

Scandinavian Academy Training Center

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# Course: API 510 Pressure Vessel Inspector

| Code | City | hotel | Start | End | price | Language - Hours |
|---|---|---|---|---|---|---|
| OG-815SA | Jeddah | Hotel Meeting Room | 2027-09-26 | 2027-09-30 | 12950 SR | En - 25 |

## PROGRAMME SUMMARY

This training course is designed to train individuals who are interested in obtaining the API 510 Pressure Vessel Inspector Certification, as well as those who are seeking a better understanding of ASME Section VIII and IX code requirements. Included with the course is a pre-study guide and student classroom workbook. The student receives instruction regarding how to take the test, as well as insight into the intricacies of "real world" situations. Daily tests are designed to gauge students' proficiency and understanding of the material.

The training course covers head and shell calculations, hydrostatic test pressure calculations, reinforcement calculations, shell external pressure calculations, impact test requirements and determination, development and review of welding documentation and NDE requirement.

This 5-days course is meant to provide a thorough understanding of the engineering information required for In-Service Pressure Vessel Inspection (API 510), as well as proper preparation for the examination. This preparatory course will cover the fundamentals of pressure vessel design, with a concentration on the API body's test syllabus. It contains all of the code parts alluded to by the API 510 committee, to the extent that they are required from an inspection standpoint.

This training will clarify the underlying intentions of all code sections, teach participants how to interpret code rulings, and increase their confidence in making judgements. The course includes five key topics: basic pressure vessel design engineering (ASME Sec VIII Div 1), in-service inspection techniques (API 510/ 572/ 576/ 577), in-service degradation mechanisms (API 571), retirement thickness calculations, and other aspects of Run-Repair-Replace decisions. The participants will receive

detailed, illustrated course notes.

## OBJECTIVE

- Identify the service restrictions, joint efficiencies and radiography.
- Discuss vessels under internal pressures like shell and head calculations
- Recognize maximum allowable working pressure; define hydrostatic head pressure and hydrostatic-pneumatic tests
- Employ post weld heat treatment
- Identify the charpy impact testing
- Carryout material name plates data reports and apply corrosion calculations
- Develop the skills of the trainees and raise their competence in the understanding of the basic principles of API 510 standard for pressure vessel testing theory & quality & its applications .
- Development skills in the field of the ( NDT ) testing for materials & welding operations and various derivatives and their physical and chemical specifications and Chemical .

## WHO SHOULD ATTEND

- Pressure Vessel Inspectors & Engineers
- Plant Inspectors
- Engineering Professionals
- QA/QC inspectors and reliability departments oil and gas (Petrochemical and Refining) operations
- Maintenance Inspection Testing Engineers
- Fabrication Engineers
- Applicable to all personnel working in the oil, gas and petrochemical industry, and who are involved in the design, procurement, engineering construction, operation, maintenance and inspection of storage tanks and related facilities.
- Managers, engineers and technicians, and all involved and work-related to inspection & laborites in oil refinery operation of various public institutions and

private companies and various ministries .

# Outline

### Introduction and Review of API 510 Body of Knowledge:-

- Introduction of the API 653 standard .
- Terminology of the API 653 standard .
- UW-3 Welded Joint Category and Service Restrictions
- UW-12 Joint Efficiencies
- UW-51 Radiographic Examination Of Welded Joints
- UW-52 Spot Examinations of Weld Joints
- UG-27 Thickness of Shells Under Internal Pressure
- UG-32 Formed Heads Pressure on the Concave Side
- Example problems calculations

### THE Maximum Allowable Working Pressure

- Hydrostatic Head Pressure
- Hydrostatic, Pneumatic Tests and Test Gauges
- Post weld Heat Treatment
- UW-16 Minimum Requirements for Attachment Welds at Openings
- Brittle Fracture and Charpy Impact Testing Overview
- Example problems calculations

### Impact Testing Exemptions:-

- UG-84 Charpy Impact Tests Test Specimens
- UG-77 Material Identification Overview
- UG-116 Required Marking and name plate
- Corrosion and Minimum Thickness Evaluation
- API-510 scope Terms, Definitions
- API 510 Types of Inspection and Surveillance

- Inspection During Installation and Service Changes
- Repairs, Alterations, and Rerating of Pressure Vessels
- Damage Mechanisms Affecting Fixed Equipment in the Refining Industry API 571
- Example problems calculations

**ASME IX Welding Procedure Qualifications:-**

- Welding Processes
- Welding Essential &non-essential and supplementary essential Variables
- P- Numbers& S-Numbers$ F-number and A-number
- Welders test positions& Diameter & thickness qualification and position qualification
- Alternate F-Numbers and Alternate P-Numbers
- Welding Inspection and Metallurgy API 577
- Hot Tapping and In-Service Welding
- Example problems calculations

**API 576 Descriptions of Pressure Relieving Devices:-**

- Causes of Improper Performance of Pressure Relieving Devices
- Inspection and Testing of Pressure Relieving Devices
- API 572 Pressure Vessel Inspection
- ASME Section V - Nondestructive Test Methods
- Radiographic & Liquid Penetrant & Magnetic Particle AND Visual Test examination
- Final Practice Exam

**The Scandinavian Academy for Training Center** adopts the latest scientific and professional methodologies in training and human resource development, aiming to enhance the efficiency of individuals and organizations. Training programs are delivered through a comprehensive approach that includes:

- Theoretical lectures supported by PowerPoint presentations and visual materials (videos and short films).
- Scientific evaluation of participants before and after the program to measure progress and knowledge acquisition.
- Brainstorming sessions and practical role-playing to simulate real-life scenarios.
- Case studies tailored to align with the training content and participants work nature.
- Assessment tests conducted at the end of the program to evaluate the achievement of training objectives.

Each participant receives the training material (both theoretical and practical) in printed form and saved on a CD or flash drive. Detailed reports, including attendance records, final results, and overall program evaluations, are also provided.

Training materials are prepared professionally by a team of experts and specialists in various fields. At the end of the program, participants are awarded a professional attendance certificate, signed and accredited by the Scandinavian Academy for Training Center.

**Program Timings:  9:00 AM to 2:00 PM**

**The program includes:**

- A daily buffet provided during the sessions to ensure participants comfort.
- A closing ceremony on the final day to distribute certificates and celebrate participants achievements.
- **Note: All prices are exclusive of 15% Value Added Tax (VAT).**

# Our Success Partners

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