COURSE OVERVIEW FE0930
API 577: Welding Inspection and Metallurgy
(API Exam Preparation Training)

Course Title
API 577: Welding Inspection and Metallurgy
(*API Exam Preparation Training)*

Course Date/Venue
October 12-16, 2025/TBA Meeting Room, The H Dubai Hotel, Sheikh Zayed Road, Dubai, UAE

Exam Window: December 05-26, 2025
Exam Closing: September 26, 2025
Exam Venue: Abu Dhabi, Dubai, Al-Khobar, Jeddah, Kuwait, Amman, Beirut, Cairo, Manama and Muscat. Participant has the option to attend at any of the above cities.

Course Reference
FE0930

Course Duration/Credits
Five days/4.0 CEUs/40 PDHs

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 Inspection and Metallurgy in accordance with the API 577 Standard. It covers the welding process for SMAW, GTAW, GMAW, FCAW, SAW, SW, PAW and EGW; the welding materials, P-number assignment and F-number assignment; the AWS classification, filler metal selection, consumable storage and handling; the welding procedure specification (WPS), procedure qualification record (PQR) and tube-to-tubesheet welding procedures; and the welding qualification including expiration, revocation and renewal.

During this interactive course, participants will learn the welding general requirements of ASME BPVC IX; the welding procedure qualifications and welding performance qualifications; the welding data and standard welding procedure specifications (SWPSs); the nondestructive examination and welding inspection; the metallurgy and refinery and petrochemical plant welding issues; and the safety precautions and annexes of API 577.

Course Objectives

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

- Get prepared for the next API 577 exam and have enough knowledge and skills to pass such exam in order to get the API 577 Inspector certificate
- Apply welding process for SMAW, GTAW, GMAW, FCAW, SAW, SW, PAW and EGW
- Identify welding materials including P-number assignment and F-number assignment
- Carryout AWS classification, filler metal selection, consumable storage and handling
- Employ welding procedure specification (WPS), procedure qualification record (PQR) and tube-to-tubesheet welding procedures
- Recognize welding qualification including expiration, revocation and renewal
- Discuss the welding general requirements of ASME BPVC IX as well as apply welding procedure qualifications and welding performance qualifications
- Review welding data and standard welding procedure specifications (SWPSs)
- Apply nondestructive examination and welding inspection and discuss metallurgy and refinery and petrochemical plant welding issues
- Explain the safety precautions and annexes of API 577 covering technology and symbols, actions to address improperly made production welds, WPS/PQR review, etc

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

Any inspector who is currently certified as API 510, 570 or 653 Inspector. Valid certificate (or certification number) in one of the above three programs shall be submitted to Haward Technology prior to registration in this course. Otherwise, you must have one of the combinations of education and experience listed in the grid below:

- The minimum years of experience required is based upon your level of education and must have been acquired within the last 10 years.

Education	Years of Experience	Minimum Experience Required
BS or higher in engineering or technology	1 year	Any experience in the petrochemical industry
2-year degree or certificate in engineering & technology	2 years	Any experience in the petrochemical industry
High school diploma or equivalent	3 years	Any experience in the petrochemical industry
No Formal Education	5 or more years	Any experience in the petrochemical industry

Required Codes & Standards

Listed below are the effective editions of the publications required for the next API-577, Welding Inspection and Metallurgy Examination: -

API Publications

- **API Recommended Practice 577,** *Welding Processes, Inspection, and Metallurgy,* **3rd Edition, October 2020**
  - Entire document is subject to testing

American Society of Mechanical Engineers (ASME) Publications

- **ASME Boiler and Pressure Vessel Code (BPVC), 2021 edition**
  - **Section IX,** *Welding, Brazing, and Fusing Qualifications: Part QW only*

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.

