COURSE OVERVIEW FE1017
Welding Inspector & Heat Treatment

Course Title
Welding Inspector & Heat Treatment

Course Date/Venue
Please see page 3

Course Reference
FE1017

Course Duration/Credits
Five days/3.0 CEUs/30 PDH s

Course Description

This practical and highly-interactive course includes practical sessions and exercises where participants carryout welding inspection. Theory learnt in the class will be applied using the "AWS Tool Kit" and "Structural Weld Replica Kit" suitable for in-class training.

This course is designed to provide participants with a detailed and up-to-date overview of Welding Inspector & Heat Treatment. It covers the roles and responsibilities of a welding inspector, key stages in welding inspection, safety considerations in inspection work and essential inspection tools and equipment; the welding processes, welding symbols and drawings, welding consumables, metallurgy for welding inspectors and industry codes and standards; the types of weld defects and causes and prevention of weld defects; the visual inspection techniques and dimensional inspection; the welding procedure specification (WPS), procedure qualification record (PQR) and welder performance qualification (WPQ); and the record-keeping best practices.

Further, the course will also discuss the non-destructive testing (NDT), radiographic testing (RT), ultrasonic testing (UT), magnetic particle testing (MT) and dye penetrant testing (PT); the NDT result documentation, results evaluation per applicable code and communicating with NDT technicians; the purpose of heat treatment in welding, types and metallurgical effects; and the applicable codes and standards.

During this interactive course, participants will learn the preheating in welding, post-weld heat treatment (PWHT), heat treatment equipment and heat treatment procedures; the common heat treatment problems and solutions; the uneven heating, overheating and metallurgical damage and thermocouple placement errors; the steps in qualifying a WPS, test coupon preparation, mechanical testing requirements and acceptance per applicable code; the inspector's role in welding quality control and heat treatment quality verification; reviewing temperature charts and verifying soak times and rates; and the acceptance criteria compliance and documentation review.

Course Objectives

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

- Get certified as a "*Certified Welding Inspector*"
- Discuss the roles and responsibilities of a welding inspector, key stages in welding inspection, safety considerations in inspection work and essential inspection tools and equipment
- Illustrate welding processes, welding symbols and drawings and identify welding consumables, metallurgy for welding inspectors and industry codes and standards
- Recognize the various types of weld defects and causes and prevention of weld defects and apply visual inspection techniques and dimensional inspection
- Employ welding procedure specification (WPS), procedure qualification record (PQR), welder performance qualification (WPQ) and record-keeping best practices
- Carryout non-destructive testing (NDT), radiographic testing (RT), ultrasonic testing (UT), magnetic particle testing (MT) and dye penetrant testing (PT)
- Apply NDT result documentation, evaluate results per applicable code and communicate with NDT technicians
- Discuss the purpose of heat treatment in welding including its types, metallurgical effects and applicable codes and standards
- Employ preheating in welding, post-weld heat treatment (PWHT), heat treatment equipment and heat treatment procedures
- Identify common heat treatment problems and solutions covering uneven heating, overheating and metallurgical damage and thermocouple placement errors
- Carryout steps in qualifying a WPS, test coupon preparation, mechanical testing requirements and acceptance per applicable code
- Recognize inspector's role in welding quality control and apply heat treatment quality verification by reviewing temperature charts, verifying soak times and rates, acceptance criteria compliance and documentation review

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 welding inspection and heat treatment for welding inspectors and quality control personnel, welding engineers and technicians, NDT (Non-Destructive Testing) technicians, heat treatment technicians and engineers, QA/QC managers and supervisors, fabrication and construction professionals, mechanical and pipeline engineers, professionals seeking certification (e.g., CSWIP, AWS CWI, BGAS-CSWIP, ASNT NDT Level II/III) and other technical staff.

Course Date/Venue

Session(s)	Date	Venue
1	September 21-25, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
2	October 27-31, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
3	November 23-27, 2025	Meeting Plus 9, City Centre Rotana, Doha, Qatar
4	December 14-18, 2025	Crowne Meeting Room, Crowne Plaza Al Khobar, an IHG Hotel, Al Khobar, KSA

Course Fee

Dubai	**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.
Abu Dhabi	**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.
Al Khobar	**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.
Doha	**US$ 6,000** per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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.

