

Mastering Shutdown & Turnaround Project Management: From Initiation to Execution

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Overview

Industrial plant outages require structured governance to prevent catastrophic schedule overruns, uncontrolled budget creep, and severe operational downtime. This two-week programme establishes systematic control across shutdown & turnaround project management, taking teams from early strategic alignment through detailed planning, contractor procurement, field execution, and safe start-up. Participants master scope freeze protocols, critical path scheduling models, resource levelling charts, and readiness verification frameworks that safeguard operational integrity. Professionals complete the course with actionable execution dashboards, inspection templates, and de-isolation checklists. This course is delivered by Agile Leaders Training Center.

Who Should Attend

- Asset managers responsible for synchronising major facility overhaul cycles with corporate production targets.
- Turnaround planners responsible for defining detailed work packages, craft density limits, and job step logic.
- Maintenance leads responsible for staging blind lists, equipment lifting arrangements, and pre-outage tasks.
- Cost controllers responsible for earned value reporting, progress verification, and scope creep mitigation.
- Safety coordinators responsible for permit-to-work systems, simultaneous operations review, and de-isolation integrity.

Departments and Industries

This course serves cross-functional technical teams executing critical plant turnarounds across continuous processing and infrastructure sectors.

- Turnaround and Major Overhaul Departments in Chemical Processing Plants
- Plant Maintenance and Inspection Divisions in Refining and Petrochemical Complexes
- Asset Integrity and Reliability Units in Offshore Oil and Gas Terminals
- Power Generation and Turbine Engineering Teams in Utility Facilities
- Smelter and Mineral Extraction Operations in Heavy Metallurgy Works

Learning Objectives

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

- Apply gate review criteria to establish scope freeze governance for complex plant turnarounds.
- Build detailed turnaround schedules using critical path methodology and resource levelling calculations.
- Evaluate contractor productivity using earned value management indices and daily progress curves.
- Analyse asset condition reports using API 510 and API 570 inspection standards.
- Prioritise emergent discovery work using risk matrix frameworks and contingency budget controls.
- Construct pre-commissioning de-isolation registers using mechanical line walk verification protocols.

Course Agenda

Day 1: Turnaround Initiation and Strategic Governance

- Turnaround Strategic Charter Development using Stage-Gate Project Governance Models
- Premise Definition and Milestone Calendars via Asset Management Framework ISO 55001
- Organizational Breakdown Structures using RACI Governance Matrices for Outage Teams
- Historical Outage Performance Benchmarking using Key Performance Indicator Scorecards
- Turnaround Risk Screening using Failure Mode, Effects, and Criticality Analysis

Day 2: Scope Identification and Scope Freeze Control

- Work Package Scoping Protocols using Risk-Based Work Selection Matrices
- Scope Challenge Sessions using Formal Scope Freeze Criteria and Approval Workflows
- Static Equipment Work Identification using API 510 Pressure Vessel Inspection Registers
- Piping Circuit Integrity Scoping using API 570 Piping Inspection Documentation
- Unlisted and Emergent Scope Governance using Management of Change Procedures

Day 3: Detailed Planning, Estimating, and Job Packaging

- Turnaround Work Breakdown Structures using Standardized Activity Dictionaries
- Task Duration and Labour Estimating using International Maintenance Norms Standards
- Detailed Planner Package Assembly using Equipment Process and Instrumentation Diagrams
- Specialized Rigging and Lifting Plans using ASME B30 Crane Operation Standards
- Temporary Site Logistics Layouts using Plot Plan Hazard Mapping Protocols

Day 4: Critical Path Scheduling and Resource Levelling

- Pre-Outage and Execution Schedule Logic using Precedence Diagramming Methods
- Critical Path and Near-Critical Path Identification using CPM Schedule Optimization
- Craft Density and Manpower Leveling using Resource Histogram Smoothing Tools
- Simultaneous Operations Hazard Identification using SIMOPS Interaction Matrices
- Schedule Integrity Validation using DCMA 14-Point Schedule Assessment Checks

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Day 5: Procurement, Contracting, and Materials Staging

