COURSE OVERVIEW FE0442
ASME BPV Code, Section IX: Welding, Brazing and Fusing Qualifications

Course Title
ASME BPV Code, Section IX: Welding, Brazing and Fusing Qualifications

Course Date/Venue
September 07-11, 2025/Crowne Meeting Room, Crowne Plaza Al Khobar, an IHG Hotel, Al Khobar, KSA

Course Reference
FE0442

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

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt in the class will be applied using the following practical methods:-

(**1**) **Industrial Facility Visit:** Course participants will be taken to an industrial facility where they will practice welding, fabrication and inspection. In case that this course is organized inside client premises (In-House), then client shall provide access to its welding and fabrication workshop for practical sessions.

(**2**) **Welding Simulator:** Participants will use in the class the welding & fabrication software and AWS Tool Kit & Structural Weld Replica Kit to practice some of the skills learnt.

Welding Technology plays a major role in all maintenance and fabrication activities in the industry. Production equipment, a highly sophisticated welding technique and qualified personnel allow processing or production of steel products for different applications within short periods. This course provides a much-needed source of authoritative information on the complex subject of welding. It provides a comprehensive run-down of the complex science of welding-processes, selection of power sources, weld metallurgy, weldability of metals, testing and inspection techniques.

This course is designed to provide participants with a detailed and up-to-date overview of welding, brazing, and fusing qualifications in accordance with BPV code, section IX. It covers the ASME BPV section IX; the relationship of section IX to other codes and the secret to using section IX efficiently; the welding processes covering fuel gas, shielded metal ARC, gas tungsten ARC, gas metal ARC, submerged ARC, plasma ARC, electroslag, electrogas, beam, stud, friction, resistance, explosion, diffusion and hybrid; the shield-metal arc welding (SMAW) variables as well as P-numbers, S-number and non-code metals; the steel metallurgy; the hardenability; the preheat and postweld heat treatment; the filler metal specifications including F-numbers, A numbers, SFA specification and non SFA filler metals; and the variables for other common processes, practical aspects and basic welding metallurgy for steels.

Further, this course will also discuss the various approaches to writing the welding procedure specification and customer requirements; the direction to the welder and sources of information for preparing intelligent and meaningful welding procedure specifications; selecting, preparing and welding test coupon as well a selecting test coupon materials for maximum cost-effectiveness; recording both necessary and worthwhile data and code compliance; the records and procedures and welder and welding operator qualifications; the responsibility for testing welders and welding operators as well as performance qualification variables; selecting test coupons, test completed welds and maintaining qualifications over time; and how the welding influences toughness and how construction codes deal with toughness.

During this interactive course, participants will learn the WPSS for impact tested applications; the supplementary essential variables and document them during welding; measuring and recording heat input data and translating heat input data into useful directions for welder; the brazing qualifications, brazing processes and variables; the QW (welding) and QB (brazing) sections; the qualification of the brazing procedures and brazers and the differences between welding and brazing; the fusing qualifications, plastic fusing processes and variables; and the qualification of the fusing procedures and fusing operators.

Course Objectives

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

- Apply and gain an in-depth knowledge on welding, brazing, and fusing qualifications in accordance with BPV code, section IX
- Discuss ASME BPV section IX including the relationship of section IX to other codes and the secret to using section IX efficiently
- Review welding processes covering fuel gas, shielded metal ARC, gas tungsten ARC, gas metal ARC, submerged ARC, plasma ARC, electroslag, electrogas, beam, stud, friction, resistance, explosion, diffusion and hybrid
- Identify shield-metal arc welding (SMAW) variables as well as P-numbers, S-number and non-code metals
- Describe steel metallurgy; hardenability; preheat and postweld heat treatment
- Discuss filler metal specifications including F-numbers, A numbers, SFA specification and non SFA filler metals

