



COURSE OVERVIEW FE0999 API Inspection and Mechanical Integrity

Course Title

API Inspection and Mechanical Integrity

Course Date/Venue

Session 1: June 23-27, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: December 07-11, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

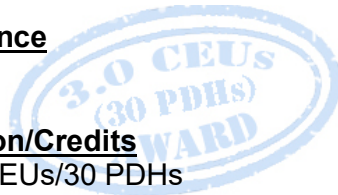


Course Reference

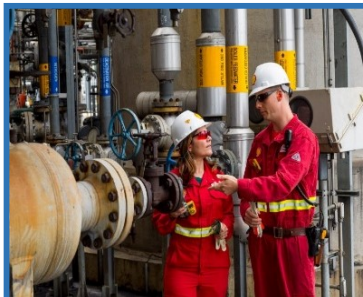
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Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



Course Description



This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.



This course is designed to provide delegates with a detailed and up-to-date overview of API Inspection and Mechanical Integrity. It covers the API standards related to inspection and mechanical integrity; the importance of mechanical integrity in ensuring safe and reliable operations; the RBI methodology and assessment process; developing risk matrices and determining inspection priorities; the inspection planning process; selecting appropriate inspection techniques and tools; and executing inspections.



Further, the course will also discuss the ultrasonic testing, radiography, magnetic particle testing and visual inspection; interpreting NDT results and identifying defects or anomalies; the corrosion monitoring techniques and strategies for corrosion control and prevention; the Fitness-for-Service (FFS) assessment, evaluating equipment and components for continued operation; the assessment methods for different damage mechanisms; the welding processes, procedures, inspection techniques, quality control measures; and interpreting welding defects and accepting criteria.



During this interactive course, participants will learn the inspection requirements for pressure vessels and inspection intervals; the techniques and acceptance criteria for hydrostatic and pneumatic testing procedures; the piping inspection strategies and techniques; evaluating piping defects and integrity assessment methods for piping systems; the documentation and record-keeping requirements; the inspection data management systems and software; and preparing inspection reports and communicating findings.

Course Objectives

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

- Apply and gain an in-depth knowledge on API inspection and mechanical integrity
- Discuss API standards related to inspection and mechanical integrity as well as the importance of mechanical integrity in ensuring safe and reliable operations
- Apply RBI methodology and assessment process, develop risk matrices and determine inspection priorities
- Carryout inspection planning process, select appropriate inspection techniques and tools and execute inspections
- Employ ultrasonic testing, radiography, magnetic particle testing and visual inspection
- Interpret NDT results and identification of defects or anomalies
- Apply corrosion monitoring techniques and strategies for corrosion control and prevention
- Implement Fitness-for-Service (FFS) assessment, evaluate equipment and components for continued operation and apply assessment methods for different damage mechanisms
- Carryout welding processes, procedures, inspection techniques, quality control measures and interpretation of welding defects and acceptance criteria
- Identify inspection requirements for pressure vessels and apply inspection intervals, techniques and acceptance criteria including hydrostatic and pneumatic testing procedures
- Apply piping inspection strategies and techniques, identify and evaluate piping defects and employ integrity assessment methods for piping systems
- Carryout documentation and record-keeping requirements, inspection data management systems and software and preparation of inspection reports and communication of findings

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Howard 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 practical aspects and considerations of API inspection and mechanical integrity for engineers, inspection, and maintenance personnel involved with corrosion, process safety, mechanical integrity, and RBI in onshore and offshore process industries such as oil and gas, refining, petrochemical, chemical, and power.

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: -

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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.

