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Offshore Pipeline Engineering Fundamentals Training Course

14 – 18 March 2027
Cairo

Offshore Pipeline Engineering Fundamentals Training Course

Ref: 1543_56856 **Date:** 14 – 18 March 2027 **Location:** Cairo **Fees:** 4000 GBP

Offshore Pipeline Engineering Fundamentals is a 1-week training course for pipeline, subsea and project engineers taking their first steps on offshore lines, and it ends with a draft offshore pipeline design basis for a real or sample tie-back. Subsea developments, export lines and field extensions depend on pipelines that stay stable, intact and inspectable for decades. This course is delivered by Jupiter Prime Training.

Why Offshore Pipeline Engineering Fundamentals Matter Now

Three forces shape offshore pipeline engineering today. Operators favour subsea tie-backs to existing platforms, so new engineers must size and route flowlines quickly and reliably. Deeper water, higher pressures and sour fluids push wall thickness, collapse and corrosion choices closer to their limits. Installation vessel availability and seabed surveys now drive project schedules as much as design does. A well-founded design basis avoids costly redesign, lay delays and early integrity problems; a weak one transfers risk to operations. The course rests on limit state design, recognised offshore pipeline codes and the hydrodynamic methods used for stability and span assessment.

Who Gains Most from Offshore Pipeline Engineering Fundamentals

- Pipeline engineers who size, route and verify subsea lines
- Subsea engineers who integrate flowlines with manifolds, trees and risers
- Project engineers who coordinate surveys, installation contractors and interfaces
- Integrity engineers who inherit coatings, anodes and inspection access
- Commissioning engineers who plan flooding, gauging and hydrotesting

A new subsea project group gains most when its pipeline, subsea and project engineers attend together and leave sharing the same design assumptions.

Offshore Pipeline Engineering Fundamentals Capabilities

Participants work from seabed survey to hydrotest, checking each calculation against the hazard it controls on the seabed.

- Assess pipeline route options against seabed features and crossings — route selection
- Calculate wall thickness for pressure containment and collapse — material and cost choices
- Apply on-bottom stability checks with wave and current loads — concrete coating and trenching decisions
- Evaluate free spans for vortex-induced vibration — rock dumping and intervention
- Compare S-lay, J-lay and reel installation methods — vessel and contractor selection
- Specify coatings, anodes and pre-commissioning steps — integrity and start-up teams

Key Offshore Pipeline Engineering Fundamentals Terms

- Design basis — the document that fixes the data, criteria and assumptions every later pipeline calculation must follow.
- On-bottom stability — the ability of a pipeline to resist lateral movement under wave and current forces on the seabed.
- Free span — a length of pipe left unsupported over seabed unevenness, exposed to vibration and fatigue.
- Vortex-induced vibration — oscillation caused by vortices shedding from a pipe or riser in a current.
- Riser — the vertical or catenary section carrying fluids between the seabed pipeline and the host facility.
- Pre-commissioning — flooding, cleaning, gauging, hydrotesting and dewatering before a pipeline enters service.

Offshore Pipeline Engineering Fundamentals Day by Day

Day 1: Subsea Systems and Route Selection

- Field Architecture and Tie-Back Layouts — Where Pipelines Fit The Development
- Seabed Survey and Geotechnical Data — Route Hazards And Soil Parameters
- Route Selection Criteria and Crossings — Length, Risk And Third-Party Assets
- Fluid Properties and Flow Assurance Inputs — Diameter And Insulation Needs
- Design Codes and Limit State Philosophy — Selecting The Governing Criteria

Day 2: Mechanical Design of the Line

- Wall Thickness for Pressure Containment — Material Grade And Corrosion Allowance
- Collapse and Propagation Buckling — Buckle Arrestor Placement
- Thermal Expansion and Lateral Buckling — End Expansion And Spool Design
- On-Bottom Stability with Wave and Current Loads — Concrete Weight Coating
- Free Span Assessment and Vortex-Induced Vibration — Seabed Intervention Choices

Day 3: Installation and Risers

- S-Lay, J-Lay and Reel Lay Methods — Vessel Capability And Water Depth
- Installation Stress and Lay Tension Checks — Stinger And Departure Angle
- Trenching, Burial and Rock Placement — Protection Against Trawling And Anchors
- Rigid, Flexible and Steel Catenary Risers — Host Facility Interface
- Tie-In Spools and Subsea Connections — Metrology And Installation Tolerance

Day 4: Integrity, Protection and Start-Up

- External Coatings and Field Joint Coating — Long-Term Corrosion Barrier
- Cathodic Protection with Sacrificial Anodes — Anode Mass And Spacing
- Internal Corrosion and Inhibition Strategy — Sour And Wet Service Choices
- Flooding, Gauging and Hydrotest Planning — Pre-Commissioning Acceptance
- Inspection Access and Pigging Provisions — Operational Integrity Readiness

Day 5: Practising the Offshore Pipeline Design Basis

- Compiling Route and Seabed Inputs — Design Data Register
- Setting Wall Thickness and Stability Criteria — Governing Load Cases
- Selecting Installation Method and Riser Concept — Contracting Assumptions
- Defining Corrosion Protection and Pre-Commissioning — Integrity Requirements
- Issuing the Offshore Pipeline Design Basis — Project Review And Approval

Applying Offshore Pipeline Engineering Fundamentals After the Course

- Lead a design basis gap check on a current tie-back, comparing route, stability and span inputs with survey data.
- Run a stability and wall thickness sensitivity on one flowline to show which seabed or pressure assumption drives cost.

Offshore Pipeline Engineering Fundamentals Questions FAQ

What are offshore pipeline engineering fundamentals and why do they matter now?

They are the core methods for routing, sizing, stabilising, installing and protecting subsea pipelines. They matter now because tie-backs, deeper water and sour service make early design errors expensive to correct offshore.

Which roles gain most from offshore pipeline engineering fundamentals?

Pipeline, subsea, project, integrity and commissioning engineers new to offshore work gain most. Each either sets design criteria or lives with their consequences during installation and operation.

How do offshore pipeline engineering fundamentals differ from an onshore pipeline or advanced subsea course?

The fundamentals focus on seabed loads, lay methods and risers that onshore lines never face. An advanced subsea course assumes these basics and moves to detailed analysis and software, whereas here you build the foundations and the design basis.

What do you bring back from offshore pipeline engineering fundamentals?

You bring back a draft design basis covering route data, wall thickness and stability criteria, installation and riser concept, corrosion protection and pre-commissioning requirements.

Offshore Pipeline Engineering Fundamentals: The Way Forward

The offshore pipeline design basis first informs route freeze and line pipe ordering, used by pipeline, subsea and project engineers alongside installation contractors. After its first use, revisit the seabed and metocean assumptions: compare as-laid survey results, span lengths and burial depth with the design, and update stability and span criteria for the next line.