

COURSE OVERVIEW SE0382(AD6)
Knowledge of Materials, Composite Materials & Testing Equipment

Course Title

Knowledge of Materials, Composite Materials & Testing Equipment

Course Date/Venue

Session 1: April 13-17, 2025/Boardroom 1,
 Elite Byblos Hotel Al Barsha,
 Sheikh Zayed Road, Dubai, UAE
 Session 2: September 15-19, 2025/Fujairah
 Meeting Room, Grand Millennium
 Al Wahda Hotel, Abu Dhabi, UAE



H-STK[©] INCLUDED

Course Reference

SE0382(AD6)

Course Duration/Credits

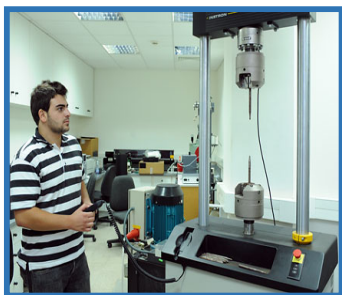
Five days/3.0 CEUs/30PDHs



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 Knowledge of Materials, Composite Materials and Testing Equipment. It covers the non-structural materials, relevant specifications for materials and design parameters of materials; the materials used in concrete, steel construction, protection of concrete, steel structures and their specification; the materials specification, structural members and steel technology; the physical and mechanical properties of concrete and reinforcing steel; the basic mechanics of reinforcement and matrices; and the materials related to problems, laminate theory and fire proofing.



During this interactive course, participants will learn the standards and building regulations for fire proofing; the techniques for fire proofing; the importance of mix design and concrete mix design; the manufacturing processes and practical consideration in developing QA/QC systems; the advanced composite materials including its components, advantages, disadvantages, types and applications; the fracture processes and toughness of composites, interfaces in composites materials and modelling of the processing of fibre composites; the failure criteria and fatigue; the woven composites – structure and behavior; the notches and joints and the effect of stress concentrations; the Impact and environmental effects; and the field testing and testing equipment.

Course Objectives

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

- Apply and gain a comprehensive knowledge on materials, composite materials and testing equipment
- Discuss non-structural materials, relevant specifications for materials and design parameters of materials
- Identify materials used in concrete, steel construction, protection of concrete, steel structures and their specification
- Verify the materials specification, structural members and steel technology
- Describe physical and mechanical properties of concrete and reinforcing steel
- Explain basic mechanics of reinforcement and matrices
- Demonstrate materials related to problems, laminate theory and fire proofing
- Apply standards and building regulations for fire proofing
- Carryout techniques for fire proofing
- Discuss the importance of mix design and concrete mix design
- Employ manufacturing processes and practical consideration in developing QA/QC systems
- Explain the advanced composite materials including its components, advantages, disadvantages, types and applications
- Recognize fracture processes and toughness of composites, interfaces in composites materials and modelling of the processing of fibre composites
- Define failure criteria and fatigue
- Assess woven composites – structure and behavior
- Evaluate notches and joints and the effect of stress concentrations
- Explain Impact and environmental effects
- Inspect field testing and testing equipment

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 materials, composite materials and testing equipment for those who wants an in-depth introduction to composite materials. The rapid increase in the use of composites means that many people are getting involved with composite materials and finding they need a sound introduction to the subject. It will be suitable for graduates in science or engineering who are entering the field and for technicians engaged in composites technology but who want to understand the science. The course is also suitable for sales and managerial personnel who have a scientific background and are seeking an appreciation of the principles of composite materials.

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 Fee

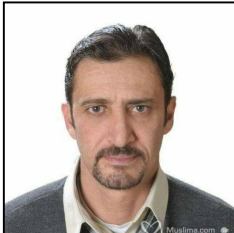
US\$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

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

Course 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, Site Inspection & Quality Control, Site Supervision & Management, Construction Management, Structural & Electrical Site Inspection & Quality Control, Construction Management,**

System Safety Program Plan (SSPP) Inspection, Concrete Structure Inspection & Repair, Concrete Inspection & Maintenance, Concrete Technology, Construction Planning, Construction & Concrete Works Maintenance, Earth Measurements, Earthwork & Structural Maintenance, 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, 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 **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.

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 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	<i>Registration & Coffee</i>
0800 - 0815	<i>Welcome & Introduction</i>
0815 - 0830	PRE-TEST
0830 - 0900	<i>Introduction to Materials, Composite Materials & Testing Equipment</i>
0900 - 0930	<i>Non-Structural Materials</i>
0930 - 0945	<i>Break</i>
0945 - 1030	<i>Materials Used in Concrete & Steel Construction</i>
1030 - 1130	<i>Relevant Specifications for Materials</i>
1130 - 1215	<i>Design Parameters of Materials</i>
1215 - 1230	<i>Break</i>
1230 - 1330	<i>Materials Used for Protection of Concrete & Steel Structures and Their Specification</i>
1330 - 1420	<i>Relevant Test to Verify the Materials Specification</i>
1420 - 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 - 0830	<i>Structural Members & Steel Technology</i>
0830 - 0930	<i>Physical & Mechanical Properties of Concrete & Reinforcing Steel</i>
0930 - 0945	<i>Break</i>
0945 - 1100	<i>Basic Mechanics of Reinforcement</i>
1100 - 1215	<i>Reinforcements & Matrices</i>
1215 - 1230	<i>Break</i>
1230 - 1320	<i>Materials Related to Problems</i>
1320 - 1420	<i>Laminate Theory</i>
1420 - 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 - 0830	<i>Fire Proofing</i>
0830 - 0930	<i>Standards & Building Regulations for Fire Proofing</i>
0930 - 0945	<i>Break</i>
0945 - 1100	<i>Techniques for Fire Proofing</i>
1100 - 1215	<i>Introduction to Design</i>
1215 - 1230	<i>Break</i>
1230 - 1320	<i>Importance Mix Design</i>
1320 - 1420	<i>Concrete Mix Design</i>
1420 - 1430	Recap
1430	<i>Lunch & End of Day Three</i>

Day 4

0730 - 0830	<i>Manufacturing Processes</i>
0830 - 0930	<i>Practical Consideration in Developing QA/QC Systems</i>
0930 - 0945	<i>Break</i>
0945 - 1100	<i>Advanced Composite Materials</i> <i>Components • Advantages • Disadvantages • Types • Applications</i>

1100 - 1215	Fracture Processes & Toughness of Composites
1215 - 1230	<i>Break</i>
1230 - 1320	Interfaces in Composites Materials
1320 - 1420	Modelling of the Processing of Fibre Composites
1420 - 1430	Recap
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 - 0830	Failure Criteria
0830 - 0930	Woven Composites - Structure & Behavior
0930 - 0945	<i>Break</i>
0945 - 1030	Notches & Joints - the Effect of Stress Concentrations
1030 - 1130	Fatigue
1100 - 1215	Impact & Environmental Effects
1215 - 1230	<i>Break</i>
1230 - 1345	Field Testing & Testing Equipment
1345 - 1400	Course Conclusion
1400 - 1415	POST-TEST
1415 - 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

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



Course Coordinator

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