MERCURY

Offshore Piping Design and Engineering

20 - 24 Dec 2026
Istanbul (Turkey)

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Offshore Piping Design and Engineering

Ref.: 16263_1013088 **Date:** 20 - 24 Dec 2026 **Location:** Istanbul (Turkey) **Fees:** 5500 **Euro**

Introduction:

The Offshore Piping Design and Engineering training program equips professionals with in-depth technical knowledge and practical skills for piping systems in offshore oil and gas facilities. It covers the entire lifecycle of offshore piping systems—from design concepts, material selection, and codes to fabrication and stress analysis.

As offshore structures operate under extreme environmental and operational conditions, piping design plays a critical role in safety, reliability, and cost efficiency. The Offshore Piping Design and Engineering course builds competence in advanced piping layouts, isometric drawings, and stress calculations using international standards.

The Offshore Piping Design and Engineering curriculum integrates theoretical concepts with hands-on problem-solving exercises and simulations. Participants will gain exposure to real-world challenges and case studies specific to offshore platforms. They will contribute effectively to engineering projects in offshore environments.

Targeted Groups:

This Offshore Piping Design and Engineering training targets professionals seeking specialized knowledge and skills:

- Piping engineers are involved in offshore facility design.
- Mechanical engineers are working on oil and gas platforms.
- Project engineers manage offshore EPC contracts.
- QA/QC inspectors and supervisors in piping fabrication.
- Marine and offshore structural engineers.
- Design drafters are involved in offshore piping layouts.
- Maintenance and reliability engineers in upstream operations.
- Engineering consultants in offshore infrastructure.
- Professionals transitioning from onshore to offshore projects.
- Technicians seeking career advancement in offshore oil and gas.

Targeted Competencies:

Participants will gain the following competencies during the Offshore Piping Design and Engineering program:

- Competence in offshore piping design workflows and documents.
- Knowledge of relevant offshore piping codes and standards.
- Skill in interpreting complex piping schematics and layouts.
- Ability to perform mechanical calculations for offshore conditions.
- Proficiency in piping stress analysis software.
- Familiarity with materials selection and corrosion control.
- Understanding of offshore installation and fabrication constraints.
- Capability to assess risk and safety in offshore piping systems.

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- Team collaboration in multi-disciplinary offshore projects.

Course Objectives:

Participants will achieve the following objectives by completing the Offshore Piping Design and Engineering course:

- Understand the fundamentals of offshore piping design.
- Analyze the functional requirements of offshore piping systems.
- Apply ASME, API, and ISO standards for offshore piping projects.
- Select appropriate materials for corrosive marine environments.
- Design piping layouts and routing for space-constrained platforms.
- Generate and interpret P&IDs and piping isometrics accurately.
- Calculate pipe wall thickness, span lengths, and supports.
- Perform basic and advanced piping stress analysis using CAESAR II.
- Address piping loads from waves, currents, and temperature changes.
- Evaluate welding, inspection, and NDT requirements offshore.
- Coordinate with disciplines in multidisciplinary offshore projects.
- Mitigate operational and environmental risks in piping design.
- Review fabrication and installation drawings for offshore piping.
- Document and report technical decisions in compliance with standards.
- Participate confidently in design reviews and HAZOPs.
- Optimize piping systems for cost, safety, and performance.

Course Content:

Unit 1: Offshore Piping Design Principles and Codes:

- Introduction to offshore oil and gas facilities and platform types.
- Role of piping systems in offshore operations.
- Overview of the piping design process for offshore projects.
- Key codes and standards: ASME B31.3, API, ISO 13623.
- Pressure rating, design pressure, and temperature considerations.
- Pipe class development and specification sheets.
- Overview of piping deliverables: PFD, P&ID, GA drawings.
- Offshore environmental and safety considerations.
- Load conditions: operational, environmental, and accidental.

Unit 2: Material Selection, Components, and Corrosion Control:

- Criteria for selecting piping materials for offshore environments.
- Metallurgical properties and performance under marine exposure.
- Pipe fittings, flanges, valves, and specialty items.
- Corrosion mechanisms: galvanic, pitting, erosion, MIC.
- Corrosion-resistant alloys CRAs and coatings.
- Cathodic protection systems in offshore piping.
- Selection of gaskets and bolting materials.
- Welding processes and offshore fabrication standards.
- Material traceability and documentation requirements.

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Unit 3: Piping Layout, Routing, and Drafting Techniques:

- Fundamentals of offshore piping layout and spatial planning.
- 3D modeling principles for congested offshore environments.
- Best practices in pipe routing and support selection.
- Creating and interpreting piping isometric drawings.
- Pipe rack design and equipment nozzle orientation.
- Integration with structural and mechanical disciplines.
- Expansion loops, guides, and anchor placements.
- Offshore pipe penetration sealing and deck transitions.
- Clash detection and layout optimization using CAD tools.

Unit 4: Piping Stress Analysis and Mechanical Calculations:

- Introduction to pipe stress analysis principles.
- Static vs. dynamic loading on offshore piping.
- Thermal expansion and anchor movement effects.
- Use of CAESAR II and similar software for stress analysis.
- Wind, wave, and current-induced vibration considerations.
- Offshore support design: hangers, shoes, guides, and anchors.
- Calculation of pipe wall thickness and span length.
- Flexibility analysis for high-pressure offshore piping.
- Case studies of offshore piping failure and mitigation.

Unit 5: Offshore Piping Fabrication, Installation, and Inspection:

- Fabrication techniques suitable for offshore modules.
- Offshore welding qualifications and procedures WPS, PQR.
- Spool fabrication and offshore transport considerations.
- Site installation challenges and interface management.
- QA/QC procedures for offshore piping systems.
- Inspection methods: hydrotest, RT, UT, PMI, visual.
- NDT practices under offshore conditions.
- Punch listing and mechanical completion checklists.
- Commissioning and start-up of offshore piping systems.

Final Insights & Key Takeaways:

The Offshore Piping Design and Engineering course offers a complete immersion into offshore-specific design, material, and stress challenges. It bridges theoretical knowledge with offshore practical application. Participants will return to their roles with elevated engineering capabilities. The course builds technical confidence and career advancement in the offshore sector.

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Registration form on the :
Offshore Piping Design and Engineering

code: 16263 **From:** 20 - 24 Dec 2026 **Venue:** Istanbul (Turkey) **Fees:** 5500 **Euro**

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