JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Pump Field Operation, Overhaul and Alignment Training Course

27 June – 1 July 2027
Muscat

jupiterprime.uk

info@jupiterprime.uk

Registered in the United Kingdom and Saudi Arabia

Pump Field Operation, Overhaul and Alignment Training Course

Ref: 1312_49254 **Date:** 27 June – 1 July 2027 **Location:** Muscat **Fees:** 6500 GBP

Pump Field Operation, Overhaul and Alignment is a 1-week training course for mechanical technicians, rotating equipment engineers and plant operators running and rebuilding centrifugal and positive displacement pumps; participants leave with a pump troubleshooting and maintenance checklist for their own units. Pumps are the most numerous rotating machines on most sites, so repeat seal and bearing failures drain crews and spares. Jupiter Prime Training delivers Pump Field Operation, Overhaul and Alignment for plant crews.

Why Pump Field Operation, Overhaul and Alignment Matters Now

Experienced fitters are retiring, newer operators run more pumps per shift, and plants push units closer to their limits to meet throughput targets. Each wrong start-up against a closed valve, dry run or poorly aligned coupling shortens seal and bearing life and raises leak and fire risk. A site where operators and technicians share one way of running and rebuilding pumps sees longer runs between repairs. The course frames this work with EN 13306 maintenance terminology and ISO 55001 asset management.

Who Gains Most from Pump Field Operation, Overhaul and Alignment

- Staff who line up, prime, start and stop pumps on shift
- Staff who carry out operator rounds on pump trains and log readings
- Staff who strip, inspect and rebuild pumps on the repair bench
- Staff who align couplings and set bearing and seal clearances
- Staff who investigate repeat pump failures and set repair priorities

A water utility pumping station crew or a refinery rotating equipment section gains most when operators and fitters attend side by side.

Pump Field Operation, Overhaul and Alignment Capabilities

Participants link what operators see at the pump to what fitters find on the bench, so faults are caught early and fixed once.

- Apply safe line-up, priming and minimum-flow start-up steps — shift supervisor
- Assess duty point against the pump curve and NPSH margin — process engineer
- Test for cavitation, recirculation and dry-running symptoms in the field — operations lead
- Build a strip-down and rebuild sequence with clearance records — repair shop supervisor
- Calculate shim and offset corrections for reverse-indicator and laser alignment — rotating equipment engineer
- Communicate fault findings and repair scope to planners — maintenance planner

Key Pump Field Operation, Overhaul and Alignment Terms

- Best efficiency point — the flow at which a centrifugal pump converts power to head with the least loss and vibration.
- NPSH margin — the gap between suction head available and head required; too small a margin causes cavitation.
- Minimum continuous flow — the lowest flow a pump can run at without overheating or damaging recirculation.
- Soft foot — a machine foot that does not sit flat, distorting the casing and spoiling alignment.
- Mechanical seal face — the lapped sliding surfaces that stop leakage along a rotating shaft.
- Relief valve — a protective valve on a positive displacement pump that opens to stop overpressure against a blocked discharge.

Pump Field Operation, Overhaul and Alignment Day by Day

Day 1: Pump Types and Field Operation

- Centrifugal Versus Positive Displacement Behaviour — Choosing the Right Operating Practice
- Line-Up, Venting and Priming Steps — Avoiding Dry Starts
- Start-Up Against Discharge Valve Position — Motor Load and Flow Control
- Parallel and Standby Pump Changeover — Keeping Supply Without Trips
- Operator Round Sheets — Noise, Temperature, Leak and Pressure Checks

Day 2: Curves, Cavitation and Hydraulic Faults

- Pump and System Curve Reading — Locating the Actual Duty Point
- NPSH Available Calculation — Suction Conditions and Tank Levels
- Cavitation and Recirculation Signs — Sound, Pitting and Pressure Swings
- Gear, Screw and Plunger Pump Faults — Slip, Pulsation and Relief Valve Action
- Hydraulic Fault Tree — From Low Flow to Root Cause

Day 3: Seals, Bearings and Lubrication

- Packing Versus Mechanical Seals — Leak Allowance and Fitting Practice
- Seal Flush Plans and Quench — Keeping Faces Cool and Clean
- Rolling Bearing Fits and Clearances — Heat and Noise Prevention
- Oil Bath, Oil Mist and Grease Practice — Lubricant Quantity and Contamination
- Vibration Pen and Temperature Gun Readings — When to Call for Repair

Day 4: Overhaul and Shaft Alignment

- Strip-Down Sequence and Match Marking — Protecting Parts and Fits
- Impeller, Wear Ring and Shaft Run-Out Checks — Rebuild or Replace Decisions
- Soft Foot and Pipe Strain Correction — A Stable Base for Alignment
- Reverse-Indicator and Laser Alignment — Shim and Move Calculations
- Post-Overhaul Run Test — Acceptance Before Handback to Operations

Day 5: Practising the Pump Troubleshooting Checklist

- Water Utility Booster Station Case — Applying Curve and Cavitation Diagnosis
- Refinery Hydrocarbon Pump Case — Applying Seal and Bearing Findings
- Alignment Exercise on a Pump Train — Applying Shim Calculations
- Repeat Failure Log — Ranking Bad Actors for Repair Priority
- Pump Troubleshooting and Maintenance Checklist — Field and Repair Bench Steps

Applying Pump Field Operation, Overhaul and Alignment After the Course

- Walk the site's three worst pump bad actors with operators and record duty point, NPSH margin and seal condition.
- Run a laser or reverse-indicator alignment check on the next overhauled pump and file the shim record.

Pump Field Operation, Overhaul and Alignment Questions FAQ

What is Pump Field Operation, Overhaul and Alignment and why does it matter now?

It is the shared practice of starting, running, rebuilding and aligning pumps correctly. It matters now because experienced fitters are retiring and units run harder.

Which roles gain most from Pump Field Operation, Overhaul and Alignment?

Mechanical technicians, rotating equipment engineers and plant operators gain most. Maintenance planners also benefit.

How does Pump Field Operation, Overhaul and Alignment differ from a pump selection course?

It covers pumps already installed rather than choosing new ones. Selection courses size pumps and valves for a system; this course teaches running, diagnosing, rebuilding and aligning the pumps a site already owns.

What do you bring back from Pump Field Operation, Overhaul and Alignment?

You bring back a pump troubleshooting and maintenance checklist. It joins operator start-up and round checks with bench strip-down, clearance and alignment steps for your own pump types.

Pump Field Operation, Overhaul and Alignment: The Way Forward

The pump troubleshooting and maintenance checklist first informs which bad actor pump gets attention at the next opportunity. Operators use its field steps on every shift and fitters use its bench steps at each overhaul. After the first few repairs, revisit the seal and bearing entries against what was found inside the pumps.