Training Fee

US$ 7,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

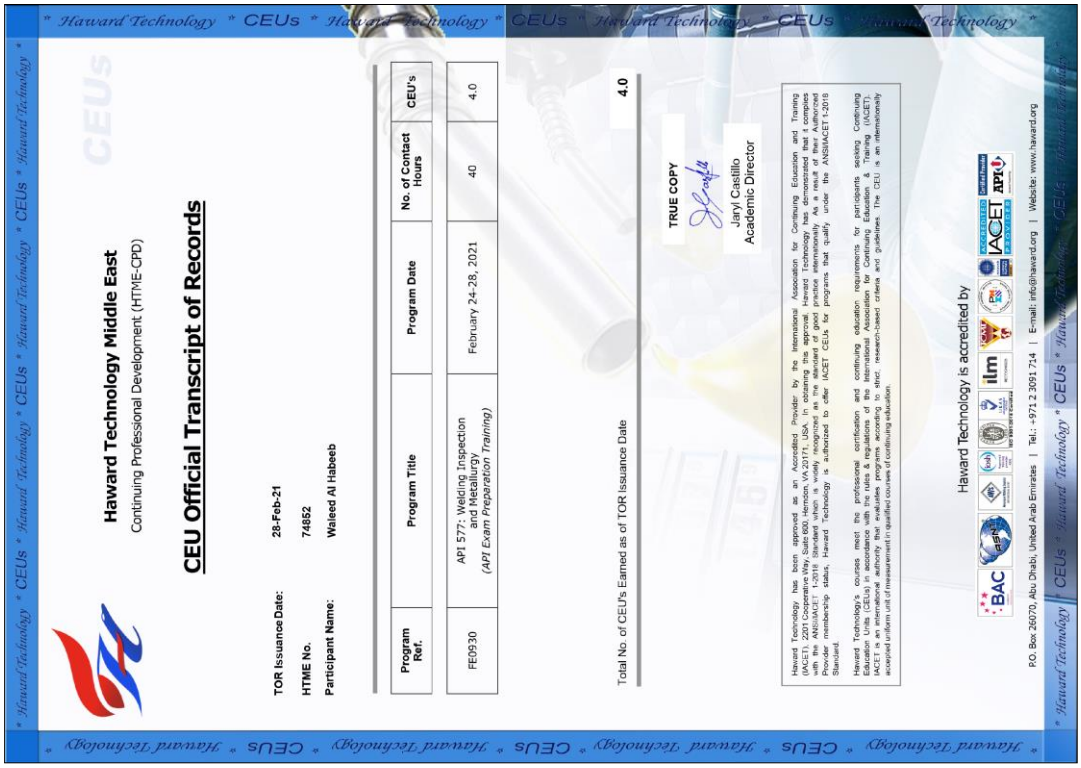
Exam Fees

US$ 560 per Delegate + **VAT**.

API Certificate(s)

(1) API-577 certificate will be issued to participants who have successfully passed the API-571 examination.

(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.



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 **4.0 CEUs** (Continuing Education Units) or **40 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.

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:

