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COURSE BROCHURE

Offshore Structural Welding and Fabrication Quality Training Course

13 – 17 September 2027
Singapore

Offshore Structural Welding and Fabrication Quality Training Course

Ref: 2841_108994 **Date:** 13 – 17 September 2027 **Location:** Singapore **Fees:** 9300 GBP

Offshore Structural Welding and Fabrication Quality is a 1-week training course for welding engineers, fabrication supervisors and quality inspectors who release jackets, topsides modules and piping spools, and it builds an offshore weld fabrication quality plan. Weld defects found after load-out cost far more to repair at sea than in the yard, so fabrication control now shapes schedule and integrity. Jupiter Prime Training delivers this course on offshore structural welding and fabrication quality.

Why Offshore Structural Welding and Fabrication Quality Matters Now

Three forces shape offshore welding today. Heavier sections and alloy piping narrow the margin between a sound joint and a cracked one. Fabrication work is spread across yards and subcontractors, so owners must trust records they did not witness. A team that controls procedures, consumables and inspection releases modules on time; one that does not discovers lack of fusion or hydrogen cracking during hook-up. The course rests on the applicable welding qualification codes and fabrication specifications, described in general terms.

Who Gains Most from Offshore Structural Welding and Fabrication Quality

- Engineers who write and approve welding procedure specifications and qualification records
- Supervisors who run welding, fit-up and heat treatment crews in fabrication yards
- Inspectors who witness welds, review radiographs and ultrasonic results and accept repairs
- Owner representatives who audit contractor fabrication records before module release
- Integrity engineers who plan repair welding on structures already in service

Owner and contractor groups gain most when their welding engineers and inspectors attend together and agree one set of acceptance expectations.

Offshore Structural Welding and Fabrication Quality Capabilities

Participants move from reading weld procedures to controlling every joint from bevel to final acceptance.

- Specify essential variables for procedure qualification on thick offshore steels — procedure approval
- Assess weldability of carbon steels, duplex and nickel alloys — consumable and heat input selection
- Calculate preheat and interpass limits that prevent hydrogen cracking — yard welding instructions
- Apply visual, magnetic particle, radiographic and ultrasonic methods to joints — acceptance decisions
- Design weld repair sequences for yard and offshore conditions — repair authorisation

- Build fabrication quality hold points and records — owner module release

Key Offshore Structural Welding and Fabrication Quality Terms

- Welding procedure specification — the written instruction that fixes process, consumables, positions, heat input and temperatures for a type of joint.
- Procedure qualification record — the test report proving that a welding procedure produces joints with the required strength, toughness and soundness.
- Heat input — the energy delivered per unit length of weld, controlling cooling rate, toughness and hardness in the heat-affected zone.
- Hydrogen-induced cracking — delayed cracking caused by diffusible hydrogen, hard microstructure and restraint.
- Post-weld heat treatment — controlled heating after welding to relieve residual stress and temper hard zones in thick joints.
- Inspection and test plan — the document listing each fabrication activity, its inspection method and hold points.

Offshore Structural Welding and Fabrication Quality Day by Day

Day 1: Offshore Fabrication Demands and Joint Design

- Jacket Nodes and Tubular Joints — Where Fatigue Drives Weld Detail
- Topsides Modules and Piping Spools — Splitting Yard and Site Welds
- Bevel Geometry and Fit-Up Tolerances — Controlling Root Defects
- Welding Processes for Offshore Work — Matching Process to Joint Access
- Fabrication Specifications and Project Requirements — Setting Contractor Expectations

Day 2: Weldability of Offshore Steels and Alloys

- Carbon Equivalent and Hardenability — Predicting Heat-Affected Zone Hardness
- Thermomechanical High-Strength Plate — Limiting Heat Input for Toughness
- Duplex Stainless Piping — Balancing Ferrite and Avoiding Intermetallic Phases
- Nickel Alloy and Clad Pipe Welding — Dilution and Consumable Choice
- Dissimilar Metal Joints — Buttering, Transitions and Galvanic Exposure

Day 3: Procedure Qualification and Cracking Control

- Essential and Supplementary Variables — Deciding When Requalification Is Needed
- Toughness and Hardness Testing — Accepting Qualification Test Coupons
- Diffusible Hydrogen and Consumable Storage — Preventing Delayed Cracking
- Preheat, Interpass and Hydrogen Bake-Out — Writing Yard Temperature Instructions
- Welder Qualification and Continuity Records — Approving Welders for Joints

Day 4: Weld Inspection, Defects and Repair

- Visual and Magnetic Particle Examination — Screening Surface Breaking Flaws
- Radiography and Phased Array Ultrasonics — Choosing Volumetric Methods
- Defect Acceptance Criteria — Accept, Repair or Assess Each Indication
- Repair Welding Sequences — Limiting Repeat Repairs on the Same Joint
- Offshore Habitat and Underwater Repair Options — Weighing Access Against Risk

Day 5: Practising the Offshore Weld Fabrication Quality Plan

- Joint Register and Procedure Matrix — Applying Day 1 and Day 3 Selections
- Consumable and Temperature Control Sheets — Applying Day 2 Weldability Limits
- Inspection Hold Points and Witness Levels — Applying Day 4 Methods
- Non-Conformance and Weld Repair Logs — Tracing Defects to Root Causes
- Offshore Weld Fabrication Quality Plan — Presenting Module Release Criteria

Applying Offshore Structural Welding and Fabrication Quality After the Course

- Audit one live welding procedure and its qualification record against the essential variables method.
- Run a repair-rate review on a recent module, linking each repaired joint to its cause.

Offshore Structural Welding and Fabrication Quality Questions FAQ

What is offshore structural welding and fabrication quality and why does it matter now?

Offshore structural welding and fabrication quality is the control of procedures, materials, welders and inspection so every joint meets its acceptance criteria. It matters now because thicker steels, alloy piping and dispersed yards raise the cost of a defect found offshore.

Which roles gain most from offshore structural welding and fabrication quality?

Welding engineers, fabrication supervisors and inspectors gain most. Owner representatives who release modules also benefit.

How does offshore structural welding and fabrication quality differ from a materials selection course?

It starts once the material is chosen. A materials selection course compares alloys and lifecycle cost; this course controls how those alloys are welded, inspected and repaired in the yard and offshore.

What do you bring back from offshore structural welding and fabrication quality?

You bring back a fabrication quality plan for a real or sample module. It joins procedures, temperature controls, hold points and repair logs in one document.

Offshore Structural Welding and Fabrication Quality: The Way Forward

The offshore weld fabrication quality plan first informs whether a contractor's procedures and inspection levels are ready before fabrication starts. Welding engineers, yard supervisors and owner inspectors use it to set hold points and accept modules. After the first load-out, revisit its repair log and hydrogen controls to see which joint types still cause rework.