PROCESS PIPING (PRESSURE) DESIGN WORKSHOP

ENGINEERING TRAINING INSTITUTE AUSTRALIA

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- Over 17 years of experience in the Oil & Gas Industry.
- NER Oil & Gas Pipeline and Mechanical
- Worked in *Oil & Gas Refineries*, *Petrochemical Plants*, *Large size - High Pressure Transportation Pipelines* all located in the Persian Gulf.

Live streamed via zoom

WORKSHOP SUMMARY

The aim of this two day workshop is to provide participants with an understanding of the principles and minimum requirements of *ASME B31.3, Pressure Piping Code.*

This course is designed for mechanical, structural and civil engineers who wish to understand the principles involved in Process Piping.

This workshop will cover the minimum requirements for "Design, Calculations, Material Selection, Fabrication-Assembly-Erection and Examination-Inspection-Testing" in accordance with the most globally recognised reference, ASME B31.3 Process Piping Code.

All sessions provide worked examples, tutorial exercises and solutions.

DAY ONE (8.30 - 9.00 Zoom invite link will be emailed)

9.00 - 11.00 Session 1 - MATERIALS

- Scope and Definitions
- Relevant Codes and Standards
- Materials used in Process Piping
- Ferrous vs Non Ferrous materials
- Steel requirements (eg carbon content, austenitic s/s)
- Minimum wall thicknesses
- Temperature limitations
- Impact requirements
- Tutorial

11.00 - 11.15 Morning Break

11.15 - 1.00 Session 2 - DESIGN BASICS

- Design Temperatures (Maximum and Minimum)
- Allowable stresses in Tension
- Pipe Ratings
- Correlation of Fitting vs Class
- Requirements for Bolting and Welding
- Tutorial

1.00 - 1.30 Lunch Break

1.30 - 3.00 Session 3 - DETAILED DESIGN I

- Elastic Limit vs Offset vs Proportional Limit
- Yield Strengths for Ferrous and Non Ferrous piping
- Weld Joint Quality Factor
- Forged Fittings, Socket Welding and Threaded
- Threaded Joints vs Corrosion
- Factory Made Wrought Butt-welded Fittings
- Branch Connections
- Tutorial

CALCULATORS REQUIRED

3.00 - 3.15 Afternoon Break

3.15 - 5.00 Session 4 - DETAILED DESIGN II

- Pressure Design of Components
- Pipe Thickness vs Allowable Stress vs Joint Efficiency
- Design of Elbows
- Design of Miter Bends
- Design of Blanks

DAY TWO

9.00 - 11.00 Session 5 - DETAILED DESIGN III

- Design for Sustained Bending Moments, Torsional moments, and for Sustained Longitudinal Forces
- Cyclic Loading vs Stresses
- Tutorial

11.00 - 11.15 Morning Tea

11.15 - 1.00 Session 6 - FABRICATION

- End Preparation
- Typical Butt Weld requirements
- Typical Fillet Weld requirements
- Preheating Requirements
- Post Weld Heat Treatment Requirements (PWHT)
- Minimum Holding Times at Temperature for Control Thickness
- Exemptions
- Tutorial

1.00 - 1.30 Lunch Break

1.30 - 3.00 Session 7 - ASSEMBLY AND ERECTION

- Alignment Requirements
- Bolt Length and Nut requirements
- Bolt Torque requirements
- Gasket requirements
- Tutorial

3.00 - 3.15 Afternoon Break

3.15 - 5.00 Session 8 - INSPECTION, EXAMINATION, TESTING

- Visual vs Radiographic examination and testing
- Checking for Undercuts, Lack of Fusion, Incomplete Penetration
- Slag Inclusion checks including Surface Porosity
- Hydrostatic Leak testing and Sensitive Leak testing
- Low Temperature, Pressure and Fluid testing
- Crack issues

Certificate of Attendance will be emailed

ASME B31.3-2018
(Revision of ASME B31.3-2016)

Process Piping

ASME Code for Pressure Piping, B31

COURSE COST

- 2 day course – **$1,570 pp**

DATES, VENUES & REGISTRATION

- *Registration form (back of catalogue)*
- *Visit our website* www.etia.net.au

FURTHER INFORMATION

- *Office* (02) 9899 7447
- *Mobile* 0413 998 031
- *Email* registrations@etia.net.au

Cancellations made more than 5 working days prior to a course will incur a 20% processing fee of the full registration amount.
Cancellations made 5 working days or less will incur forfeiture of the full registration fee.