Dr. Majed Mustafa, PhD, MSc, BSc, ASNT (RT-PT-MT & UT), is a **Senior Mechanical & Inspection Engineer** with **extensive years** of experience in **Welding** Technology, Advanced **Welding**, **Welding** Technology & Qualifications, **Material Selection** Codes & Standards, Stainless Steel Shielded **Metal Arc Welding**, **Welding** Inspection, **Welding** & **Machine** Techniques, **TIG** & **Arc Welding**, **Shielded Metal Arc Welding**, **Gas Tungsten** & **Gas Metal Arc Welding**, **Welding** Procedure Specifications & Qualifications, **Aluminium Welding**, **Pipeline Welding** Practices, **Welding** Engineering, **Welding** Fatigue & Fracture Mechanics, **Welding Inspection Technology**, **Welding Safety**, **Welding** Defects Analysis, **Welding Technology**, **Welding Problems**, **Inspection** & **Troubleshooting**, **Advanced API 653 Tank Inspection**, **Field Quality Control** Inspection, Asset Integrity Professional, Fundamentals of Asset Integrity, **Piping Mechanical** Design & Specification, **Cathodic Protection**, **Piping Systems** & **Pipeline Integrity**, **Corrosion** Control in Oil & Gas Industry, **Corrosion Techniques** and **Prevention**, **Cathodic Protection System Tanks and Pipelines, Pipe Stress** Analysis, **Maintenance** Management & Planning, **Tank Farm** Operations & Performance. He is also well versed in Lifting and Rigging & Mobile & Overhead Crane Inspection & Testing as per International Standard, Inspection of Heavy-Duty **Vehicle Braking Systems**, **Machine Elements**, Advanced Drilling Technology, Gears, Coupling and Clutches, Bearing and Lubrications, Process plant, start up, commissioning, and Completing, Maintenance Planning and Scheduling. He is currently the **Assistant Professor** in the **Faculty of Engineering** wherein he is responsible for teaching, conducting research and publishing its results, advising and providing public, departmental, college and university service and a **Certified Instructor/Trainer**.

During his career life, Mr. Majed has gained his expertise and thorough practical experience through several positions and dedication as the Acting **Department Head**, **Section Head Projects Engineer**, **Inspection Engineer, Mechanical Engineer**, **Maintenance Engineer**, **Mechanical Supervisor**, **Lecturer**, **Instructor/Trainer** for various international companies and institutions such as the Gulf of Suez Petroleum Co. (GUPCO), British Petroleum (BP), BETROBEL, KNPC, SAIPEM Engineering, Natural Gas Pipeline, TRACTEBEL Engineering, Suez and TransGas Company to name a few. He also worked as **Mechanical/NDT Supervisor** wherein he was responsible for executing the scheduled inspections for welding, coating, pipeline, painting, hydrotest of pipeline & piping and fabrication and assembly.

Mr. Majed has **PhD** and **Master's** degree in **Mechanical Production Engineering** and **Bachelor's** degree in **Mechanical Power Engineering**. Further, he is a **Certified ASNT Level II** (RT-PT-MT & UT), **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and further **published numerous academic papers** and delivered various trainings, courses, workshops, seminars and conferences worldwide.

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, 12th of October 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***API 577: Welding Process*** *Shielded Metal Arc Welding (SMAW) ● Gas Tungsten Arc Welding (GTAW) ● Gas Metal Arc Welding (GMAW) ● Flux-Cored Arc Welding (FCAW)*
0930 - 0945	*Break*
0945 – 1230	***API 577: Welding Process (cont'd)*** *Submerged Arc Welding (SAW) ● Stud Arc Welding (SW) ● Plasma Arc Welding (PAW) ● Electrogas Welding (EGW)*
1230 – 1330	*Lunch*
1330 – 1530	***API 577: Welding Materials*** *P-Number Assignment to Base Metals ● F-Number Assignment to Filler Metals ● AWS Classification of Filler Metals ● A-Number ● Filler Metal Selection ● Consumable Storage & Handling*
1530 – 1545	*Break*
1545 – 1645	***API 577: Welding Procedure*** *Welding Procedure Specification (WPS) ● Procedure Qualification Record (PQR) ● Reviewing the WPS & PQR ● Tube-to-Tubesheet Welding Procedures*
1645 – 1700	***Distribute Homework & Recap***
1700	*End of Day One*

