



The American Petroleum Institute (API) initiated a Pressure Vessel Inspector Certification Program (API 510) to improve management control of process unit operation, repair, and maintenance; reduce the potential for inspection delays resulting from regulatory requirements; and provide a continued high level of safety through the use of inspectors specialized in process equipment.

The program promotes self-regulation and establishes a uniform national program that assists state and local governments in pressure vessel regulations.

Course Description:

This course gives a broad knowledge about “In-Service Inspection of pressure vessel” and prepares students for the API 510 Exam. The course is an intensive one-week course with a Special emphasis on the use of the related codes and Calculations.

This course content includes:

- ◆ API 510 ◆ API 571 ◆ API 572 ◆ API 576 ◆ API 577
- ◆ ASME B31.3 ◆ ASME B16.5 ,ASME V,IX,VIII DIV 1

The course provides participants with the knowledge necessary to:

- ◆ Successfully pass the API 510 piping inspector certification exam
- ◆ Effectively use major codes: ASME VIII DIV 1; ASME B&PV Sections V & IX
- ◆ Perform all basic piping calculations needed for the API exam (e.g. tmin, test pressure, MAWP, DMT, corrosion rates, remaining life, etc.)
- ◆ Use API’s requirements during inspection, repairs, and alterations of piping
- ◆ Review welding procedures (WPS/PQR) and welder performance qualifications (WPQ)

This is an intense course with daily homework and a final exam (similar to the API 510 exam). A study guide is issued to direct participant’s pre-class study.

Who should join:

Pressure vessel inspection engineers and managers, Inspection personnel, plant operating engineers and managers, who wish to appear for API 510 examination.

Maintenance engineers and technicians and people Involved in trouble shooting of plant operations.



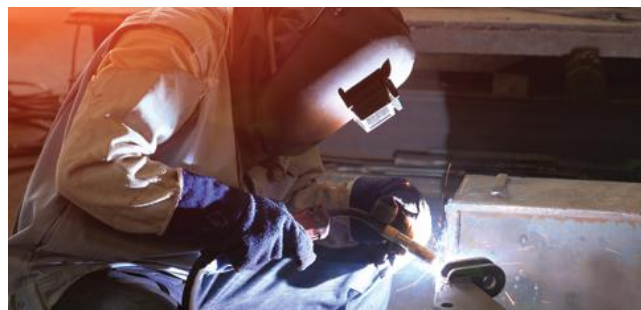
Tentative Course Schedule:

DAY 1

- 1) Welcome & Introduction
- 2) ASME B & PV Section VIII Div 1 – Code

Learn the followings:

- ◆ Purpose of the code
 - ◆ Scope of the code
 - ◆ Organization of the code
 - ◆ Roles specified by the code
 - ◆ Qualification requirements by the code
 - ◆ Terms and definition
- 3) API 510 Sections 1-4
- ◆ Purpose of API 510
 - ◆ Scope of API 510
 - ◆ Responsibilities defined in API 510
 - ◆ Inspection Types & Intervals
 - ◆ Tips on how to memorize information in API Codes





DAY 2

1) ASME B & PV Section VIII Div 1

Includes understanding:

- ◆ Vessel MAWP
- ◆ Vessel part MAWP
- ◆ Stress- Longitudinal and circumferential
- ◆ Types of joints
- ◆ Weld joint categories
RT and E factor

2) ASME VIII– Calculations & Charts

Learn how to determine:

- ◆ Static Head Pressure
- ◆ Vessel MAWP
- ◆ Minimum Thickness of shells,heads
- ◆ Joint efficiency

DAY 3

- ◆ Question and Answer session

1) Review Last day

2) ASME B & PV VIII DIV 1

Includes understanding:

- ◆ Basic concepts of Pressure Testing
- ◆ Brittle fracture
- ◆ Fabrication Requirements

Calculations & Charts

Learn how to determine:

- ◆ Min Thk of formed head
- ◆ Minimum Thk of flat head
- ◆ Vessel part MAWP for shell and Formed heads
- ◆ Hydro test Requirements
- ◆ Pneumatic test Requirements
- ◆ Vessel MDMT Requirements
- ◆ IMPACT test Requirements

DAY 4

1) ASME B&PV Section VIII Code

Understand the following key concepts.

- ◆ Fillet weld terms and nozzle reinforcement

2) API 510 SECTION 5-6 Review and Evaluate

- ◆ Corrosion mechanisms
- ◆ Fitness for service evaluation
- ◆ Inspection types and Requirements
- ◆ Inspection intervals
- ◆ Pressure testing Requirements
- ◆ Inspection of relief devices

DAY 5

1) ASME B&PV Section IX - Welding Code

Purpose of the Code

- ◆ Roles of the Welding Inspector
- ◆ Organization of the Code
- ◆ Welding Positions – Test and Field
- ◆ Testing Requirements and Acceptance Criteria
- ◆ Welder Qualification Process and Restrictions
- ◆ Tips on how to find information in the Code

2) ASME B&PV Section IX Review and Evaluate a WPQ (Welder Qualification). Understand

- ◆ Essential Variables for welder qualification
- ◆ Testing required for welder qualification

3) ASME B&PV Section IX - Welding Code

Understand the following key concepts

- ◆ Weld Procedure Qualification Process and Restrictions

4) WPS/PQR Review (Weld Procedure)

- ◆ Evaluate a WPS with the associated PQR

5) API 577 – Welding Inspection & Metallurgy

DAY 6 : Revision previous day

1) ASME B&PV Section V – NDE

Understand the following key concepts.

- ◆ Purpose of the Code
- ◆ Organization of the Code
- ◆ RT Techniques
- ◆ Purpose & Selection of IQI's
- ◆ RT Film Density Requirements
- ◆ Key terms discussed in the Code
- ◆ Tips on how to find information in the Code
- ◆ Question and Answer session

3) API 571 - Damage Mechanisms in the Refinery Industry

DAY 7 : API 510 sec 7 Repairs and alterations

Extensive one Day all TOPICS in code

API 576 : Relief Devices

DAY 8

1) Course Review

2) Practice Exam – Exam is similar to the API 510 exam