COURSE OVERVIEW FE0947-3D
AWS Certified Welding Inspector (CWI)-Refresher

Course Title
AWS Certified Welding Inspector (CWI)-Refresher

Course Date/Venue
October 28-30, 2024/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course/Exam Date/Venue
Exam Date : Part A & C: TBA
: Part B: October 31, 2024
Exam Venue : Part A & C: TBA
: Part B: Haward Technology, Ajman Office, UAE
Exam Registration Closing Date: 8 weeks before the course

Course Reference
FE0947-3D

Course Duration/Credits
Three days/1.8 CEUs/18 PDHs

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 by Haward Technology to prepare Welding Inspectors for the American Welding Society (AWS) Examination, in order to certify them as "*AWS Certified Welding Inspector*". This course is a combination of the following three courses which jointly constitute this Certified Welding Inspector Exam Preparation course:-

1. *<u>Fundamental Welding Inspection Preparation Course:</u>*
   This course is designed as a preparation for the AWS CWI (QC-1) Exam, part A, Fundamental Welding Inspection Exam. The participant will learn how to take the exam and the basic fundamentals of welding inspection. Information for inspector training is emphasized in this dual goal course

2. *<u>Practical Welding Inspection Preparation Course:</u>*
   This course is designed as a preparation for the AWS CWI (QC-1) Exam, Part B, Practical Welding Inspection (hands-on) Exam. This course is a must for the nine-year renewal CWI. The participant will learn how to use the tools required for the exam, as well as the AWS Specifications Book
3. *<u>API 1104 Preparation Course:</u>*
   This course is designed as a preparation for the AWS CWI (QC-1) Part C Code Book Exam. The participant will learn how to use the code book to solve inspection problems

The participant will receive in-depth instruction pertaining to passing the AWS CWI (QC-1) exam, as well as insight into the intricacies students may expect to encounter in the working environment. This course is offered as both an in-house and an open enrollment class.

Additionally, quizzes are given at the end of each section; homework is handed out at the end of each class day, and is reviewed at the beginning of the following day, and a practice" exam is administered at the end of the course.

Course Objectives

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

- Prepare for the AWS welding inspector exam and have enough knowledge and skills to pass such exam in order to get the AWS Welding Inspector Certification
- Discuss the aspects of welding inspection, CWI and CWE tests as well as the skills, responsibilities and qualities of an effective inspector
- Carryout safe practices for welding inspectors as well as the method of metal joining and cutting processes
- Identify the weld joint geometry and welding symbols including the features, terminology and application
- Employ documentation governing weld inspection and qualification and describe the metal properties and destructive testing
- Distinguish the various metric practices for welding inspector
- Explain the welding metallurgy for the welding inspector, weld and base metal discontinuities and illustrate visual inspection and other NDE methods and symbols
- Recognize welding of pipelines and related facilities in accordance with API 1104
- Use tools properly for measuring and weld examination

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, sample video clips of the instructor's actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.*

Who Should Attend

The course is intended for inspection, piping and welding engineers who are seeking AWS CWI (QC-1) certification. Other engineers, managers and technical staffs who are dealing with welding and fabrication will also benefit.

AWS Certification

Delegates will be certified by AWS based on their exam scoring as per the following:-

CWI : Completion of Parts A, B and C with a minimum score of 72% in each part.
CAWI : Completion of Parts A, B and C with a minimum score of 60% in each part.
CWE : Completion of Parts A and B with a minimum score of 60% in each part.

Exam Eligibility & Structure

To qualify as a Certified Welding Inspector, you must pass a vision test and have a combination of qualifying education and work experience, with supporting documentation.

Your education and experience should match at least one of the combinations in any one of the grids below:-

MINIMUM EDUCATION	MINIMUM WORK EXPERIENCE
Bachelor or higher degree in welding engineering or welding technology – four (4) years maximum substitution	Minimum of one (1) year welding based work experience
Associate or higher degree in welding or non-welding related engineering technology, engineering, or a physical science – three (3) years maximum substitution	Minimum of two (2) years welding based work experience
Engineering/Technical courses that can be applied to Bachelor or higher degree in Welding – two (2) years maximum substitution	Minimum of three (3) years welding based work experience
Trade/Vocational courses – one (1) year maximum substitution for successfully completed courses	Minimum of four (4) years welding based work experience
High school diploma or approved high school equivalency diploma	Minimum of five (5) years welding based work experience
8th grade level of schooling	Minimum of nine (9) years welding based work experience
Less than 8th grade	Minimum of twelve (12) years welding based work experience

Required Codes & Standards

Listed below are the effective editions of the publications required for the current Welding Inspector Certification Examination. **Each participant must purchase these documents separately and have them available for use during the class as their cost is not included in the course fees**:-