Day 2: ***Monday, 13th of October 2025***

0730 – 0830	***Review of Day 1 & Homework Answers***
0830 – 0930	***API 577: Welding Qualification*** *Welders & Welding Operators ● Examination Failure of a Production Weld ● Retest for Qualification ● Expiration, Revocation, and Renewal of Welder or Welding Operator Qualification*
0930 – 0945	*Break*
0945 – 1230	***API 577: Welding Qualification (cont'd)*** *Welder Performance Qualification ● Reviewing a WPQ ● Limitations for Welder Qualifications*
1230 – 1330	*Lunch*
1330 – 1530	***ASME BPVC IX: Welding General Requirements*** *Weld Orientation ● Test Position for Groove Welds ● Test Position for Fillet Welds ● Types & Purposes of Tests & Examination*
1530 – 1545	*Break*
1545 – 1645	***ASME BPVC IX: Welding General Requirements (cont'd)*** *Tension Tests ● Guided-Bend Tests ● Toughness Tests ● Fillet-Weld Tests ● Other Test & Examinations*
1645 – 1700	***Distribute Homework & Recap***
1700	*End of Day Two*

Day 3:	Tuesday, 14th of October 2025
0730 – 0830	***Review of Day 2 & Homework Answers***
0830 – 0930	***ASME BPVC IX: Welding Procedure Qualifications*** *Preparation of Test Coupon ● Hybribe Welding Procedure Variables ● Welding Variables ● Temper Bead Welding*
0930 – 0945	*Break*
0945 – 1230	***ASME BPVC IX: Welding Performance Qualifications*** *Qualification Test Coupons ● Retests & Renewal of Qualification ● Welding Variables for Welders ● Welding Variables for Welding Operators ● Special Processes*
1230 – 1330	*Lunch*
1330 – 1530	***ASME BPVC IX: Welding Data*** *Variables ● Technique ● P- Numbers ● F-Numbers ● Weld Metal Chemical Composition ● Specimens ● Graphics ● Etching- Processes & Reagents*
1530 – 1545	*Break*
1545 – 1645	***ASME BPVC IX: Standard Welding Procedure Specifications (SWPSs)*** *Adoption of SWPSs ● Use of SWPSs Without Discrete Demonstration ● Forms ● Production Use of SWPSs*
1645 – 1700	***Distribute Homework & Recap***
1700	*End of Day Three*

Day 4:	Wednesday, 15th of October 2025
0730 – 0830	***Review of Day 3 & Homework Answers***
0830 – 0930	***API 577: Nondestructive Examination*** *Discontinuities/Imperfections ● Materials Identification ● Visual Examination (VT) ● Magnetic Particle Examination (MT) ● Alternating Current Field Measurement ● Liquid Penetrant Examination (PT)*
0930 – 0945	*Break*
0945 – 1230	***API 577: Nondestructive Examination (cont'd)*** *Eddy Current Examination (ET) ● Radiographic Examination (RT) ● Ultrasonic Examination (UT) ● Hardness Testing ● Pressure & Leak Testing/Examination (LT)*
1230 – 1330	*Lunch*
1330 – 1530	***API 577: Welding Inspection*** *Tasks Prior to Welding ● Tasks During Welding Operations ● Tasks Upon Completion of Welding*
1530 – 1545	*Break*
1545 – 1645	***API 577: Welding Inspection (cont'd)*** *Nonconformances and Defects ● NDE Examiner Certification ● Weld Inspe Recording*
1645 – 1700	***Distribute Homework & Recap***
1700	*End of Day Three*