Accommodation

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

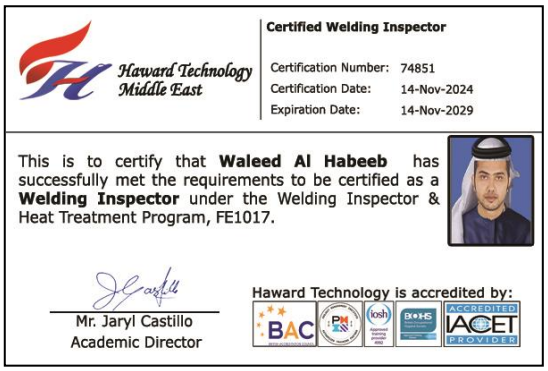
Course Certificate(s)

(1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Successful candidate will be certified as a "*Certified Welding Inspector*". Certificates are valid for 5 years.

Recertification is FOC for a Lifetime.

Sample of Certificates

The following are samples of the certificates that will be awarded to course participants:-



(2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

* Haward Technology * CEUs * Haward Technology * CEUs * Haward Technology * CEUs * Haward Technology *

Haward Technology Middle East

Continuing Professional Development (HTME-CPD)

CEU Official Transcript of Records

TOR Issuance Date: 14-Nov-24

HTME No. 74851

Participant Name: Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
FE1017	Welding Inspector & Heat Treatment	Nov 10-14, 2024	30	3.0

Total No. of CEU's Earned as of TOR Issuance Date **3.0**

TRUE COPY

Jaryl Castillo
Academic Director

Haward Technology has been approved as an Accredited Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2018 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2018 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 Association 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 is accredited by

P.O. Box 26070, Abu Dhabi, United Arab Emirates | Tel.: +971 2 3091 714 | E-mail: info@haward.org | Website: www.haward.org

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:

Mr. George Poulos, MBA, MSc, BSc, CEng, is a **Senior Corrosion & Welding Engineer** with over **30 years** of extensive experience within the **Oil & Gas**, **Petrochemical, Refinery**, **Construction**, **Aircraft & Shipbuilding** Industry. His wide experiences covers in the areas of **Welding** & **Cutting**, **Welding** Inspection, **Welding** & **Machine** Techniques, **TIG** & **Arc Welding**, **Shielded Metal Arc Welding**, **Gas Tungsten** & **Gas Metal Arc Welding**, **Welding** Procedure Specifications & Qualifications, **Aluminium Welding**, **Hot & Cold Tapping** Techniques, **Hot Work-Safety**, **SMAW**, **GTAW**, **Welding** Techniques, **Pipeline Welding** Practices, **Welding** Engineering, **Welding** Fatigue & Fracture Mechanics, **Welding Inspection Technology**, **Welding Safety**, **Welding** Defects Analysis, **Welding Technology**, **Welding Problems**, **Welding & Non Destructive** Testing, **Metallurgy Techniques**, **Metallurgical** Failure Analysis & Prevention, **Corrosion** Fabrication & Inspection, **Fabrication** & **Repair**, **Corrosion** Prevention, **Corrosion** Engineering, **Oilfield Corrosion Monitoring & Control**, **Corrosion Inhibition**, **Corrosion** Management in Process Operations, **Corrosion** & Prevention of Failures, **Material** Selection, **Cathodic Protection** Systems. Further, he is also well-versed in **Hot Rolling** Process, **Hot Strip Mill**, **Mill** Operations, **Roll Mill**, **Steel Making** Process, **Steel** Manufacturing, **Electric Arc Furnace** (**EAF**), **Steel Forging**, **Steel** Manufacturing & Process Troubleshooting, **Slit Rolling**, **Carbon Steel Pipe** Wall Thickness & Grade Selection, **Ferro-Alloys**, **Steel Metallurgy**, **Steel** Structure Welding, **Steelmaking** Slag, **Steel** Making Application, **Heat Treatment** & **Prevention Techniques**, **Corrosion** Fabrication & Inspection and **Post Weld Heat Treatment**.

