, the implementation takes involvement of people to handle aspects like statutory approvals, planning, quality assurance, material procurement, etc.



The entire exercise can be undertaken in highly coordinated way if everyone involves understand the 'project language', which is combination of designs and specifications. To understand the language fully, it is necessary to appreciate the principles of structural analysis & design and a course on this topic comes handy here.



The participants of the workshop will gain the basic knowledge of structural engineering that includes principles of analysis of structures and their application, behaviour of materials under loading, selection of construction materials and design fundamentals for RCC & Steel structures. The emphasis has been kept on the determination of nature & quantum of stress developed under loads and the way structures offer resistance to it. Being the most widely used construction materials, the RCC & steel has been covered in detail though masonry & timber have also been described briefly.

Course Objectives

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

- Apply and gain an in-depth knowledge on structural engineering
- Identify the role of structural engineer
- Explain the behavior of structural members under loading
- Apply the concept of stress functions like tension, compression, shear and bending
- Use the basic concepts for analysis of statically determinate and indeterminate structures
- Analyze deformation of members under loading
- Discuss the significance of material properties in design
- Perform basic design of reinforced cement concrete structures, steel structures and masonry and timber structural members

Who should attend

This course provides an overview of all significant aspects and considerations of structural engineering for managers, engineers, supervisors, foremen and technologists of all disciplines who are seeking good knowledge of structural engineering.

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 Fee

US\$ 6,000 per Delegate + **VAT**. This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.






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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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.

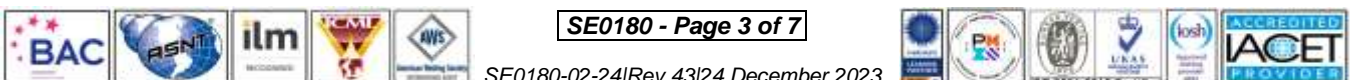
Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation 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.

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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.

Accommodation

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





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:



Mr. Bilal Nabahani is a **Senior Civil Engineer** with almost **25 years** of practical experience in **construction of major civil engineering projects** including building, roads, bridges, airports, theatres, stadium, ports, etc. and other **energy sectors**. His expertise widely covers in the areas of **Civil Engineering, Project Relocation & Development, Site Inspection & Quality Control, Site Supervision & Management, Construction Management, Structural & Electrical Site Inspection & Quality Control, Construction Management, Earth Measurements, Earthwork & Structural Maintenance, System Safety Program Plan (SSPP) Inspection, Concrete Structure Inspection & Repair, Concrete Inspection & Maintenance, Concrete Maintenance & Reliability Analysis, Civil Engineering Design, Design and Behaviour of Steel Structures, Advanced Steel Design & Stability of Structures Concrete Structural Design, Dynamic Analysis of Rotating Equipment Foundations & Structural Steel Piperacks, Concrete Technology, Construction Planning, Construction & Concrete Works Maintenance, Seismic Design for Buildings, Advanced Building Construction Technology, Advanced Seismic & Wind Design of Reinforced Concrete, Road Pavement Design, Road Maintenance, Drainage System Operations & Maintenance, Land Surveying, AutoCAD Civil 3D, GIS & Mapping, Structural Analysis & Design (STAAD PRO), Construction Planning, Methods & Management, Sloping, Benching, Embankments, Construction Planning, Construction Quality Management, Project Risk Assessment, Project Quality Plans, Excavation, Backfill & Compaction, Excavation & Reinstatement, Excavation Safety for Construction, Groundworks Supervision, Electrical Project Utility Underground, Construction Quality Remote Sensing, Construction Materials, Construction Surveying and Detailed Engineering Drawings, Codes & Standards.**

Throughout Mr. Bilal's professional career, he has handled key positions as the **Site Manager, Project Manager, Project Supervisor, Resident Engineer, Consultant and Trainer/Instructor** for various international companies such as the Saudi Consulting, Tibah University, CKG Construction & Engineering, Almanarah Consulting, Tibah Consulting, Royal Scientific Association, MWH&CC Engineering & Consulting, Jordan Valley Authority, Graybeh Contracting, Alpha Consultant and Al Rakhaies Contracting, just to name a few.

Mr. Bilal has a **Bachelor's degree in Civil Engineering** from the **East University of North Cyprus, Turkey**. Further, he is a **Certified Trainer/Instructor** and has delivered various trainings, seminars, conferences, workshops and courses globally.



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: Sunday, 11th of February 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to Structural Engineering
0930 – 0945	Break
0945 – 1100	Principles of Strength of Material Theory of Elasticity
1100 – 1215	Principles of Strength of Material (cont'd) Stress-Strain Characteristics
1215 – 1230	Break
1230 - 1330	Principles of Strength of Material (cont'd) Sectional Properties
1330 – 1420	Principles of Strength of Material (cont'd) Deflection & Deformation
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Monday, 12th of February 2024

0730 – 0930	Structural Analysis Principle of Mechanics • Determinate & Indeterminate Structures Determination of Stress Functions (Direct, Bending & Shear Stresses)
0930 – 0945	Break
0945 – 1100	Structural Analysis (cont'd) Analysis of Statically Determinate Structures • Analysis of Static Indeterminate Structures • Analysis of Deformation under Loading
1100 – 1215	Design Philosophies Material Behavior under Stress • Working Stress Design
1215 – 1230	Break
1230 – 1420	Design Philosophies (cont'd) Limit State Design • Loads
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Tuesday, 13th of February 2024

0730 – 0930	Design Procedure of Reinforced Cement Concrete (RCC) Structures Material & Components • Stress Behavior
0930 – 0945	Break
0945 – 1100	Design Procedure of Reinforced Cement Concrete (RCC) Structures (cont'd) Ultimate & Permissible Stresses • Design of Beams & Slabs
1100 – 1215	Design Procedure of Reinforced Cement Concrete (RCC) Structures (cont'd) Design of Walls & Columns • Design of Frames



1215 – 1230	Break
1230 – 1420	Design Procedure of Reinforced Cement Concrete (RCC) Structures (cont'd) Prestressed Concrete Design
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Wednesday, 14th of February 2024

0730 – 0930	Design Procedure of Steel Structures Materials & Properties • Stress Behaviour • Methods & Design of Fastenings
0930 – 0945	Break
0945 – 1100	Design Procedure of Steel Structures (cont'd) Design of Beams • Design of Columns & Struts • Design of Tension Members
1100 – 1215	Design Procedure of Steel Structures (cont'd) Design of Trusses • Design of Built Up Sections
1215 – 1230	Break
1230 – 1420	Design Procedure of Steel Structures (cont'd) Limit State Design
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5: Thursday, 15th of February 2024

0730 – 0930	Design of Masonry & Wooden Structures Properties of Masonry • Design of Walls • Design of Columns
0930 – 0945	Break
0945 – 1100	Design of Masonry & Wooden Structures (cont'd) Construction of Arches • Material & Properties of Wood • Preservation Methods
1100 – 1215	Design of Masonry & Wooden Structures (cont'd) Permissible Stresses • Design of Columns & Beams
1215 – 1230	Break
1230 – 1345	Summary, Open Forum & Closing
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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