COURSE OVERVIEW SE0094
Construction Materials & Methods

Course Title
Construction Materials & Methods

Course Date/Venue
November 15-19, 2026/Musandam Meeting Room, Royal Tulip Muscat, Oman

Course Reference
SE0094

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



Course Description







This practical and highly-interactive course includes real-life case studies where participants will be engaged in a series of interactive small groups and class workshops.

This comprehensive course provides participants with an in-depth understanding of construction materials, construction techniques, quality control, modern construction methods, sustainability and industry best practices. Participants will gain practical knowledge of material properties, selection criteria, construction processes, inspection methods and quality assurance to ensure safe, durable and cost-effective construction projects.

Further, the course will also discuss the construction materials, cement and cementitious materials and concrete technology; the aggregates, steel as a construction material, material testing and quality control; the masonry materials, timber and engineered wood products and metals and non-ferrous materials; the finishing materials, modern and sustainable construction materials including thermal, acoustic and waterproofing materials; and the site preparation and earthworks, foundation construction methods and reinforced concrete construction.

During this interactive course, participants will learn the structural steel construction, masonry and building envelope construction; the construction equipment and productivity, construction quality management, construction safety practices and building codes and standards; the construction planning and scheduling, cost control and material management; the inspection, testing and commissioning, prefabrication and modular construction and sustainable construction practices; the digital technologies in construction and repair, rehabilitation and retrofitting; the 3D concrete printing, smart materials and self-healing concrete; and the robotics and automation in construction, climate resilience and resilient infrastructure design.

Course Objectives/Outcomes & Benefits for the Participants

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

- Apply ang gain an in-depth knowledge on construction materials and methods
- Discuss construction materials, cement and cementitious materials and concrete technology
- Identify aggregates and steel as a construction material as well as apply material testing and quality control
- Recognize masonry materials, timber and engineered wood products and metals and non-ferrous materials
- Describe finishing materials, modern and sustainable construction materials including thermal, acoustic and waterproofing materials
- Carryout site preparation and earthworks, foundation construction methods and reinforced concrete construction
- Apply structural steel construction, masonry and building envelope construction as well as construction equipment and productivity
- Employ construction quality management, construction safety practices and building codes and standards
- Carryout construction planning and scheduling, cost control and material management
- Implement inspection, testing and commissioning, prefabrication and modular construction and sustainable construction practices
- Discuss digital technologies in construction and apply repair, rehabilitation and retrofitting
- Describe 3D concrete printing, smart materials and self-healing concrete, robotics and automation in construction, climate resilience and resilient infrastructure design

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 materials and methods for civil engineers, construction engineers, project engineers, site engineers, architects, consultants, supervisors, contractors, quality control engineers, materials engineers and construction professionals.

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

Haward's 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**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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:



Dr. Mostafa Eloyfi, PhD, MSc, BSc, Dip, NEBOSH, is a **Senior Project & Construction Management Consultant** with over **25 years** of extensive experience within the **Oil & Gas**, **Petroleum** and **Utility** industries. His expertise widely covers in the areas of **Construction Materials & Concrete** Technology, **Civil & Construction** Engineering, **Material** Testing & Quality Control, Modern & Sustainable **Construction Materials**, **Site Preparation & Construction** Methods, **Reinforced Concrete** Construction, **Structural Steel** Construction, **Masonry & Building Envelope** Construction, **Construction** Equipment & Productivity, **Construction Quality** Management, **Construction** Safety Practices, **Building** Codes & Standards, **Construction** Planning & Scheduling, **Prefabrication & Modular** Construction, **Sustainable Construction** Practices, Repair, Rehabilitation & Retrofitting, **Project** Management, **Project** Planning & Scheduling, **Project** Economics, Risk & Decision Analysis, **Asset Integrity** Management for Oil & Gas Industry, Planning & Cost Management of **Engineering Projects**, **Excavation** Techniques, **Contract** Preparation & Management, **Procurement** Skills and **Occupational Health & Safety**.

During his career life, Dr. Mostafa has gained his practical and field experience through his various significant positions and dedication as the Chief Executive Officer (**CEO**), **Business & Project Development Director**, **Projects Manager**, **Project Construction Manager**, **Deputy Construction Manager**, **Site Civil Supervisor**, **HSE Engineer**, **Senior Project Planning**, **Scheduling & Controlling Engineer**, **Project Planning**, **Scheduling & Controlling Engineer** and **Senior Instructor/Trainer** for numerous companies like the **GUPCO**, **BP**, Consolidated Contractors International Company (**CCIC**), Burullus Gas Company, Pharaonic Petroleum Company (PhPC), Petroleum Integrated Services (PICO), North Sinai Petroleum Company (NOSPCO), **MOG Energy**, Premier Petroleum Supplier (PPS), ARWIMCO LLC, Zaporozhe Cement Factory, Technical Integrity Solutions (TIS) and Misr Cement Group.