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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. Hesham Moharram, is a **Senior Inspection Engineer** with over **35 years** of industrial experience in the **Oil & Gas, Refineries** and **Petrochemical** industries. His expertise includes **Repair, Maintenance, Alteration** and **Reconstruction** of **Aboveground Storage Tanks, Pressure Vessels, Piping** Inspection, **Risk-Based** Inspection, **Fitness-for-Service (FFS), Asset Integrity** Management, **Plant Inspection & Corrosion Engineering, Pipeline Integrity** Assessment, **Integrity** Management, **Pipeline Rehabilitation & Repair, Pipeline Design & Maintenance, Welding & Cutting**

Fundamental, Advanced Welding, Welding Technology & Qualifications, Welding Fundamentals, Symbols for Welding, Welding Techniques and Failure, Pipeline Welding Practices, Welding Inspection Technology, Welding Inspection, Resistance Welding, Facility Integrity, Technical Integrity, Repair of Pressure Equipment and Piping, Process Piping, Valves, Flanges and Fitting Standards, Integrated Safety Management Plan, Inspection, Corrosion Monitoring & Cathodic Protection, Pressure & Leak Testing, Metallurgy, Corrosion & Prevention of Failures, Material Selection & Properties, Physical Metallurgy of Steel, Welding Technology, Fabrication & Inspection, Conventional & Advanced Non-destructive Testing (NDT), Process Safety Hazard Analyses (PHA), Risk Assessment, Pigging & Pipe Support and Acoustic Emission. Further, he is also well-versed in Quality Assurance & Quality Control, **HAZOP**, Permit-to-Work, Hazard Identification, Safety Meeting, Accident Investigation, Emergency Response, Task Risk Assessment, Root Cause & Failure Analysis, Fire Fighting, First Aid Basic, CPR, H₂S Awareness, Distillation Units, Preventive Maintenance, FEED, Contract Management, Stress Management, Coaching & Mentoring Skills, Interpersonal Skills and Communication Skills. He is currently the **Senior Inspection Engineer** wherein he is responsible in various inspection works like fitness-for-service, remaining life assessments, risk based inspection, intelligent pigging, problematic pipe supports, non-destructive testing and acoustic emission.

Throughout his career life, Mr. Hesham has provided significant contributions to the companies he has worked with, having filled key positions such as being the **Senior Inspection Engineer, Inspection Engineer, Production Engineer, API Instructor, QA/QC** and **Supervisor** for international companies such as Abu Dhabi Company for Onshore Oil Operations (**ADCO**), Suez Oil Company (**SUCO**), Cairo Oil Refining Company (**CORC**) Refinery, DURA Refinery, State Company for Oil Projects (**SCOP-IRAQ**) and **Iron & Steel**.

Mr. Moharram has a **Bachelor's** degree in **Metallurgical Engineering**, from the Suez Canal University. Further, he is a **Certified Instructor/Trainer**, a **Certified Pressure Vessel Inspector (API-510), Certified Piping Inspector (API-570), Certified Aboveground Storage Tanks Inspector (API-653), Certified Risk Based Inspector (API-580)**, an **ASNT Certified Level II** in **UT, RT, MT, PT** and **Eddy Current Testing**.



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 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 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 – 1000	Introduction to API Standards & Mechanical Integrity API Standards Related to Inspection & Mechanical Integrity • Importance of Mechanical Integrity in Ensuring Safe & Reliable Operations • Inspection Techniques & Methodologies
1000 – 1015	Break
1015 – 1130	Risk-Based Inspection (RBI) Principles The Principles & Benefits of RBI
1130 – 1230	Risk-Based Inspection (RBI) Principles (cont'd) RBI Methodology & Assessment Process
1230 – 1245	Break
1245 – 1420	Risk-Based Inspection (RBI) Principles (cont'd) Developing Risk Matrices & Determining Inspection Priorities
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 – 1000	Inspection Planning & Execution Inspection Planning Process including Scope Determination & Scheduling • Selection of Appropriate Inspection Techniques & Tools
1000 – 1015	Break
1015 – 1130	Inspection Planning & Execution (cont'd) Execution of Inspections including Data Collection & Documentation





