



Fundamentals of Offshore Pipeline Engineering Course



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Introduction:

Most current and future offshore oil and gas explorations are conducted in deep waters. Offshore and subsea pipelines are a significant asset for most offshore Oil and gas operators. Ensuring their functionality, durability, and effectiveness is a paramount operation and business requirement.

This offshore pipeline engineering, design, and installation course identifies all subsea pipeline project phases, including the design, fabrication, installation, inspection, maintenance, repair, and integrity management.

The offshore pipeline engineering, design, and installation training focuses mainly on offshore pipelines. This course has been designed to cover all life cycle oil and gas offshore pipeline projects. It will give you international insight into the subsea pipeline industry, enabling you to retain your talent and ensure sustainable career growth.

This offshore pipeline engineering, design, and installation course is essential for those who need to improve their knowledge and skills in subsea pipeline design, installation, inspection, and management.

Offshore Pipeline Engineering, Design, and Installation:

The offshore pipeline engineering, design, and installation course covers critical aspects of designing, constructing, and maintaining offshore pipelines. Students learn about the intricacies of offshore pipeline projects, including repair techniques and innovative solutions for international settings.

The curriculum explores pipeline insulation methods, contractor management, and emerging technologies in pipeline engineering. Emphasis is placed on installation practices, design principles, and pigging operations, essential for effective pipeline management in offshore environments. This course is ideal for aspiring offshore pipeline engineers seeking specialized training in the oil and gas industry.

Targeted Groups:

- Piping Engineers
- Pipeline Engineers
- Operations Engineers and Professions
- Maintenance Engineers and Technicians
- Project Engineers
- Engineers from all disciplines who are new to the pipeline industry
- Managers and executives who are new to the offshore pipeline industry

Course Objectives:

At the end of this offshore pipeline engineering, design, and installation course, the participants will be able to:

- Maximize the company's economic value by improving its employees' knowledge about the design, installation, inspection, and repair of subsea pipelines.
- Learn about offshore pipeline maintenance and integrity management.
- Understand how offshore pipelines are designed.
- Learn about the challenges of offshore pipeline installation.
- Understand what is appreciated in the different subsea pipeline inspection and repair techniques.
- Learn about offshore pipeline integrity management.
- Learn how subsea pipelines and systems are connected to floating facilities.

Targeted Competencies:

At the end of this offshore pipeline engineering, design, and installation training, the participant's competencies will be able to:

- Offshore pipeline design.
- Fabrication and Installation of Subsea Pipelines.
- Pipeline inspection and repair.
- Threats to integrity and safety.
- Integrity Management and Maintenance of the Offshore Pipeline.
- Offshore Pipeline Installation and Inspection Challenges.
- Umbilical, risers, and flowlines design and installation.
- Facility interfaces such as FPSO and FLNG.

Course Content:

Unit 1: Offshore Pipeline Design:

- Offshore pipeline route selection.
- Hydrodynamics around Pipes.
- Expansion, Axial Creeping, Upheaval/Lateral Buckling.
- On-bottom Stability.
- Vortex-induced Vibrations VIV and Fatigue.
- Corrosion Prevention.
- Flow Assurance.
- Hydrates.
- Wax and Asphaltenes.

Unit 2: Offshore Pipeline Installation, Inspection and Integrity Management:

- Offshore pipeline installation methods.
- Spiral Welded Pipes for Shallow Offshore Applications.
- The Effect of Installation on Offshore Pipeline Integrity.
- Offshore Pipeline inspection, maintenance, and repair.
- Pipeline oil spill cleanup.
- Offshore Pipeline Risk, Corrosion, and Integrity Management.

Unit 3: Integrity and Maintenance of Offshore Pipelines:

- Integrity Management of Flexible Pipes.
- Leak Detection Systems.
- Risk Analysis for Subsea Pipelines.
- Risk-Based Inspection.
- Quantitative Risk Analysis.
- Based RBI.
- Consequences of Failure for Modeling for Oil and Gas Spills.
- Environmental Impact Assessment.

Unit 4: Umbilical, Risers, Flowlines Surf:

- Offshore Umbilical, Risers + Flowlines SURF.
- Offshore Umbilical Systems.
- Design of Deepwater Risers.
- Design codes.
- VIV and Wave Fatigue of Risers.
- Flexible Risers and Flowlines.
- Hybrid Risers.
- Drilling Risers.

Unit 5: Offshore Facility Interface:

- Introduction to FPSO and FLNG Facilities.
- Interface Onboard FPSO or FLNG Facility.
- FPSO and FLNG topside facilities and layout.
- FPSO and FLNG operation, inspection, and maintenance.
- Regulations and Codes.
- Environmental Influences Affecting FPSO - FLNG Operations.
- FPSO and or FLNG Mooring system, Turret and Swivel.
- Oil or Gas Transfer Offloading in FPSO and FLNG.

Conclusion:

In the offshore pipeline engineering, design, and installation course, participants emerge with a robust understanding of critical concepts and practices in the field. They are equipped to tackle offshore pipeline projects confidently, utilizing international standards and innovative technologies.

Graduates possess skills in offshore pipeline repair and are adept at implementing practical solutions for various challenges. They have mastered the nuances of pipeline insulation and understand the roles of contractors in project execution.

Furthermore, course attendees are well-versed in pipeline design principles and installation techniques crucial for offshore environments. They have hands-on experience with pipeline pigging procedures, which are vital for maintenance and integrity management.

Overall, this offshore pipeline engineering, design, and installation course provides comprehensive training for future offshore pipeline engineers, preparing them to contribute effectively to developing and maintaining offshore oil and gas pipelines.