Dr. Mostafa holds a **Doctor** of **Business Administration** (**DBA**), a **Master's** degree and a **Bachelor's** degree in **Civil Engineering**, a **Master's** of **International Business Administration** in **Global Marketing**, a **Master's** of **Management** in **Global Management** and **Diploma** in Law, Project Management, Occupational Health & Safety & Environmental Control (HSE), Hazard Analysis and Sales & Marketing. He is also a Recognized **NEBOSH** – International General Certificate and a Certified Planning & Scheduling Professional (**PSP**) and a member of Egyptian Engineering Syndicate, Institution of Civil Engineers (ICE), Engineering New Zealand, Arab Engineers and Egyptian Society for Corrosion Engineers. He has further published several journals and papers and delivered numerous courses, seminars, trainings and workshops internationally.

Training Methodology

Our courses employ an interactive, learner-centred methodology that integrates theoretical knowledge with practical application. The training is delivered through a suitable combination of some or all of the following methods, selected according to the course content and learning objectives:

- Instructor-led presentations and facilitated discussions
- Practical workshops and participant presentations
- Hands-on exercises and real-world case studies
- Equipment demonstrations and technical drawings
- Hardware- and software-based simulations
- Gamification & Role Play in soft-skills courses only
- Virtual Reality (VR) and Augmented Reality (AR)
- Instructional videos and other relevant training resources

This blended approach encourages active participation, strengthens practical skills and supports the effective application of acquired knowledge in the workplace.

Learning Design & Customization

This course can be customized to the exact requirements of clients. Haward Technology is so proud of our huge capabilities in tailoring our courses to the training needs of our valued clients.

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 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: ***Sunday, 15th of November 2026***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Construction Materials*** *Classification of Construction Materials • Material Properties and Engineering Characteristics • Material Selection Criteria • Applicable Codes, Standards, and Specifications*
0930 – 0945	*Break*
0945 – 1030	***Cement & Cementitious Materials*** *Types and Properties of Portland Cement • Supplementary Cementitious Materials (Fly Ash, Slag, Silica Fume) • Cement Manufacturing Process • Storage, Handling, and Quality Requirements*

1030 – 1130	***Concrete Technology*** *Concrete Constituents and Mix Design • Fresh and Hardened Concrete Properties • Workability, Strength, and Durability • Concrete Batching, Mixing, Transportation, and Placement*
1130 – 1215	***Aggregates*** *Types and Classifications of Aggregates • Physical and Mechanical Properties • Aggregate Grading and Testing • Influence of Aggregates on Concrete Performance*
1215 – 1230	*Break*
1230 – 1330	***Steel as a Construction Material*** *Structural Steel Grades and Specifications • Reinforcing Steel (Rebar) Types and Applications • Mechanical Properties and Fabrication • Corrosion Protection and Durability*
1330 – 1420	***Material Testing & Quality Control*** *Laboratory and Field Testing Methods • Sampling Procedures and Acceptance Criteria • Non-Destructive Testing (NDT) Techniques • Quality Assurance and Quality Control Documentation*
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: ***Monday, 16th of November 2026***

