Project Management - Maintenance Management
Project Management
Major Grassroots Projects

Level: Foundation

AGENDA

Introduction and preliminary studies
Introduction: global project context (refinery, petrochemicals and chemicals project types, project stages).
Preliminary studies: project evaluation process, conceptual studies, pre-FEED, project economics, technical deliverables, preliminary project planning (global project schedule, CAPEX estimate, risks management plan, project execution strategy).

Basic Engineering (FEED)
Technical package and project planning, project team organization, FEED management, execution sequence, deliverables, process licensors packages, EPC stage schedule, CAPEX estimate, project execution strategy, project execution plan update. FEED contract types.

Contracting
Contracting strategy (project breakdown into contracts), EPC stage contract types and comparison, endorsement of company items, of FEED and other contracts, EPC tendering process, EPC contract bid preparation and tender evaluation.

EPC project organization and execution
Organization charts, role of project manager, EPC stage objectives & project execution plan.

HSE - Quality and risk management
HSE management: tools & techniques for safety & environment design, project reviews, safety concept & safety dossier. HSE during construction phase, HSE reporting for projects.
Quality management: quality plan, quality control, quality surveillance.
Risk management: types of risk, evaluation of cost and schedule risks, contingencies, risk management tools.

Scheduling and progress control
Project control process, schedule elaboration, progress curves, critical path, software tools, progress control, recovery plan.

Cost control, reporting, documentation control systems
Cost control principles, initial budget elaboration, final cost estimation, invoicing, project reporting, documentation control systems.

Detail engineering and procurement
Detail engineering management: process, main deliverables, project reviews, engineering systems.
Management of changes and change requests.
Procurement management: strategy, procurement of Long Lead Items, procurement management organization & execution (purchasing, expediting, inspection, shipping), material control systems, other procurement systems.

Construction
Construction/Fabrication challenges, contractors & resources, subcontract types, construction & fabrication strategy. Construction at site: construction execution plan and management, HSE management, schedule, progress control, quality management. Construction methods (prefabrication, modularization, transportation, delivery/erection), interface with commissioning.

Coordination: Alain Boyard

Can be tailored to your specific needs and made available at the location of your choice

For additional in-house courses, please see the In-house Training section page 114

Refining & Chemicals | www.ifptraining.com | IFP Training

Language | Dates | Location | Fees | Registration Contact
--- | --- | --- | --- | ---
EN | Nov 16 - 20 | Rueil | 2,710 € | rc.rueil@ifptraining.com
Project Management

Medium Size and Revamping Projects

Level: Foundation

AGENDA

Introduction and preliminary studies

0.5 d

Introduction: global project context (overview of plants and projects types, of plant management organization), project stage-gate process, specific aspects of projects within existing facilities (impacts, risks, schedule, work during operation and shut-downs), availability of resources for project execution (Owner and Engineering Contractor).

Preliminary studies: technical studies (comparison of alternates, concept selection, value engineering and cold-eye reviews), project team organization, concept study technical deliverables, preliminary project planning (global project schedule, CAPEX estimate, project economics, risks management plan, project execution plan).

Basic Engineering (FEED)

0.5 d

Project team organization company & contractor, FEED management, execution sequence, deliveries, process licensors packages, EPC stage schedule, CAPEX estimate, project execution strategy, project execution plan update. FEED contract types.

Contracting

0.5 d

Contracting strategy, EPC contract types and comparison, EPC contract bid preparation and evaluation.

EPC project organization & execution, engineering and procurement

1 d

Organization & execution management: organization of Owner & of EPC contractor, project management skills, EPC stage objectives & project execution plan update.

Detail Engineering management: management process, main deliverables, project reviews, owner control of detail engineering, interfaces management, engineering systems.

Procurement management: procurement strategy, specific aspects for projects in existing facilities, procurement of Long Lead Items, procurement management organization & execution (purchasing, expediting, inspection, shipping), control of procurement, material control systems, other procurement systems.

