

## API 510 Pressure Vessel Inspector Certification

### Course general description:

The API 510 Pressure vessel certification Preparation Programs designed to equip individuals with broad knowledge base relating to maintenance, inspection, alteration and repair of in-service pressure vessels. This program benefits employers and the industry as a whole by helping to:

- Reduce the potential for inspection delays
- Improve management control of process unit operation, repair, and maintenance
- Provide a continued high level of safety using highly specialized and experienced inspectors.

The pressure vessel is one of the major assets of any process facility. Maintaining the integrity of the pressure vessel is very critical for the safety and efficiency of the facility. Pressure vessel inspection is the first line of defense for maintaining the facility integrity and minimizing the maintenance cost

### Audience:

This course is designed for:

- Those wanting to pass API 510 Exam
- Those working in oil and gas company
- Those wanting to increase more knowledge of in-service and new construction piping process
- Those pursuing QA/QC career in oil and gas down-stream, revamp maintenance, and turn around

### Course objectives:

- Corrosion rates and inspection intervals
- Joint efficiencies
- Static head calculations
- Calculation of minimum thickness for internal pressure
- Calculate maximum allowable working pressure
- Pressure testing procedures and calculations
- Welding procedure qualification and procedure review
- ASME V non-destructive testing procedures
- In-service repairs to 510
- Impact testing requirements
- Establishing weld sizes for welds at openings
- Nozzle reinforcement theory and calculations
- Preheating and PWHT requirements using ASME VIII
- Damage mechanisms as per API 571 (510 selection only)
- General rules for welding and examination in an API and ASME context

### Course duration:

5 days

### Course location:

Dubai

### Course contents:

#### **Day-1**

- Pretest
  - API 510: pressure vessel : Inspection, Repair, Alteration, and Rerating of In-Service pressure vessel
- Introduction
- scope
  - definition and abbreviations
  - Rules and Responsibilities

#### **Day-2**

- Inspection plan for the pressure vessels
- Inspection frequencies and interval
- Data analysis and evaluations
- Repair of the pressure vessels

#### **Day-3**

- Overview of ASME Section VIII. ASME publishes and maintains an International Boiler and Pressure Vessel Code (BPVC).
- ASME 5 Nondestructive Examination
- ASME 9 Nondestructive Examination

#### **Day-4**

- API 572 Inspection Practices for pressure vessels
- API 571 Damage Mechanisms Affecting Fixed Equipment in the Refining Industry
- API 577 Welding Inspection and Metallurgy

#### **Day-5**

- ASME PCC-2
- API 576 safety relief valves inspections
- API 578 Material Verification Program for New and Existing Alloy Piping System
- Posttest

#### **Methodology:**

- 50% lectures & concepts
- 10% Videos
- 10% Case studies
- 10% Exercises
- 10% Discussions
- 10% Software (if applicable or examples)

#### **Course code: (TEME012)**