- **CODE SUBJECTS AVAILABLE AND CURRENT EXAM EDITIONS (applicants must provide own codebook for exam)**
  - AWS D1.1- Structural Steel Code: 2020 Edition
  - API 1104- Pipelines 22nd Edition (Beginning January 1st, 2024)
  - AWS D1.2 - Structural Aluminum Code: 2014 Edition
  - AWS D1.5- Bridge Welding Code: 2020 Edition (including Clause 12)
  - AWS D15.1 - Railroad: 2012 Edition
  - AWS D17.1 - Aerospace: 2017 w/ Amendment 1
  - ASME BPVC Sec IX, Power (B31.1) and Process (B31.3) Piping
  - ASME BPVC Sec IX, (2019 Edition), B31.1 (2018) and B31.3 (2018)
  - ASME BPVC Sec VIII, Div. 1 (2015) and Sec IX (2015)

Note: The editions listed above apply to the English editions only. To verify the edition being used with language-assisted exams, please contact the AWS Certification department or the Agent.

- **AWS - RECOMMENDED SELF-STUDY (Examination Preparatory Material)**

AWS Publications	**Order Number**
○ AWS Certification Manual for Welding Inspectors	CM
○ AWS Welding Inspection Handbook	WI: 2015
○ AWS Structural Welding Code-Steel	D1.1/D1.1M: 2020
○ AWS Code Clinic Reference Manual	CCRM: 2020 D1.1
○ AWS Study Guide for API Standard 1104 Welding of Pipelines	API-M: 2017
○ AWS Welding Inspection Technology	WIT-T-2020
○ AWS Welding Inspection Technology (Workbook)	WIT-W: 2020
○ AWS Welding Inspection Technology Sample CWI Fundamentals Examination & Key	WIT-E: 2020
○ AWS Standard Welding Terms and Definitions	A3.0M/A3.0:2020
○ AWS Standard Symbols for Welding, Brazing, and Nondestructive Examination	A2.4: 2020
○ AWS Guide for the Nondestructive Examination of Welds	B1.10M/B1.10:2016
○ AWS Specification for the Qualification of Welding Inspectors	B5.1: 2013-AMD1

OTHER RECOMMENDATIONS	**Order Number**
○ AWS Welding Handbook Series	WHB-ALL
○ AWS Guide for the Visual Examination of Welds	B1.11: 2015
○ AWS Safety in Welding, Cutting and Allied Processes	ANSI Z49.1: 2012
○ AWS Standard Methods for the Mechanical Testing of Welds	B4.0: 2016
○ AWS Specification for Welding Procedure and Performance Qualification	B2.1: 2014
○ Standard for AWS Certification of Welding Inspectors	QCI: 2016

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$ 3,750 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 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: -

- 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 **1.8 CEUs** (Continuing Education Units) or **18 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.

- 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.

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. Talaat Mohamed, PGDip, BSc, is a **Certified Inspection Engineer** (**NDT-ASNT**) **& Certified Welding Inspector (CWI-AWS)** with **over 30 years** of extensive experience within the **Oil**, **Gas**, **Petrochemical**, **Petroleum** and **Refinery** industries. His thorough experience widely covers **Radiation** Safety & Protection, **Radioactive** Waste Management, **Radiation** Protection Instrumentation, **Nuclear & Radiological** Safety, **Nuclear** Engineering, **Radiation**, Safe Handling, **Non-destructive Testing** in **Radiography**, **Ultrasonic**, **Penetrant**, **Magnetic Particle**, **Visual Testing** and **Welding Inspection**. Further, he is also an expert in **Equipment Analysis & Piping Design**, **Welding**, **Corrosion & Risk Based Inspection**, **Fitness-for-Service Assessment**, **Boiler & Pressure Vessel**, **Fabrication**, Vibration, Heat Treatment, Inspection & Repair Procedures, Material **Damage Mechanism**, Material Failure Analysis, **Mechanical Integrity**, Isomerization, Distillation & Reforming Units, Pipelines, Pressure Piping, Stationary Equipment, **Tank Inspection**, Fired Boilers & Heaters, Heat Exchangers, Coolers, Pressure Vessels, Drums, Storage Tanks, Furnaces, Heaters, Pipelines, Columns, Reactors, Strippers and Safety Valves. He is also well-versed in UltraPIPE software, PCMS software and Lloyd's Register RBMI software as well as the API 571, API 510, API 572, API 570, API 653, API 560, Welding & Brazing Qualifications, API 573 and ASME B31.3 standards. He is currently the **Inspection General Manager** of Cairo Oil Refining Company (CORC) wherein he is responsible in developing the strategies for inspection and testing as well as designated as a certifying authority for ASNT-NDT levels certification according to SNT-TC-1A Personnel Qualification and Certification in Non-destructive Testing.