HSE - Quality and Risk management

0.5 d

HSE management: tools & techniques for HSE design, project reviews, safety dossier.

Quality management: quality plan, quality control, quality surveillance.

Risk Management: HSE risk mitigation, cost and schedule risk, available software tools, risk management plan approval.

Project control (cost/schedule, cost and progress control)

1 d


Specific aspects of Revamping projects (shutdown considerations, scheduling of shutdown works).

Cost estimate and control principles, initial budget elaboration, preliminary and final cost estimation techniques, invoicing, project reporting, documentation control systems. Contingency plans.

Construction - Commissioning - Start-up

1 d

Construction/fabrication challenges, contractors & resources, subcontract types, construction & fabrication strategy. Construction at site: construction execution plan and management, HSE management, schedule, progress control, quality management. Pre-fabrication.

Specifics for revamping projects: construction challenges, construction work safety control, shut-downs time minimization, pre-shutdown and shut-down works preparation & control.

Completion activities definition, methodology, sequence and completion dossiers.

Commissioning systems, contractual organization, management of punch-list items, specifics for revamping projects.

WAY AND MEANS

- Numerous examples taken from actual refining/chemical projects.

- A case study is used throughout the course to study all stages of the project, with exercises for participants.

Coordinator: Alain Boyard

Can be tailored to your specific needs and made available at the location of your choice

For additional in-house courses, please see the In-house Training section page 114
Estimation and Cost Control

4 Days

AGENDA

Project stage-gate process
Reminder of the process and of the main stages. Purpose of a project. Definitions. Importance of cost control. Economic and HSE justification. Cost types. Capital vs Expense. CAPEX vs OPEX.

Project cost estimating methods
Definitions
Cost references, estimating classes (AACEI). Direct and Indirect costs. Work/Cost Breakdown Structure and importance for cost estimators.
Conceptual/preliminary stages
Escalation and inflation, Nelson-Farrar indices, localization factors.
FEED & contracting stages
Semi detailed estimate, detailed estimate. Key role of engineering studies. Elements needed for final approval by Owner and EPC contract endorsement. Role and responsibilities of Owner and Contractor, depending on stage and EPC contract type. Estimating the cost of main equipment, of works, of engineering services. Owner costs. Available software packages and databases. Importance of feedback.
Cost risk analysis

Cost control
Principles and purpose of cost control. Responsibilities of Owner and EPC Contractor.

WAYS AND MEANS

- Each type of estimating method is illustrated by a practical cost estimating exercise.
- Some applications may be done with Excel spreadsheets.
- Use of Internet references (AACEI, Oil&Gas Journal, well-known software tools and databases).
- Group discussions to share feedback experience from participants on actual projects.

AUDIENCE

Project engineers and managers, engineering contractors, equipment and services providers.

LEARNING OBJECTIVES

- To estimate the cost of a project at various stages, using an accurate database.
- To evaluate the accuracy of this cost estimate and the main risks of cost overrun.
- To control the cost of a project during execution.

PurPOSE

To provide a structured and comprehensive understanding of oil and gas projects cost estimation and control.

Language Dates Location Fees Registration Contact

<table>
<thead>
<tr>
<th>LANGUAGE</th>
<th>DATES</th>
<th>LOCATION</th>
<th>FEES</th>
<th>REGISTRATION CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN</td>
<td>Mar 24 - 27</td>
<td>Rueil</td>
<td>2,370</td>
<td><a href="mailto:rc.rueil@ifptraining.com">rc.rueil@ifptraining.com</a></td>
</tr>
</tbody>
</table>

Can be tailored to your specific needs and made available at the location of your choice.

For additional in-house courses, please see the In-house Training section page 114.
Engineering Management
Application to Oil & Gas Upstream Projects

Level: Foundation

AGENDA

Gaining a deep understanding of engineering
Organization and role of engineering in a project: parties involved, scope and sub-contracting.