- Explain variables for other common processes, practical aspects and basic welding metallurgy for steels
- Carryout various approaches to writing the welding procedure specification and address customer requirements
- Provide direction to the welder and identify sources of information for preparing intelligent and meaningful welding procedure specifications
- Select, prepare and weld test coupon as well a select test coupon materials for maximum cost-effectiveness
- Record both necessary and worthwhile data and demonstrate code compliance
- Revise records and procedures and identify welder and welding operator qualifications
- Explain the responsibility for testing welders and welding operators as well as performance qualification variables
- Select test coupons, test completed welds and maintain qualifications over time
- Interpret how welding influences toughness and how construction codes deal with toughness
- Upgrade WPSS for impact tested applications as well as discuss supplementary essential variables and document them during welding
- Measure and record heat input data and translate heat input data into useful directions for welder
- Review brazing qualifications, brazing processes and variables
- Differentiate QW (welding) and QB (brazing) sections
- Review qualification of the brazing procedures and brazers and the differences between welding and brazing
- Recognize fusing qualifications, plastic fusing processes and variables including the qualification of the fusing procedures and fusing operators

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 a basic overview of all significant aspects and considerations of welding, brazing, and fusing qualifications in accordance with BPV code, section IX for QA/QC inspectors, maintenance, inspection testing engineers, welding professionals, fabrication engineers and QA/QC reliability professionals in oil and gas (petrochemical and refining) operations.

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:

Mr. George Poulos, MBA, MSc, BSc, CEng, is a **Senior Corrosion & Metallurgical Engineer** with over **30 years** of extensive experience within the **Oil & Gas, Petrochemical, Refinery, Construction, Aircraft & Shipbuilding** Industry. His wide experiences cover in the areas of **Pressure Vessels**, **Piping Inspection**, **Risk-Based Inspection**, **Fitness-for-Service** (**FFS**), **Metallurgical** Failure, **Metallurgy & Metallurgical Processes, Metallurgical** Lab, Corrosion and **Metallurgy**, Analysis & Prevention, **Corrosion** Fabrication & Inspection, **Fabrication** & **Repair**, **Corrosion** Prevention, **Corrosion** Engineering, **Corrosion Control**, **Corrosion Inhibition**, **Corrosion** Management in Process Operations, **Corrosion** & Prevention of Failures, **Material** Selection, **Cathodic Protection** Systems, **Steel Metallurgy**, **Steel** Structure Welding, **Steelmaking** Slag, **Steel** Making Application, **Steel Making** Process, **Steel** Manufacturing, **Steel Forging**, **Steel** Manufacturing & Process Troubleshooting, **Hot Rolling** Process, **Hot Strip Mill**, **Mill** Operations, **Roll Mill**, **Electric Arc Furnace** (**EAF**), **Slit Rolling**, **Carbon Steel Pipe** Wall Thickness & Grade Selection, **Ferro-Alloys**, **Heat Treatment** & **Prevention Techniques** and **Post Weld Heat Treatment**. Further, he is also well-versed in **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 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 and **Metallurgy Techniques**.

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 Fee

US$ 5,500 per Delegate + **VAT**. The 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.