1130 – 1230	Non-Destructive Testing (NDT) Methods Commonly used NDT Methods such as Ultrasonic Testing, Radiography, Magnetic Particle Testing & Visual Inspection • Principles & Applications of Each NDT Method
1230 – 1245	Break
1245 – 1420	Non-Destructive Testing (NDT) Methods (cont'd) Interpretation of NDT Results & Identification of Defects or Anomalies
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 1000	Corrosion Monitoring & Control Corrosion Mechanisms & Types • Corrosion Monitoring Techniques (e.g., Corrosion Coupons, Probes & Corrosion Rate Measurement)
1000 – 1015	Break
1015 – 1130	Corrosion Monitoring & Control (cont'd) Strategies for Corrosion Control & Prevention
1130 – 1230	Fitness-for-Service (FFS) Assessment FFS Principles & Objectives • Evaluation of Equipment & Components for Continued Operation
1230 – 1245	Break
1245 – 1420	Fitness-for-Service (FFS) Assessment (cont'd) Assessment Methods for Different Damage Mechanisms
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 1000	Welding Inspection & Quality Control Welding Processes & Procedures • Welding Inspection Techniques & Quality Control Measures
1000 – 1015	Break
1015 – 1130	Welding Inspection & Quality Control (cont'd) Interpretation of Welding Defects & Acceptance Criteria
1130 – 1230	Pressure Vessel Inspection & Testing Inspection Requirements for Pressure Vessels • Inspection Intervals, Techniques & Acceptance Criteria
1230 – 1245	Break
1245 – 1420	Pressure Vessel Inspection & Testing (cont'd) Hydrostatic & Pneumatic Testing Procedures
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 1000	Piping Inspection & Integrity Assessment Piping Inspection Strategies & Techniques • Identification & Evaluation of Piping Defects
1000 – 1015	Break
1015 – 1130	Piping Inspection & Integrity Assessment (cont'd) Integrity Assessment Methods for Piping Systems
1130 – 1230	Inspection Data Management & Reporting Documentation & Record-Keeping Requirements • Inspection Data Management Systems & Software

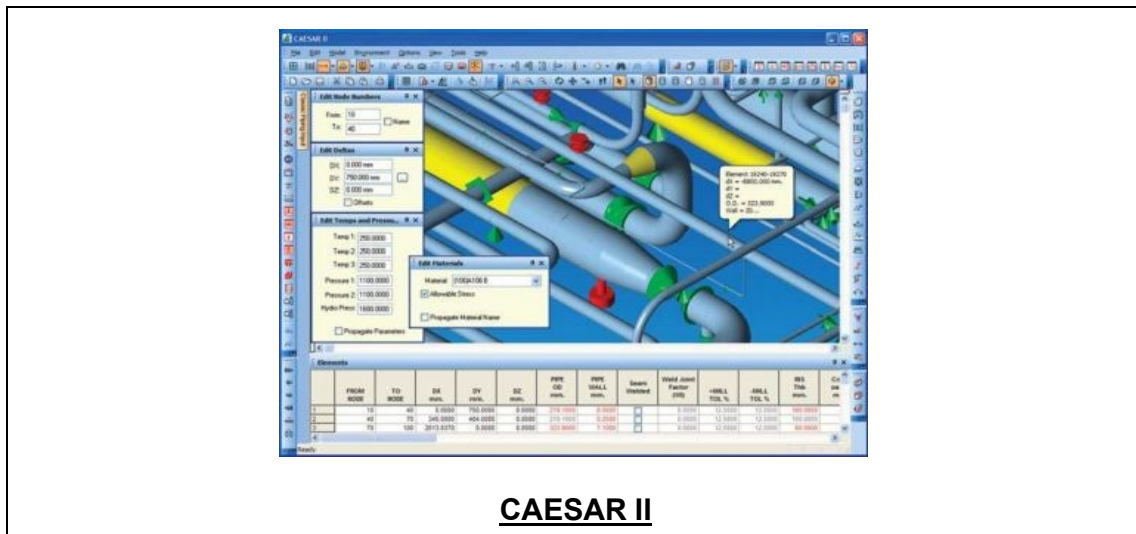




1230 – 1245	Break
1245 – 1345	Inspection Data Management & Reporting (cont'd) <i>Preparation of Inspection Reports & Communication of Findings</i>
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Simulator (Hands-on 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 various exercises using the “CAESAR II” simulator.



Course Coordinator

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