- Turnaround Contracting Strategy Formulation using FIDIC Contract Risk Matrices
- Long-Lead Material Tracking using Expediting Registers and Material Status Reports
- Specialist Service Level Agreements using Key Performance Metric Scorecards
- Direct Material Staging and Kitting Workflows using Warehouse Laydown Logsheets
- Vendor Mobilization Verification using Pre-Outage Contractor Readiness Checklists

Day 6: Pre-Shutdown Preparation and Readiness Audits

- Turnaround Readiness Reviews using Model of Turnaround Excellence Scorecards
- Operations Blind Lists and Isolation Planning using Energy Isolation Registers
- Flare Reduction and De-Inventory Planning using Chemical Cleaning Drain Protocols
- Site Infrastructure Handover Auditing using Temporary Power and Air Utility Plans
- Safety Inductions and Field Pre-Task Briefing using Task Risk Assessment Sheets

Day 7: Outage Execution Management and Daily Controls

- Execution Shift Handover Governance using Logbook Verification Procedures
- Daily Progress Tracking using Earned Value Schedule and Cost Variance Formats
- Discovery Work Authorisation Workflows using Emergent Scope Work Order Packs
- Productivity Bottleneck Resolution using Craft Time-at-the-Wrench Measurement Logs
- Simultaneous Work Zone Control using Permit-to-Work Dynamic Isolation Dashboards

Day 8: Quality Assurance and Plant Integrity Inspection

- Weld and Metallurgy Quality Auditing using ASME Section VIII Acceptance Criteria
- Corrosion Under Insulation Surveys using Non-Destructive Testing Logbooks
- Flange Management and Joint Integrity Protocols using ASME PCC-1 Bolt Torque Tables
- Relief Device Certification using API 520 and API 526 Inspection Verification Sheets
- Quality Defect and Punch List Resolution using Formal Non-Conformance Registers

Day 9: De-Isolation, Commissioning, and Plant Start-up

- Hydrostatic and Pneumatic Leak Testing Verification using ASME B31.3 Test Packs
- Positive Mechanical Isolation Removal using Blind Removal Sign-Off Registers
- System Nitrogen Purging and Oxygen De-Inventory using Gas Chromatograph Loggers
- Pre-Start-up Safety Reviews using PSSR Multidisciplinary Sign-Off Checklists
- Operational Introduction of Hydrocarbons using Dynamic Process Ramp-Up Profiles

Day 10: Outage Closeout and Post-Turnaround Review

- Financial Outage Closeout and Final Cost Reconciliation using Variance Worksheets
- As-Found Asset Integrity Documentation using Post-Overhaul Inspection Folders
- Contractor Performance Rating using Structured Post-Job Scorecard Reviews
- Post-Turnaround Wash-Up Workshops using Lessons Learned Recording Templates
- Capstone Turnaround Execution Scenario and Readiness Plan Defense Presentation

Practical Exercises

Participants collaborate on operational scenarios to build defensible turnaround project artefacts.

- Suggested activity: Build an energy isolation blind schedule from process flow diagrams.
- Suggested activity: Calculate craft resource levelling limits across critical path piping overhauls.
- Suggested activity: Evaluate an emergent discovery scope request using risk assessment matrices.
- Suggested activity: Design a comprehensive pre-start-up safety review verification punch list.

FAQs

What technical plant equipment does this syllabus cover?

The syllabus addresses stationary pressure vessels, distillation towers, furnaces, heat exchangers, rotating machinery, and complex interconnecting piping circuits common in continuous process infrastructure.

How does the course address schedule overruns during execution?

Participants master earned value analysis, critical path dynamic schedule re-sequencing, shift handover controls, and daily work package velocity checks to resolve bottlenecks promptly.

Which international standards are embedded in the coursework?

Practical modules reference established engineering and management standards, including API 510, API 570, ASME PCC-1, ASME Section VIII, and ISO 55001.

How is emergent or discovery work managed within the framework?

The programme details structured discovery management workflows, formal change authorisation gates, contingency allocation methods, and rapid impact assessments on the critical path.

Conclusion

Participants return to their facilities equipped with systematic governance models, analytical tools, and practical artefacts to direct plant turnarounds with disciplined control. By integrating rigorous scope freeze governance, schedule levelling, and structured start-up protocols, teams minimize operational interruptions, safeguard technical staff, and achieve budget predictability across major asset overhauls.

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