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(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, 07th of September 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0900	***Introduction to ASME BPV Section IX***
0900 – 0915	***The Relationship of Section IX to Other Codes***
0915 – 0930	***The Secret to Using Section IX Efficiently***
0930 – 0945	*Break*
0945 – 1030	***Review of the Welding Processes: Fuel Gas, Shielded Metal Arc, Gas Tungsten Arc, Gas Metal Arc, Submerged Arc, Plasma Arc, Electroslag, Electrogas, Beam, Stud, Friction, Resistance, Explosion, Diffusion & Hybrid***
1030 – 1100	***In-Dept Review of SMAW (Shield-Metal Arc Welding) Variables***
1100 – 1230	***P-Numbers, S-Number & Non-Code Metals, Steel Metallurgy; Hardenability; Preheat & Postweld Heat Treatment***
1230 – 1245	*Break*
1245 – 1330	***Filler Metal Specifications Including F-Numbers; A Numbers; SFA Specifications; Non SFA Filler Metals***
1330 – 1420	***Variables for Other Common Processes***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2:	Monday, 08th of September 2025
0730 – 0800	Practical Aspects
0800 – 0830	Basic Welding Metallurgy for Steels
0830 – 0930	Approaches to Writing the Welding Procedure Specification
0930 – 0945	Break
0945 – 1100	Addressing Customer Requirements
1100 – 1200	Providing Direction to the Welder
1200 – 1230	Sources of Information for Preparing Intelligent & Meaningful Welding Procedure Specifications
1230 – 1245	Break
1245 – 1330	Selecting, Preparing & Welding the Test Coupon
1330 – 1420	Selection of the Test Coupon Materials for Maximum Cost-Effectiveness
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3:	Wednesday, 09th of September 2025
0730 – 0800	Recording Both Necessary & Worthwhile Data & Demonstrating Code Compliance
0800 – 0830	Practical Session: Approaches to Writing the WPSS (Welder Procedure Specifications)
0830 – 0930	Revisions to Records & Procedures
0930 – 0945	Break
0945 – 1100	Welder & Welding Operator Qualifications
1100 – 1130	Responsibility for Testing Welders & Welding Operators
1130 – 1230	Performance Qualification Variables- Welders Vs. Operators
1230 – 1245	Break
1245 – 1330	Selecting Test Coupons & Testing Completed Welds
1330 – 1420	Take-Home Test
1420 – 1430	Recap
1430	Lunch & End of Day Three

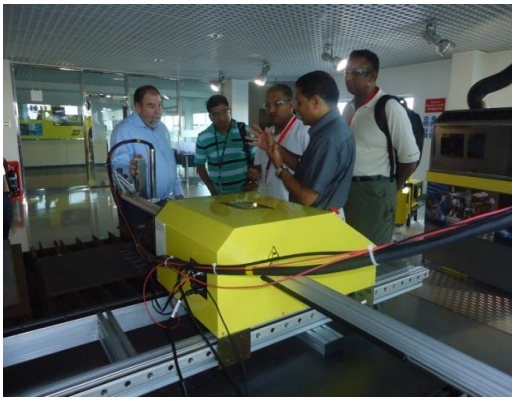
Day 4:	Thursday, 10th of September 2025
0730 – 0830	Maintaining Qualifications Over Time
0830 – 0930	Impact Tested Qualifications
0930 – 0945	Break
0945 – 1100	Learn How Welding Influences Toughness & How Construction Codes Deal with Toughness
1100 – 1130	Upgrading WPSS For Impact Tested Applications
1130 – 1230	Supplementary Essential Variables & Documenting Them During Welding
1230 – 1245	Break
1245 – 1330	Measuring & Recording Heat Input Data & Translating Heat Input Data into Useful Directions for Welder
1330 – 1420	Brazing Qualifications
1420 – 1430	Recap
1430	Lunch & End of Day Four

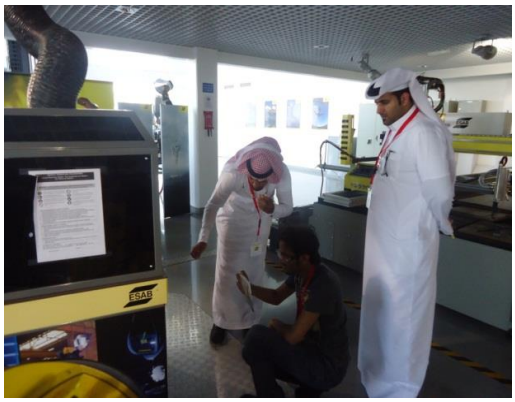
Day 5:	***Thursday, 11th of September 2025***
0730 – 0830	***Review of Brazing Processes & Variables***
0830 – 0900	***Differences Between the QW (Welding) & QB (Brazing) Sections***
0900 – 0930	***Qualification of The Brazing Procedures & Brazers***
0930 – 0945	*Break*
0945 – 1030	***Differences in Testing Between Welding & Brazing***
1030 – 1130	***Fusing Qualifications***
1130 – 1230	***Review of Plastic Fusing Processes & Variables***
1230 – 1245	*Break*
1245 – 1345	***Qualification of The Fusing Procedures & Fusing Operators***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Session/Industrial Facility Visit

