

Course Content



Title: ASME Section VIII, Division 1 Pressure Vessel Design

Potential PDH: 32 **Code:** BTT005

Description:

This course is a comprehensive introduction to pressure vessel design in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Div 1. General topics in the course include general design requirements, design requirements related to materials, welded joint design requirements and vessel component design.

Outline:

1. ASME Section VIII, Division 1 Scope and Responsibilities
 - Become familiar with the scope of ASME Section VIII, Division 1 as well as users' and manufacturers' responsibilities
2. General Requirements. Develop a more thorough understanding of the design rules
 - Cylinders, dished heads, conical heads, flat covers and opening reinforcement for internal and external pressure
 - External loadings, including wind and seismic
 - Appendix 2 flanges
 - Part UHX tubesheets (brief discussion)
3. Design Requirements for Welded Vessels
 - Welded joint categories and welded joint types
 - RT and UT examination and joint efficiencies
4. Material Requirements
 - Postweld heat treatment
 - Impact testing requirements

Instructors:

Don Kurle has over 30 years experience in mechanical design and analysis of pressure vessels and heat exchangers in the chemical and petrochemical industries. He also has experience in minimum design metal temperature (MDMT), fitness for service (FFS), ratings and minimum thickness evaluations of pressure vessels and heat exchangers.

Mr. Kurle spent several years with a major pressure vessel and heat exchanger computer software company as a technical support engineer assisting clients with technical issues related to application of the program. He also developed and presented training classes in the use of the vessel design program and ASME Code.

Mr. Kurle holds a BS degree in Mechanical Engineering from the South Dakota School of Mines and Technology, Rapid City, SD. He is a member of the American Society of Mechanical Engineers (ASME) and the American Welding Society (AWS). Mr. Kurle is a co-owner of a patent for a tubular reactor in the US and Europe. Mr. Kurle's ASME Code Committee activities include Vice Chair Subgroup External Pressure (BPV II), member Subgroup Design (BPV VIII), Vice Chair Subgroup Toughness (BPV II & BPV VIII) and member Subgroup Heat Transfer Equipment (BPV VIII). Mr. Kurle is a past member of Repair and Testing (PCC) and Special Working Group Bolted Flanged Joints committees.

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Nathan Barkley, P.E. Mr. Barkley has nearly 15 years of experience with mechanical design and analysis of pressure vessels and heat exchangers in the refining and chemical industries. Prior to joining Becht, he was the Lead Design Engineer at a world-class fabrication company building ASME Section VIII, Division 1 and Division 2 equipment. He has extensive experience with ASME and API codes and standards for new and post construction. In addition to basic pressure vessel design per Section VIII of the ASME Boiler and Pressure Vessel Code, his experience includes design by analysis for the failure modes of Division 2 Part 5, design certification, fitness for service, rerating, alteration, repairs, and inspection.

Mr. Barkley is actively involved in ASME as a voting member or contributor to the Section VIII Subgroup committees on General Requirements, Design, and High Pressure Vessels. He also holds leadership positions within the ASME Pressure Vessels and Piping Conference and has published several peer reviewed conference papers on pressure vessel design. Mr. Barkley holds a MS degree in Mechanical Engineering and certificate in Engineering Mechanics from Missouri University of Science and Technology and a BS degree in Mechanical Engineering from the University of Mississippi. He is a licensed Professional Engineer in the state of Texas and holds an inspector certification in API 510.