During his career life, Mr. Poulos has gained his practical and field experience through his various significant positions and dedication as the **Chief Executive**, **Head of Technical Studies**, **Manager**, **Senior Consultant**, **Lead Welding Engineer**, **Senior Welding Engineer**, **Design Engineer**, **Sales Engineer**, **Author**, **Welding Instructor**, **Visiting Lecturer** and **Technical Proposal Research Evaluator** from various international companies such as Greek Welding Institute, Hellenic Quality Forum and International Construction Companies such as Shipbuilding, Aircraft Industry and Oil and Gas Industry.

Mr. Poulos is a **Registered Chartered Engineer** and has a **Master's** degree in **Naval Architecture**, a **Bachelor's** degree in **Welding Engineering** and a Master of Business Administration (**MBA**) from the **Sunderland University**, **Aston University** and **Open University**, **UK**, respectively. Further, he is a **Certified Trainer/Instructor**, an active Member of Chartered Quality Institute (**CQI**), The British Welding Institute (**TWI**), The Royal Institution of Naval Architects (**RINA**) and American Welding Society (**AWS**), a Registered **EWF/IW** (European Welding Federation-International Welding Institute W/E) and an **IRCA** Accredited External Quality Systems Auditor through BVQI. He is an **Author** of Technical Book dealing with Protection/Health/Safety in the Welding/Cutting domain and 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

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Welding Inspection*** *Roles & Responsibilities of a Welding Inspector • Key Stages in Welding Inspection • Safety Considerations in Inspection Work • Essential Inspection Tools & Equipment*
0930 – 0945	*Break*
0945 – 1030	***Welding Processes Overview*** *SMAW (Shielded Metal Arc Welding) • GTAW (Gas Tungsten Arc Welding) • GMAW (Gas Metal Arc Welding) • SAW (Submerged Arc Welding)*
1030 – 1130	***Welding Symbols & Drawings*** *Standard Welding Symbols (ISO/AWS) • Reading & Interpreting Welding Symbols on Drawings • Joint Types & Positions Representation • Practical Interpretation Exercises*
1130 – 1215	***Welding Consumables*** *Types of Electrodes & Filler Metals • AWS/EN Classification Systems • Storage & Handling Requirements • Impact on Weld Quality*
1215 – 1230	*Break*
1230 – 1330	***Metallurgy for Welding Inspectors*** *Basic Metallurgy Concepts for Welds • Heat-Affected Zone (HAZ) Characteristics • Grain Structure Changes During Welding • Common Metallurgical Defects*
1330 – 1420	***Industry Codes & Standards*** *ASME Section IX – Welding Qualifications • AWS D1.1 Structural Welding Code • ISO 9606 Welder Qualification Standards • API 1104 for Pipeline Welding*
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	***Types of Weld Defects*** *Porosity & Gas Inclusions • Slag Inclusions • Lack of Fusion & Incomplete Penetration • Cracks (Hot, Cold, Crater Cracks)*
0830 – 0930	***Causes & Prevention of Weld Defects*** *Welding Parameter Control • Joint Preparation & Fit-Up • Environmental Conditions Impact • Welder Skill Level*
0930 – 0945	*Break*
0945 – 1100	***Visual Inspection Techniques*** *Pre-Weld Inspection • In-Process Inspection • Post-Weld Inspection • Visual Acceptance Criteria*

