Best Technology Solutions (BTS)

Pressure Vessels II Design & Fabrication (Conforms to ASME Codes)Training program

Introduction:

This comprehensive course covers the 2007 Edition of the ASME Code, Section VIII: Division 2. With this Edition, this Code was totally re-written and updated to the latest technology. Some of the design and fabrication rules are totally new and state-of-the-art. Having more refined and more accurate rules, the design margins have been reduced. The use of this new Code could result in considerable savings in materials costs and, in most cases the overall vessel costs. There is a great deal of interest in this international Code and ASME would be promoting its use, worldwide. This course compares the new rules with the old rules of Division 2 and with some other international Codes. The design margins and their effect on required thickness will be explained. The basis and background for the new rules will be discussed. Although the emphasis will be on the design and analysis rules, all aspects of construction will be covered.

Who Should Attend?

Engineers, technicians and personnel involved with the purchase, design, fabrication, or inspection of pressure vessels, anyone from users, manufacturers, repair organizations, inspection agencies and other organizations involved with maintenance and repair of pressure equipment. This course is intended for beginners, as well as experienced personnel wishing to update their knowledge

Course Objectives:

By the end of this course delegates will learn about:

- The background of various Codes and how they compare
- How to prepare User Design Specification
- How to select materials
- What is involved with constructing a Code stamped vessel and who is responsible for what
- How to apply the design rules of the new Division 2
- The background of the new rules
- How to design for piping loads and other external loading and the use of various WRC Bulletins related to the subject
- How to design the most cost effective way
- When to use design by analysis
- Which method of analysis to use and how to apply the new analysis rules
- How to categorize stresses into various classifications and how to linearize stress distributions
- through thickness
- The various modes of failure and what causes them

- How to exempt a vessel from fatigue analysis and, if required, how to perform fatigue analysis
- How to interpret and apply the fabrication, PWHT, testing and tolerance rules
- The documentation and record keeping requirements
- What is the latest at the ASME Code Committees and what PVRC is working on

Course Outline:

- Introduction to the ASME Boiler & Pressure Vessel Code Acceptance criteria for design by analysis
- Comparison of Divisions 1 and 2 of Section VIII Stress classification and stress linearization
- Theories of failure and design margins of various Codes Fatigue analysis exemption rules
- General requirements of the new Division 2 Fatigue analysis
- Responsibilities of various parties Simplified elastic-plastic analysis
- Materials requirements Fabrication requirements
- Material toughness and impact testing PWHT requirements
- General requirements of the new Division 2 Tolerances
- Responsibilities of various parties Requirements NDE requirements

- Design rules for internal pressure Pressure testing
- Design for buckling Documentation and stamping
- Design of formed and flat head Pressure relief requirements
- New method for design of openings Example problems
- Design for external loadings Discussion
- Stress analysis methods
- Acceptance criteria for design by analysis
- Stress classification and stress linearization
- Fatigue analysis exemption rules
- Fatigue analysis
- Simplified elastic-plastic analysis
- Fabrication requirements
- PWHT requirements
- Tolerances
- NDE requirements
- Pressure testing
- Documentation and stamping
- Pressure relief requirements
- Example problems