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COURSE BROCHURE

# Plant Revamp Project Scoping and Economic Evaluation Training Course

16 – 20 May 2027
Doha

# Plant Revamp Project Scoping and Economic Evaluation Training Course

**Ref:** 937_35452 **Date:** 16 – 20 May 2027 **Location:** Doha **Fees:** 6500 GBP

Plant Revamp Project Scoping and Economic Evaluation is a 1-week training course for process and production engineers who must turn a capacity ambition into a fundable project, and it ends with a participant-built Revamp Business Case for one unit. Owners now demand more output from existing assets before approving new plant, so every revamp proposal faces sharper scrutiny. Jupiter Prime Training delivers this course for engineers who prepare those proposals.

## Why Plant Revamp Project Scoping and Economic Evaluation Matters Now

Three forces shape revamp decisions today. Shareholders favour brownfield capacity over greenfield spending, which pushes more expansion cases onto operating sites. Energy and emissions costs now weigh on every throughput gain, so a revamp that adds tonnes but wastes fuel rarely survives approval. Finance committees also expect engineers to speak in cash flow, not only in barrels or tonnes. A site that scopes revamps well wins capital and avoids scope creep; one that scopes them badly overspends, misses the shutdown window and delivers less capacity than promised. The course rests on Front-End Loading FEL, Net Present Value NPV and Internal Rate of Return IRR as its decision frameworks.

## Who Gains Most from Plant Revamp Project Scoping and Economic Evaluation

- Engineers who locate the limiting equipment in a unit and quantify spare margin
- Engineers who prepare heat and mass balances for the revamped case
- Engineers who write scope definitions and battery-limit lists for capacity projects
- Specialists who estimate energy savings and utility impacts of proposed changes
- Production engineers who present revamp proposals to capital review boards

Refinery, fertiliser and food processing site groups gain most when a process engineer, a production engineer and a cost estimator attend together and leave with one agreed basis for the next expansion case.

## Plant Revamp Project Scoping and Economic Evaluation Capabilities

Participants learn to move from a throughput target to a bounded scope and a cash flow that a capital committee can test.

- Assess unit capacity through test runs and constraint ranking — choice of revamp target
- Build revised heat and mass balances for the expanded case — equipment change list
- Specify revamp scope, battery limits and tie-in points — project engineering contractors
- Calculate energy and utility effects of each option — site energy managers
- Test project economics with NPV, IRR and payback — capital review boards
- Communicate options, residual risks and shutdown needs — plant leadership

## Key Plant Revamp Project Scoping and Economic Evaluation Terms

- Capacity Audit — a structured test run and record review that finds which equipment limits unit throughput and by how much.
- Constraint Ladder — a ranked list of equipment limits showing which bottleneck appears next as throughput rises step by step.
- Battery Limit — the physical boundary of a revamp scope, defining which lines, equipment and utilities the project owns.
- Tie-In Point — a planned connection between new and existing piping, usually executed during a shutdown or with hot tapping.
- Net Present Value — the sum of a project's future cash flows discounted to today, minus its investment, used to accept or reject options.
- Class Estimate — a cost estimate labelled by maturity, showing expected accuracy range as project definition improves.

## Plant Revamp Project Scoping and Economic Evaluation Day by Day

### Day 1: Capacity Targets in Their Commercial Context

- Market and Feedstock Outlook — Setting a Credible Throughput Target
- Brownfield Versus Greenfield Comparison — Choosing Where Capacity Should Come From
- Stage-Gate Front-End Loading — Matching Study Depth to Decision Gates
- Stakeholder Mapping for Revamps — Aligning Operations, Finance and Contractors
- Past Revamp Lessons — Avoiding Repeat Overruns and Shortfalls

### Day 2: Finding the Limiting Equipment

- Capacity Audit Test Runs — Recording Real Operating Limits
- Heat and Mass Balance Reconciliation — Closing Gaps Before Any Scaling
- Constraint Ladder Construction — Ranking Bottlenecks in Order of Appearance
- Hydraulic and Thermal Rating Checks — Confirming Pumps, Exchangers and Lines
- Control Valve and Instrument Range Review — Spotting Hidden Small-Bore Limits

### Day 3: Shaping Revamp Options and Scope

- Option Generation Sessions — Comparing Replace, Parallel and Modify Choices
- Energy Optimisation Screening — Weighing Heat Recovery Against Added Duty
- Scope Definition Document — Fixing Battery Limits and Exclusions
- Tie-In Schedule and Shutdown Window — Sequencing Work Around Turnarounds
- Constructability and Plot Space Review — Testing Physical Feasibility of Options

### Day 4: Economic Evaluation and Approval

- Class Estimate Preparation — Setting Cost Ranges for Each Option
- Discounted Cash Flow Model — Calculating NPV, IRR and Payback
- Sensitivity and Tornado Charts — Showing Which Assumptions Move the Answer
- Lost Production During Shutdown — Counting Downtime in Project Cost
- Capital Request Structure — Presenting the Case to Approval Boards

## Day 5: Practising the Revamp Business Case

- Unit Constraint Case Study — Applying the Constraint Ladder to a Real Unit
- Option Ranking Exercise — Combining Energy, Cost and Shutdown Criteria
- Cash Flow Model Build — Testing Economics Under Price Swings
- Board Pitch Rehearsal — Defending Scope and Numbers Under Questioning
- Revamp Business Case — Completing Scope, Estimate and Recommendation

## Applying Plant Revamp Project Scoping and Economic Evaluation After the Course

- Run a capacity audit test on one unit and publish its constraint ladder to operations and planning colleagues.
- Rebuild the cash flow model of a pending capacity proposal with sensitivity charts before its next gate review.

## Plant Revamp Project Scoping and Economic Evaluation Questions FAQ

### What is plant revamp project scoping and economic evaluation and why does it matter now?

It is the practice of defining what a capacity revamp changes and proving it pays back. Owners prefer expanding existing units, so engineers must show a bounded scope and credible economics before capital is released.

### Which roles gain most from plant revamp project scoping and economic evaluation training?

Process and production engineers who prepare expansion cases gain most. Energy specialists and cost estimators who support those cases also benefit, because the course links throughput, utilities and cash flow in one method.

### How does plant revamp project scoping and economic evaluation differ from a process simulation course?

It centres on scope and money rather than modelling detail. You use balances and rating results as inputs, then turn them into options, battery limits, estimates and a cash flow that approval boards can test.

### What do you bring back from plant revamp project scoping and economic evaluation training?

You bring back a structured case for one unit with its constraint ladder, scope, estimate and economics. You also gain a repeatable way to compare revamp options and defend them in capital reviews.

## Plant Revamp Project Scoping and Economic Evaluation: The Way Forward

The Revamp Business Case first informs whether a unit's next capacity step proceeds to detailed engineering. Process engineers, estimators and plant leaders use it to agree scope and shutdown timing. After its first gate review, revisit the constraint ladder, because the bottleneck that follows the revamped one often decides the true value of the project.