0730 – 0830	***Masonry Materials*** *Clay Bricks, Concrete Blocks, and AAC Blocks • Mortars and Grout Materials • Masonry Construction Techniques • Quality Inspection and Testing*
0830 – 0930	***Timber & Engineered Wood Products*** *Types and Properties of Timber • Moisture Content and Seasoning • Engineered Wood Products (LVL, Glulam, CLT) • Preservation and Protection Methods*
0930 – 0945	*Break*
0945 – 1100	***Metals & Non-Ferrous Materials*** *Aluminum Applications in Construction • Stainless Steel and Corrosion Resistance • Copper, Zinc, and Specialty Metals • Material Selection Based on Environmental Exposure*
1100 – 1215	***Finishing Materials*** *Plastering and Rendering Materials • Flooring Systems and Finishes • Paints, Coatings, and Protective Finishes • Ceiling and Partition Materials*
1215 – 1230	*Break*
1230 – 1330	***Modern & Sustainable Construction Materials*** *Fiber-Reinforced Concrete • Geopolymers and Green Concrete • Composite Materials • Recycled and Eco-Friendly Building Materials*
1330 – 1420	***Thermal, Acoustic & Waterproofing Materials*** *Thermal Insulation Systems • Acoustic Insulation Materials • Waterproofing Membranes and Sealants • Moisture Protection and Vapor Barriers*
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:	Tuesday, 17th of November 2026
0730 – 0830	***Site Preparation & Earthworks*** *Site Investigation and Surveying • Clearing, Grading, and Excavation • Soil Stabilization Techniques • Earthwork Equipment and Safety*
0830 – 0930	***Foundation Construction Methods*** *Shallow Foundation Construction • Deep Foundation Systems (Piles and Caissons) • Foundation Excavation and Support Systems • Foundation Quality Control and Inspection*
0930 – 0945	*Break*
0945 – 1100	***Reinforced Concrete Construction*** *Reinforcement Placement and Detailing • Formwork and Falsework Systems • Concrete Placement and Vibration • Curing Methods and Quality Assurance*
1100 – 1215	***Structural Steel Construction*** *Steel Fabrication Processes • Bolted and Welded Connections • Steel Erection Methods • Inspection and Alignment Procedures*
1215 – 1230	*Break*
1230 – 1330	***Masonry & Building Envelope Construction*** *Wall Construction Methods • Roofing Systems and Installation • Doors, Windows, and Façade Systems • Weatherproofing and Sealing Techniques*
1330 – 1420	***Construction Equipment & Productivity*** *Selection of Construction Equipment • Material Handling and Lifting Operations • Equipment Maintenance and Utilization • Productivity Improvement Techniques*
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:	Wednesday, 18th of November 2026
0730 – 0830	***Construction Quality Management*** *Quality Planning and Inspection Procedures • Inspection and Test Plans (ITPs) • Material Acceptance and Traceability • Documentation and Quality Records*
0830 – 0930	***Construction Safety Practices*** *Hazard Identification and Risk Assessment • Personal Protective Equipment (PPE) • Safe Work Methods and Permit-to-Work Systems • Emergency Response and Incident Reporting*
0930 – 0945	*Break*
0945 – 1100	***Building Codes & Standards*** *International Building Code (IBC) • ACI, ASTM, BS EN, and ISO Standards • Local Authority Requirements • Compliance Verification and Inspections*
1100 – 1215	***Construction Planning & Scheduling*** *Work Breakdown Structure (WBS) • Critical Path Method (CPM) • Resource Allocation and Leveling • Progress Monitoring and Reporting*
1215 – 1230	*Break*
1230 – 1330	***Cost Control & Material Management*** *Material Estimation and Quantity Take-Off • Procurement Planning and Logistics • Inventory and Storage Management • Waste Reduction and Cost Optimization*

1330 – 1420	***Inspection, Testing & Commissioning*** *Field Quality Inspections • Concrete and Steel Acceptance Testing • Punch Listing and Defect Management • Project Handover and Closeout Procedures*
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: ***Thursday, 19th of November 2026***

0730 – 0830	***Prefabrication & Modular Construction*** *Off-Site Manufacturing Principles • Modular Building Systems • Precast Concrete Construction • Installation, Transportation, and Logistics*
0830 – 0930	***Sustainable Construction Practices*** *Green Building Materials • LEED, BREEAM, and Sustainability Rating Systems • Energy-Efficient Construction Techniques • Circular Economy in Construction*
0930 – 0945	*Break*
0945 – 1100	***Digital Technologies in Construction*** *Building Information Modeling (BIM) • Digital Twins for Construction Projects • Drones and Laser Scanning • Artificial Intelligence (AI) and IoT Applications*
1100 – 1215	***Repair, Rehabilitation & Retrofitting*** *Structural Assessment Techniques • Concrete Repair Methods • Strengthening with FRP and Steel Systems • Rehabilitation Planning and Execution*
1215 – 1230	*Break*
1230 – 1315	***Construction Case Studies & Best Practices*** *Analysis of Successful Construction Projects • Lessons Learned from Project Failures • Productivity and Quality Improvement Initiatives • Contract Management and Stakeholder Coordination*
1315 – 1345	***Future Trends in Construction Materials & Methods*** *3D Concrete Printing • Smart Materials and Self-Healing Concrete • Robotics and Automation in Construction • Climate Resilience and Resilient Infrastructure Design*
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 Workshops and Hands-On Activities (Integrated Throughout the Course)

- Concrete mix design and slump testing exercise
- Aggregate grading and laboratory testing demonstration
- Reinforcement detailing and bar bending schedule preparation
- Formwork inspection and concrete placement planning
- Structural steel connection inspection workshop
- Masonry quality inspection and defect identification
- Construction scheduling using CPM techniques
- Building Information Modeling (BIM) project demonstration
- Construction site safety audit and risk assessment exercise
- Group case study on quality, cost, and schedule management

Learning Outcomes

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

- Identify and evaluate the properties, applications, and performance of major construction materials
- Select appropriate materials based on structural, environmental, durability, and economic requirements
- Apply best practices in concrete, steel, masonry, timber, and foundation construction
- Plan and supervise construction activities using modern construction methods and equipment
- Implement quality assurance and quality control procedures for materials and construction processes
- Ensure compliance with international construction standards, building codes, and safety regulations
- Utilize digital technologies such as BIM, drones, and AI to improve construction planning and execution
- Evaluate sustainable construction materials and methods to enhance project performance, reduce environmental impact, and improve long-term asset durability

Practical Sessions

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



Course Coordinator

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