

# Deepwater Riser Engineering Fundamentals Training Course

21 – 25 March 2027
Chicago

AGILE LEADERS
Training Center

# Deepwater Riser Engineering Fundamentals Training Course

**Ref:** 1989_246847 **Date:** 21 – 25 March 2027 **Location:** Chicago **Fees:** 16000 Euro

## Overview

Deepwater Riser Engineering Fundamentals Training Course is a one-week foundation course for early-career offshore, subsea, drilling, production, structural, and project engineers who leave with a Deepwater Riser Basis and Screening Workbook. Participants connect deepwater riser system selection, riser static configuration analysis, riser load case screening, vortex-induced vibration and fatigue, and riser interference assessment with interfaces, materials, vessel motions, metocean inputs, and assurance. Agile Leaders Training Center presents foundation engineering for deepwater riser systems.

## Who Should Attend

- Offshore engineering functions responsible for floating-facility and riser design interfaces
- Subsea engineering functions responsible for riser architecture, components, and seabed connections
- Drilling and production engineering functions responsible for functional requirements and load cases
- Naval architecture and structural functions responsible for vessel motions, configuration, and response
- Project and assurance functions responsible for design-basis records, reviews, and technical decisions

The course assumes participants can read engineering drawings and basic mechanics calculations, and it leaves out detailed finite-element modeling, software operation, fabrication qualification, offshore installation execution, and integrity-management planning.

## Departments and Industries

The course supports departments and industries that select, design, review, or procure offshore riser systems.

- Offshore oil and gas drilling and production projects
- Subsea engineering, floating systems, and marine construction
- Offshore carbon storage and injection developments
- Engineering contractors, equipment suppliers, and technical consultancies
- Classification, verification, project assurance, and applied research functions

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## Learning Objectives

By the end of this course, participants will be able to:

- Compare drilling and production riser concepts
- Build functional, interface, and design-input registers
- Apply static configuration and load-case screening methods
- Analyze pressure, environmental, motion, and soil effects
- Evaluate vibration, fatigue, and interference risks
- Prioritize design checks and assurance evidence

## Course Agenda

## Day 1: Define the Riser System

- Drilling and Production Riser Concept Selection Matrix
- Functional Requirement and Performance-Criterion Register
- Topside, Vessel, Subsea, and Well Interface Map
- Riser Component and Load-Path Schematic
- DNV-ST-F201 Design-Basis Structure Review

## Day 2: Establish Design Inputs

- Water-Depth, Bathymetry, and Seabed Data Sheet
- Wave, Current, and Metocean Design-Condition Matrix
- Floater Motion and Riser Hang-Off Input Table
- Material, Corrosion Allowance, and Component Property Register
- API Spec 16F Marine Drilling Riser Component Map

## Day 3: Screen Configuration and Strength

- Catenary, Tensioned, and Flexible Configuration Comparison
- Top-Tension, Hang-Off, and Touchdown-Zone Screening Sheet
- Internal and External Pressure Load Combination Table
- Burst, Collapse, and Combined-Loading Check Map
- Installation, Operating, and Accidental Load-Case Register

## Day 4: Evaluate Dynamic Response

- Vessel Motion and Environmental Response Pathway
- Vortex-Induced Vibration Screening Method
- Wave-Frequency and Fatigue Damage Assessment Sheet
- DNV-RP-F203 Riser Interference Assessment Map
- Dynamic Uncertainty and Analysis-Refinement Decision Log

## Day 5: Practice Riser Design Screening

- Suggested Exercise: Select a Riser Concept and Interfaces
- Suggested Exercise: Assemble Metocean and Motion Inputs
- Suggested Exercise: Screen Configuration and Combined Loads
- Suggested Exercise: Rank Vibration, Fatigue, and Interference Risks
- Capstone Exercise: Complete the Deepwater Riser Basis and Screening Workbook

## Practical Exercises

The course uses suggested activities to turn project requirements and environmental data into traceable riser-design decisions.

- Suggested activity: compare drilling, rigid production, flexible, and tensioned riser concepts against functional and interface requirements.
- Suggested activity: organize water-depth, metocean, vessel-motion, material, pressure, and seabed inputs with uncertainty notes.
- Suggested activity: screen top tension, touchdown behavior, pressure loads, collapse, burst, vibration, fatigue, and interference.
- Suggested activity: identify checks that require refined analysis and document the assurance evidence needed.

## FAQs

### Who suits deepwater riser engineering fundamentals training, and what does it assume?

Deepwater riser engineering fundamentals training suits early-career offshore, subsea, drilling, production, structural, naval-architecture, and project functions. It assumes participants can read engineering drawings and basic mechanics calculations.

### How does deepwater riser design differ from riser integrity management?

Deepwater riser design establishes requirements, configurations, loads, structural checks, and design evidence before service. Riser integrity management controls degradation, inspection, anomalies, repairs, and lifecycle assurance after design and installation.

### What inputs control deepwater riser static configuration?

Static configuration depends on water depth, riser type, weight and buoyancy, top tension or hang-off, internal contents, seabed contact, offsets, current, temperature, pressure, and interface geometry.

## Why are vortex-induced vibration and fatigue screened in riser engineering?

Vortex-induced vibration and cyclic environmental response can accumulate fatigue damage at joints, hang-off regions, stress concentrations, and touchdown zones. Screening identifies where refined dynamic analysis is required.

## How is riser interference assessed in deepwater developments?

Riser interference is assessed through layout, offsets, current profiles, dynamic envelopes, wake effects, relative motion, clearance criteria, uncertainty, and operating or accidental cases.

## Conclusion

Participants take back a Deepwater Riser Basis and Screening Workbook containing requirements, interfaces, inputs, configurations, load cases, structural screens, dynamic risks, and assurance actions. The workbook changes scattered project data into a traceable first design review. It supports concept selection, analysis planning, technical review, procurement interfaces, and decisions about refined engineering.