

# (ME#02) ASME B31.3 PROCESS PIPING, DESIGN CONSTRUCTION AND MECHANICAL INTEGRITY

*Turning GOOD Engineers into GREAT Engineers!*

## **COURSE OVERVIEW**

The course will review the basic requirements of the ASME B31 Code for Pressure Piping with emphasis on B31.3, Process Piping. General topics in the course include Code organization and intent, pressure design, design for sustained loads including support design, flexibility analysis, equipment loads, flanges, expansion joints, supports and restraints, materials, fabrication, examination, testing, and, for existing piping systems and mechanical integrity. Applications of these concepts, including simple hand analysis methods and computer-based analysis methods, will be demonstrated. Included will be comparisons between ASME B31.3 and ASME B31.1, Power Piping. Inspection and maintenance (mechanical integrity) of existing piping systems will be covered, as provided in API 570, Piping Inspection Code.

## **WHO SHOULD ATTEND**

Engineer, senior designers, maintenance, quality assurance, inspection and manufacturing personnel who work with process piping (e.g., in the chemical, petroleum, plastic processing, pulp and paper fields) will find it a time-saving means to broaden and update their knowledge of piping.

## **LEARNING APPROACH**

Each session will be conducted in:

- Lecture
- Discussion
- Problem solving format

Which is designed to provide intensive instruction and guidance on understanding Code requirements. The instructor will be available following each day's session to provide participants with further opportunity for discussion and consideration of specific problems.

## **AMONG INTERESTING TOPICS COVERED DURING THE COURSE**

- Introduction
- Metallic Pipe & Fitting Selection
- Materials
- Pressure Design (Metallic)
- Valve Selection
- Introduction to Flexibility Analysis
- Layout and Support
- Flexibility
- Reactions
- Flexibility Analysis
- Designing with Expansion
- Fabrication and Installation
- Inspection, Examination and Testing
- Systems
- Nonmetallic Piping Systems
- Category M Fluid Service
- High Pressure Piping
- In-Service Piping – Inspection, Repair, Alteration and Re-rating
- What's Difference in B31.1
- Underground Piping