1100 – 1230	***Dimensional Inspection*** *Fillet Weld Gauges & Bridge Cam Gauges • Undercut, Overlap & Reinforcement Measurement • Alignment & Distortion Checks • Tolerances per Codes*
1230 – 1245	*Break*
1245 – 1330	***Weld Documentation & Traceability*** *Welding Procedure Specification (WPS) • Procedure Qualification Record (PQR) • Welder Performance Qualification (WPQ) • Record-Keeping Best Practices*
1330 – 1345	***Practical Exercises in Visual Inspection*** *Hands-On Defect Identification on Samples • Use of Gauges & Measuring Tools • Reporting Inspection Results • Real-World Case Studies*
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	***Basics of Non-Destructive Testing (NDT)*** *Purpose & Benefits of NDT in Welding • Common Methods for Weld Inspection • Inspector's Role in NDT Coordination • Limitations of Visual Inspection*
0830 – 0930	***Radiographic Testing (RT)*** *Principle & Equipment Used • Film Interpretation Basics • Radiation Safety Considerations • Acceptance Criteria in Codes*
0930 – 0945	*Break*
0945 – 1100	***Ultrasonic Testing (UT)*** *Sound Wave Principles • Equipment Calibration • Weld Defect Detection • Interpretation of UT Results*
1100 – 1230	***Magnetic Particle Testing (MT)*** *Principle & Magnetization Methods • Suitable Materials & Applications • Defect Visibility & Interpretation • Acceptance Criteria*
1230 – 1245	*Break*
1245 – 1330	***Dye Penetrant Testing (PT)*** *Surface-Breaking Defect Detection • Application Process Steps • Advantages & Limitations • Interpretation of Indications*
1330 – 1345	***NDT Reporting & Acceptance Criteria*** *NDT Result Documentation • Evaluating Results per Applicable Code • Communicating with NDT Technicians • Case Examples from Industry*
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	***Heat Treatment*** *Purpose of Heat Treatment in Welding • Types: Preheat, Post-Weld Heat Treatment (PWHT) • Metallurgical Effects of Heat Treatment • Applicable Codes & Standards*
0830 – 0930	***Preheating in Welding*** *Reasons for Preheating • Methods: Flame, Electrical, Induction • Measuring Preheat Temperature • Controlling Preheat Uniformity*

0930 – 0945	*Break*
0945 – 1100	***Post-Weld Heat Treatment (PWHT)*** *Purpose & Benefits • Soak Temperature & Holding Time Requirements • Cooling Rate Control • Monitoring & Recording*
1100 – 1230	***Heat Treatment Equipment*** *Electrical Resistance Heating Systems • Induction Heating Equipment • Thermocouples & Temperature Control Units • Insulation Materials & Safety Precautions*
1230 – 1245	*Break*
1245 – 1330	***Heat Treatment Procedures*** *Developing a Heat Treatment Procedure • Compliance with ASME & API Requirements • Pre- and Post-Treatment Inspection • Documentation & Records*
1330 – 1345	***Common Heat Treatment Problems & Solutions*** *Uneven Heating • Overheating & Metallurgical Damage • Thermocouple Placement Errors • Case Studies on Corrective Measures*
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 – 0930	***Weld Procedure Qualification*** *Steps in Qualifying a WPS • Test Coupon Preparation • Mechanical Testing Requirements • Acceptance per Applicable Code*
0930 – 0945	*Break*
0945 - 1030	***Inspector's Role in Welding Quality Control*** *QC versus QA in Welding Projects • Inspection Hold Points & Witness Points • Liaising with Clients & Contractors • Preventive Action Measures*
1030 – 1130	***Heat Treatment Quality Verification*** *Reviewing Temperature Charts • Verifying Soak Times & Rates • Acceptance Criteria Compliance • Documentation Review*
1130 - 1230	***Case Studies & Problem Solving*** *Real Inspection & Heat Treatment Challenges • Root Cause Analysis of Weld Failures • Corrective & Preventive Actions • Lessons Learned*
1230 – 1245	*Break*
1245 - 1300	***Practical Workshop*** *Conducting Visual Inspection on Sample Welds • Performing Hardness Checks Post-Heat Treatment • Reviewing Mock Inspection Reports • Hands-On Use of Inspection Tools*
1300 – 1315	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1315 – 1415	***COMPETENCY EXAM***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout welding inspection using the "AWS Tool Kit" and "Structural Weld Replica Kit", suitable for classroom training.

AWS Tool Kit

Structural Weld Replica Kit

Course Coordinator
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