During his career life, Mr. Talaat has gained his practical and field experience through his various significant positions such as the **Inspection General Manager**, Technical Studies **Department Manager**, **Isomerization Inspection Department Manager**, **NDT & Inspection Section Head**, **Training Instructor**, **Technical Trainer**, **NDT Instructor**, **Inspection Engineer**, **QA/QC Team Leader** and **Team Leader** for numerous international companies like the Khalda Petroleum Company, Suez Oil Processing Co., Agiba Co., El-Nasr Petroleum Co., Suez Oil Co., General Petroleum Co., Petrobel Co., Egyptian Gas Co., Gulf Petroleum Co., as well as for Cairo Oil Refining Company, Welding Academy, GASCO and United Gas Derivatives Company.

Mr. Talaat has a **Bachelor** degree in **Mechanical Engineering** and a **Post-Graduate Diploma** in **Metallurgy & Material Engineering**. Further, he is a **Certified ASNT Level III NDT Inspector** in **Radiographic Testing** (**RT**), **Ultrasonic Testing** (**UT**), **Penetrant Testing** (**PT**), **Magnetic Particle Testing** (**MT**) and **Visual Non-destructive Testing** (**VT**); a **Certified Welding Inspector** (**CWI-AWS**), a **Certified Instructor/Trainer**; a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**); and holds a certification in Quality Assurance, ISO 9000, API Heat Exchangers & Cooling Towers, Internal Quality System Auditing and Internal Quality System Auditing for ISO 9001/2000. Moreover, he is an active member of the American Society of Non-destructive Testing (**ASNT**), the Engineers Syndicate, the Society of Mechanical Engineers, the American Welding Society (**AWS**) and the Supreme Committee of Quality and delivered countless trainings, workshops and seminars 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: ***Monday, 28th of October 2024***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0900	***Introduction***
0900 – 0930	***Safe Practices for Welding Inspectors (Z 49.1)***
0930 – 0945	*Break*
0945 - 1030	***Metal Joining & Cutting Processes***
1030 – 1100	***Quiz***
1100 - 1130	***Weld Joint Geometry & Welding Symbols (A2.4)***
1130 - 1230	***Documentation Governing Weld Inspection & Qualification***
1230 - 1245	*Break*
1245 - 1330	***Metal Properties & Destructive Testing***
1330 - 1400	***Testing***
1400 – 1430	***Distribute Homework & Recap***
1430	*Lunch & End of Day One*

Day 2: ***Tuesday, 29th of October 2024***

0730 – 0800	***Homework Review***
0800 – 0830	***Metric Practices for Welding Inspection***
0830 - 0900	***Welding Metallurgy for The Welding Inspector***
0900 – 0930	***Quiz***
0930 – 0945	*Break*
0945 – 1000	***Weld & Base Metal Discontinuities (B1.11)***
1000 – 1030	***Visual Inspection & Other NDE Methods & Symbols (B1.10)***
1030 – 1100	***Quiz***
1100 – 1300	***Two (2) Hour Timed Test (150 Questions)***
1300 – 1315	*Break*
1315 - 1330	***Discussion/Review***
1330 - 1400	***Welding of Pipelines & Related Facilities (API 1104***
1400 – 1430	***Distribute Homework & Recap***
1430	*Lunch & End of Day Two*

