

**Training Course on
Pressure Vessel Design
ASME Section VIII, Division-I**
Continuing Education and Quality Improvement Programmes

Course Overview

This course is a comprehensive overview in practical design issues facing vessel designers in today's business environment. Trends in design and fabrication techniques will be presented. Formulas for basic design functions will be utilized and all types of vessels will be designed and analyzed using pressure vessel design programmes. Advances in materials for severe service vessels will be addressed. To gain maximum value for the course, participants are strongly encouraged to study the Section VIII, Division-1, (even if it is out of date).

Course Outline

- A. Introduction
 - Quick Review of Fundamentals
 - Organization of the ASME Boiler and Pressure Vessel Code
 - Materials, Specifications and their Selection
 - General Design Criteria (Code Section UG)
 - Specific Design of Shells, Heads, Cones and Openings

- B. Materials and Metallurgy
 - Welding Processes (Code Section UW)
 - Joint Efficiencies, Radiography
 - Vessel Supports, Skirts, Base Rings, Saddles, Lugs and Legs
 - Rules of Design including Earthquake, Wind Loadings, External Loadings and Nozzle Forces

- C. Construction Techniques, Shell, Head, and Cone Forming
 - Vessel Layout and Measuring Techniques
 - Post Weld Heat Treatment

Course Strategy: Lectures, discussions, experience sharing and case-studies

Duration: 4 weeks, 2 days a week (Saturday off)

Timing: 5.00 p.m. to 7.00 p.m.

Course Fee: Rs.8000/- per participant

Venue: Pakistan Industrial Technical Assistance Centre (PITAC),
234-Ferozepur Road, Lahore.

Resource Person: Engr. Khalid Mehmood, Sr. Manager (O&W) **Cell:** 03334040768

Participant Profile: Chemical Engineers, "Mechanical Engineers, Process Engineers, Designers CAD operators and draftspersons who have little experience in Chemical, Process Industry or Pharmaceutical Industry. Pressure vessel fabricators, contractors and suppliers wishing to understand the relationship of manufacture and fabrication to the design, layout and construction of pressure vessels.

Tentative Lecture Schedule

1st Week:	5.00 p.m. – 7.00 p.m.
Wednesday	Introduction, Quick Review of Fundamentals, Organization of ASME Boiler & Pressure Vessel Code. Material Specification and their Selection.
Thursday	General Design Criteria (Code Section UG), Specific Design of Shells, Heads, Cones and Openings.
2nd Week	5.00 p.m. - 7.00 p.m.
Wednesday	Materials and Metallurgy, Welding processes (Code Section UW), joint efficiency, Radiography.
Thursday	Vessel Supports, Skirts, Base Rings, Saddle, Lugs and Legs.
3rd Week	5.00 p.m. - 7.00 p.m.
Wednesday	Rules of Design including Earthquake, Wind loading, External Loading and Nozzle Cones.
Thursday	Pressure Vessel Designing
4th Week	5.00 p.m. - 7.00 p.m.
Wednesday	Pressure Vessel Designing
Thursday	Pressure Vessel Designing Case-studies.