COURSE OVERVIEW SE0053
Construction, Maintenance & Restructuring of Building & Structures

Course Title
Construction, Maintenance & Restructuring of Building & Structures

Course Date/Venue
please see page 3

Course Reference
SE0053

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.

This course is designed to provide participants with a detailed and up-to-date overview of Construction, Maintenance and Restructuring of Building and Structures. It covers the types of buildings and structures, construction phases and regulatory frameworks and codes; the soil investigation, foundation design, structural systems and materials; the planning and scheduling, site preparation and earthworks; the types and design considerations of formwork systems; the scaffolding types and safety practices; the inspection and maintenance of formwork; and the masonry and concrete works, roofing systems, waterproofing, wall systems and cladding.

During this interactive course, participants will learn the interior and exterior finishes, building insulation and energy efficiency; the structural integrity and monitoring and HVAC, electrical; and plumbing systems; the building safety and fire protection, facade and roof maintenance, pest control and environmental factors; the building restructuring, assessment and diagnosis; the strengthening and retrofitting techniques and renovation of building systems; the building code upgrades and compliance, occupied building renovations and construction quality management; and the health, safety, and environmental (HSE) practices, contract and cost control, construction documentation and reporting, sustainability and green building practices.

Course Objectives

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

- Apply and gain an in-depth knowledge on construction, maintenance and restructuring of building and structures
- Identify types of buildings and structures, construction phases and regulatory frameworks and codes
- Illustrate soil investigation and foundation design and recognize structural systems and materials
- Apply construction project planning and scheduling, site preparation and earthworks
- Recognize the types of formwork systems, formwork design considerations, scaffolding types and safety practices and inspection and maintenance of formwork
- Discuss masonry and concrete works, roofing systems, waterproofing, wall systems and cladding
- Describe doors, windows and glazing including interior and exterior finishes, building insulation and energy efficiency
- Carryout building maintenance planning, structural integrity and monitoring and HVAC, electrical, and plumbing systems
- Apply building safety and fire protection, facade and roof maintenance, pest control and environmental factors
- Illustrate building restructuring, assessment and diagnosis of building failures, strengthening and retrofitting techniques and renovation of building systems
- Review building code upgrades and compliance, manage occupied building renovations and apply construction quality management
- Employ health, safety, and environmental (HSE) practices, contract and cost control, construction documentation and reporting and sustainability and green building practices

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 construction, maintenance and restructuring of building and structures for civil engineers, structural engineers, architects, construction managers, project managers, facilities managers, building inspectors and other technical staff.

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 Date/Venue

Session(s)	Date	Venue
1	June 15-19, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
2	August 04-08, 2025	Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
3	October 05-09, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
4	December 08-12, 2025	Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

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:

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** 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 workshop 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	***Introduction to Building Construction*** *Types of Buildings & Structures • Overview of Construction Phases • Key Stakeholders in Construction Projects • Regulatory Frameworks & Codes*
0930 – 0945	*Break*

0945 – 1030	***Soil Investigation & Foundation Design*** *Soil Testing & Geotechnical Analysis • Shallow versus Deep Foundations • Foundation Settlement & Stability • Ground Improvement Techniques*
1030 – 1130	***Structural Systems & Materials*** *Load-Bearing & Framed Structures • Reinforced Concrete, Steel & Composite Materials • Design Loads & Structural Performance • Selection Criteria for Structural Materials*
1130 – 1215	***Construction Project Planning & Scheduling*** *Work Breakdown Structure (WBS) • Gantt Charts & Critical Path Method (CPM) • Resource Allocation & Optimization • Construction Milestones & Deliverables*
1215 – 1230	*Break*
1230 – 1330	***Site Preparation & Earthworks*** *Site Survey & Leveling • Excavation & Grading • Drainage & Erosion Control • Temporary Access Roads & Facilities*
1330 – 1420	***Formwork & Scaffolding*** *Types of Formwork Systems • Formwork Design Considerations • Scaffolding Types & Safety Practices • Inspection & Maintenance of Formwork*
1420 – 1430	***Recap*** *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	***Masonry & Concrete Works*** *Brickwork & Blockwork • Cast-In-Place versus Precast Concrete • Jointing & Curing Techniques • Reinforcement Detailing*
0830 – 0930	***Roofing Systems & Waterproofing*** *Flat versus Pitched Roofs • Roofing Materials & Insulation • Flashings & Gutters • Waterproofing Membranes & Methods*
0930 – 0945	*Break*
0945 – 1100	***Wall Systems & Cladding*** *Load-Bearing versus Curtain Walls • Cladding Materials & Installation • Vapor Barriers & Thermal Bridging • Expansion Joints & Sealants*
1100 – 1215	***Doors, Windows & Glazing*** *Types & Materials of Doors & Windows • Installation & Alignment Techniques • Acoustic & Thermal Performance • Safety & Security Considerations*
1215 – 1230	*Break*
1230 – 1330	***Interior & Exterior Finishes*** *Plastering, Painting & Tiling • Floor Finishes & Ceiling Systems • Facade Treatments & Architectural Details • Material Compatibility & Aesthetics*
1330 – 1420	***Building Insulation & Energy Efficiency*** *Thermal Insulation Standards • Air-Tightness & Vapor Control • Insulation Materials & Placement • Building Envelope Energy Analysis*
1420 – 1430	***Recap*** *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	***Building Maintenance Planning*** *Preventive versus Corrective Maintenance • Maintenance Schedules & Priorities • Life-Cycle Cost & Asset Management • Risk-Based Maintenance Planning*
0830 – 0930	***Structural Integrity & Monitoring*** *Common Structural Issues (Cracks, Deflection) • Non-Destructive Testing (NDT) Methods • Monitoring Tools & Sensors • Frequency & Documentation of Inspections*
0930 – 0945	*Break*
0945 – 1100	***HVAC, Electrical & Plumbing Systems*** *Routine Inspections & Servicing • Energy Audits & Upgrades • Leak Detection & Pipe Replacement • Safety Protocols for MEP Systems*
1100 – 1215	***Building Safety & Fire Protection*** *Fire Detection & Alarm Systems • Emergency Exits & Lighting • Sprinklers & Fireproofing Materials • Safety Drills & Code Compliance*
1215 – 1230	*Break*
1230 – 1330	***Facade & Roof Maintenance*** *Cleaning & Sealing Facades • Repairing Roof Leaks & Flashing • Window & Glazing Inspections • Vegetated/Green Roof Maintenance*
1330 – 1420	***Pest Control & Environmental Factors*** *Identifying Pest Threats & Habitats • Selection of Control Measures • Indoor Air Quality Management • Moisture Control & Ventilation*
1420 – 1430	***Recap*** *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 Three*