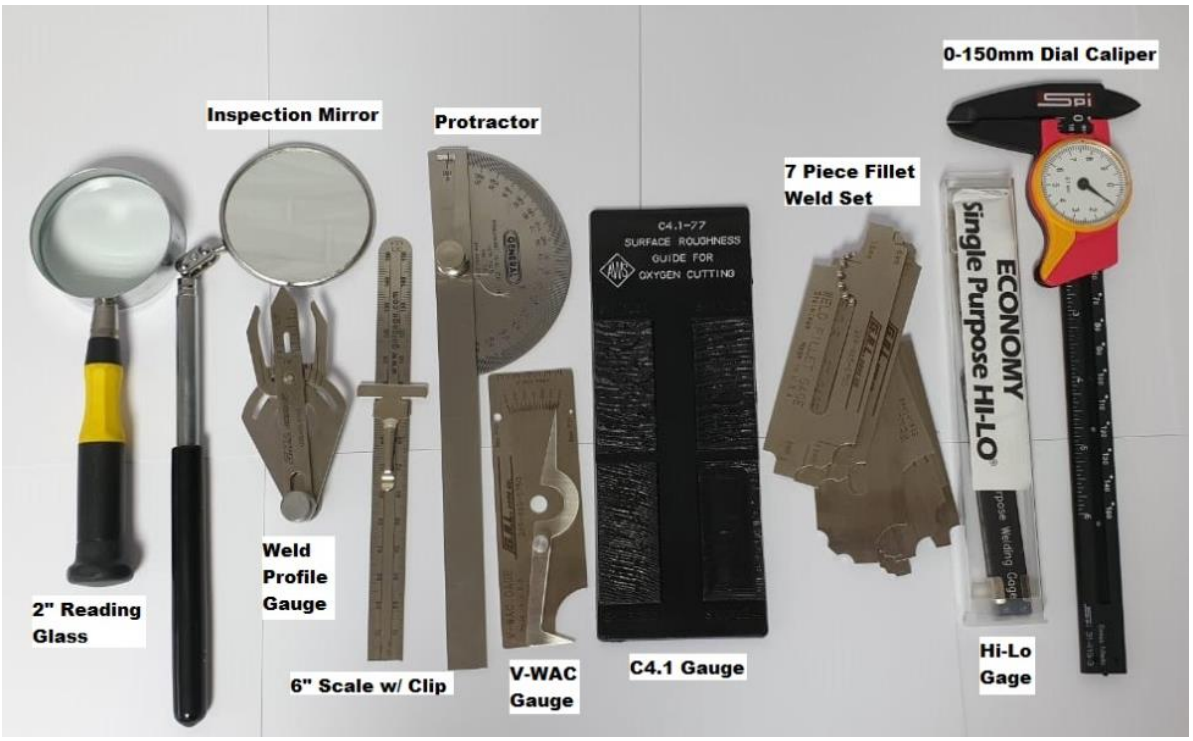
Day 5:	***Thursday, 16th of October 2025***
0730 – 0830	***Review of Day 4 & Homework Answers***
0830 -0930	***API 577: Metallurgy*** *Structure of Metals and Alloys ● Physical Properties ● Mechanical Properties ● Preheating ● Heat Treatment ● Material Test Reports ● Weldability of Metals ● Weldability of High Alloys*
0930 – 0945	*Break*
0945 – 1230	***API 577: Refinery & Petrochemical Plant Welding Issues*** *Hot Tapping & In-Service Welding. ● Lack of Fusion with GMAW-S Welding Process ● Caustic Service ● Controlled Deposition Welding*
1230 – 1330	*Lunch*
1330 – 1530	***API 577: Safety Precautions & Annexes*** *Safety Precautions ● Annex A: Technology and Symbols ● Annex B: Actions to Address Improperly Made Production Welds ● Annex C: WPS/PQR Review*
1530 – 1545	*Break*
1545 – 1615	***API 577: Safety Precautions & Annexes (cont'd)*** *Annex D: Guide to Common Filler Metal Selection ● Annex E: Example Report of RT Results ● Annex F: Inspection Considerations ● Annex G: Welding Safety*
1615 - 1630	***Course Conclusion***
1630 – 1645	***POST TEST***
1645 – 1700	*Presentation of Course Certificates*
1700	*End of Course*

MOCK Exam

Upon the completion of the course, participants have to sit for a MOCK Examination similar to the exam of the Certification Body through Haward's Portal. Each participant will be given a username and password to log in Haward's Portal for the MOCK Exam during the 60 days following the course completion. Each participant has only one trial for the MOCK exam within this 60-day examination window. Hence, you have to prepare yourself very well before starting your MOCK exam as this exam is a simulation to the one of the Certification Body.

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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