Day 3: ***Wednesday, 30th of October 2024***

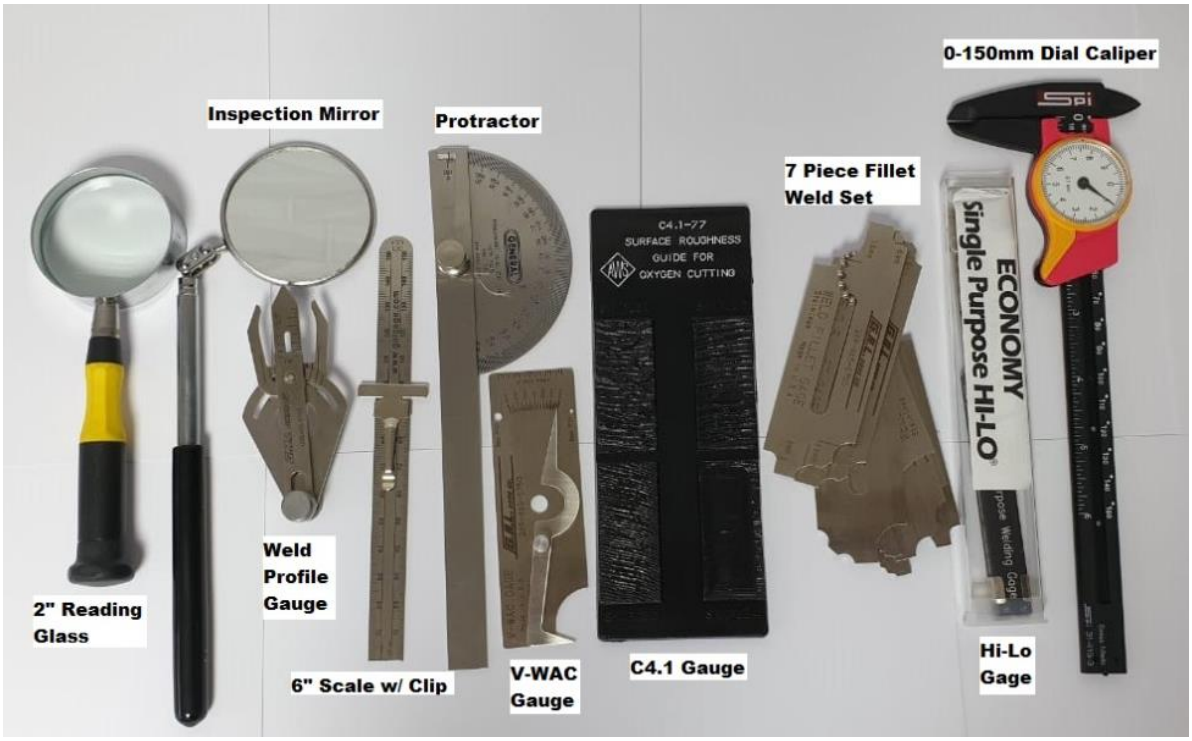
0730 – 0930	***VIDEO (Use of Measuring Tools for The AWS CWI Hands-On Exam)***
0930 – 0945	*Break*
0945 – 1030	***Hands-On Workshop*** *Use of Tools for Measuring & Weld Examination*
1030 - 1130	***Hands-On Workshop (cont'd)*** *Use of Tools for Measuring & Weld Examination (cont'd)*
1130 - 1145	*Break*
1145 - 1345	***AWS-CWI-Part-B Practical Examination***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

MOCK Exam

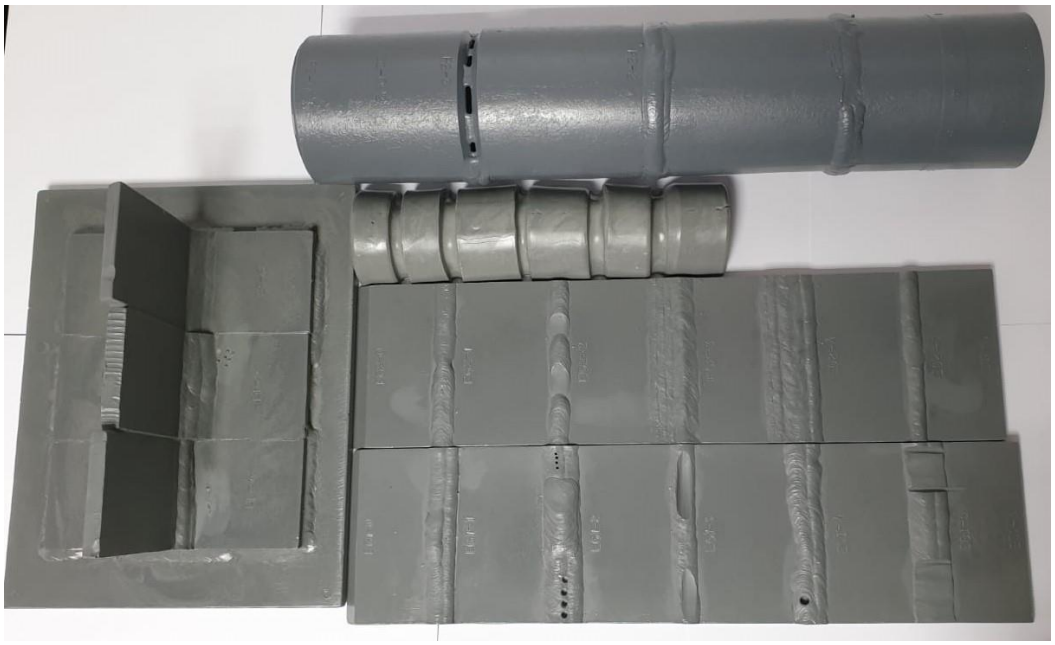
Upon the completion of the course, participants have to sit for a MOCK Examination similar to the exam of the Certification Body through Haward's Portal. Each participant will be given a username and password to log in Haward's Portal for the MOCK Exam during the 30 days following the course completion. Each participant has only one trial for the MOCK exam within this 30-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

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