Day 4

0730 – 0830	***Basics of Building Restructuring*** *Causes for Restructuring (Age, Usage, Damage) • Assessment Methodologies • Regulatory Requirements • Structural Retrofit versus Rebuild*
0830 – 0930	***Assessment & Diagnosis of Building Failures*** *Structural Cracks & Fatigue • Foundation Settlement & Soil Issues • Material Degradation (Concrete, Steel) • Vibration, Corrosion & Deflection*
0930 – 0945	*Break*
0945 – 1100	***Strengthening & Retrofitting Techniques*** *Fiber-Reinforced Polymers (FRP) • Jacketing & Steel Bracing • Shotcrete & Epoxy Injection • Seismic Retrofitting Techniques*
1100 – 1215	***Renovation of Building Systems*** *Electrical Rewiring & Upgrade • Plumbing & HVAC Modernization • IT/Data Cabling & Automation • Smart Building Integration*
1215 – 1230	*Break*
1230 – 1330	***Building Code Upgrades & Compliance*** *Accessibility & ADA Standards • Fire & Life Safety Code Updates • Structural Design Updates Per Modern Codes • Documentation & Approval Process*

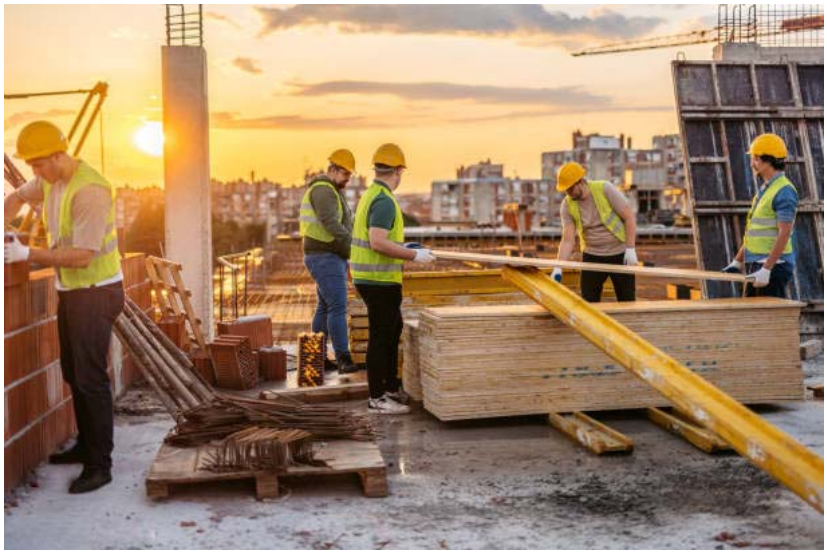
1330 – 1420	***Managing Occupied Building Renovations*** *Phased Construction Planning • Noise, Dust & Disruption Control • Stakeholder Communication • Safety & Temporary Services*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

Day 5

0730 – 0830	***Construction Quality Management*** *Quality Assurance versus Quality Control • Inspection & Testing Protocols • Material Compliance Verification • Dealing with Construction Defects*
0830 – 0930	***Health, Safety & Environmental (HSE) Practices*** *Construction Site Safety Planning • Hazard Identification & Mitigation • Emergency Preparedness • Environmental Impact & Waste Control*
0930 – 0945	*Break*
0945 – 1030	***Contract & Cost Control*** *Types of Construction Contracts • Estimating & Budgeting • Cost Control Techniques • Change Order & Variation Management*
1030 – 1130	***Construction Documentation & Reporting*** *Daily Site Reports & Logs • Progress Reports & Updates • Non-Conformance Reports (NCRs) • Handover & Close-Out Documentation*
1130 – 1230	***Sustainability & Green Building Practices*** *LEED & Other Green Certifications • Sustainable Material Selection • Water & Energy-Efficient Design • Waste Reduction & Recycling*
1230 – 1245	*Break*
1245 – 1345	***Case Studies & Best Practices*** *Rehabilitation of Heritage Buildings • High-Rise Maintenance Challenges • Disaster Recovery & Rebuilding • Innovations in Building Management*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
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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