Site visit will be organized during the course for delegates to practice the theory learnt:-

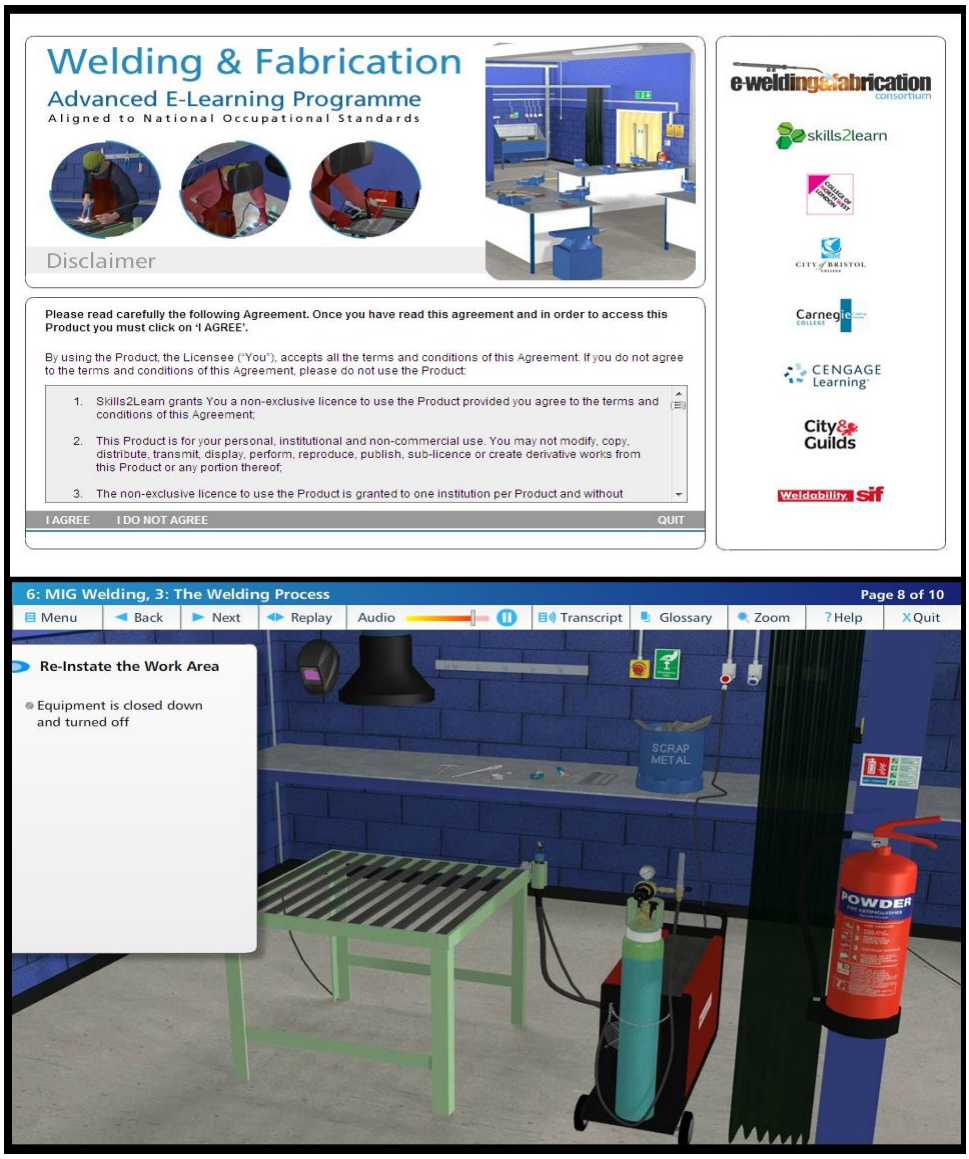




Simulator (Hands-on Practical Sessions)

Practical session will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the simulator “E-Welding & Fabrication”, “American Welding Society (AWS) Tool Kit” and “Structural Weld Replica Kit”.



E-Welding & Fabrication

American Welding Society (AWS) Tool Kit and Structural Weld Replica Kit

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org