0.5 d

Engineering discipline overview
Design basis and criteria.
Engineering activities and deliverables.
Input, output, content and constraints, sequence.
In the various disciplines: Process; Equipment/Mechanical; Plant layout; Health, Safety & Environment (HSE); Civil engineering; Material & Corrosion; Piping; Plant model; Instrumentation and control; Electrical; Field engineering.

1.5 d

Keys to a successful engineering execution
Understanding the schedule requirements: typical critical path of an Oil & Gas project, consequences for engineering, matching the procurement and construction schedule.
Internal constraints of the engineering schedule: interfaces between disciplines, vendor input, best practices.
Interface management: challenge and best practice.
How to meet the main challenge of delivering on schedule.
EPC execution model & the resulting key milestones for engineering + benchmarks.
What to put in place to control a contractor: how to effectively monitor progress, factors that could impact progress, meaningful KPI, requirements for progress reports.

1 d

WAYs AND MEANS
- Half of the training is devoted to hand-on exercises on engineering discipline and management tasks.
- Quiz at the end of each section to test knowledge acquisition.
- Interactive pedagogy: trainees are constantly led to think and learn by themselves.
- A 200-page guide will be provided to each trainee for future reference.

Linguist: Pascal Ricroch

Can be tailored to your specific needs and made available at the location of your choice
For additional in-house courses, please see the In-house Training section page 114

<table>
<thead>
<tr>
<th>LANGUAGE</th>
<th>DATES</th>
<th>LOCATION</th>
<th>FEES</th>
<th>REGISTRATION CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN</td>
<td>May 26 - 28</td>
<td>Rueil</td>
<td>2,020 €</td>
<td>PL <a href="mailto:pl.rueil@ifptraining.com">pl.rueil@ifptraining.com</a></td>
</tr>
<tr>
<td>EN</td>
<td>Sep 02 - 04</td>
<td>Rueil</td>
<td>2,020 €</td>
<td>PL <a href="mailto:pl.rueil@ifptraining.com">pl.rueil@ifptraining.com</a></td>
</tr>
</tbody>
</table>
# Quality & Risk Management in Projects

## Application to Oil & Gas Upstream Projects

### Level: Foundation

## PURPOSE

To explain the importance and management of quality for projects, and how to continuously improve project practices.

## AUDIENCE

Anyone involved in the management of industrial projects, in particular Oil & Gas projects.

## LEARNING OBJECTIVES

- To handle management of and by quality in projects, the stakes involved and benefits of feedback.
- To apply quality assurance, quality control, quality tools, human and material quality resources in the development of projects.
- To continuously improve project development methods to create added value for the company.

## AGENDA

### Quality management system

0.5 d


### Quality process and organization

0.5 d


### Quality control during execution

0.5 d

External and Internal Quality Audits. Surveillance plan: key principles, definition of surveillance levels and tasks, document control, meetings, management of non-conformances, management of records. Surveillance during Procurement and Construction: Organization, Methods, Tools and Resources needed for Quality control at supplier’s premises.

### Quality feedback and continuous improvement

0.5 d


### Risk management system

1 d

Definition of risk, gravity, probability, criticality. Risk identification methods, qualification, prioritization. Risk Register: organization, owners, meetings and stakeholders. Tools to monitor and update the Risk Register. Tools to put in place a Risk Mitigation system. Methods to follow up on progress and results.

## Ways and Means

- Extensive use of examples from actual Exploration & Production projects.
- Practical exercises: project objectives, surveillance plan, experience feedback, risk analysis+

## Coordinator

Camilo Arias-Rivera

---

**Can be tailored to your specific needs and made available at the location of your choice**

For additional in-house courses, please see the In-house Training section page 114

**Refining & Chemicals**

www.ifptraining.com

IFP Training
Contracts and Procurement
Application to Oil & Gas Upstream Projects

AGENDA

INTRODUCTION
- Different types of contracts.

CONTRACTING STRATEGY
- Assignment of main equipment.
- Endorsement of the Design Dossier.
- Interfaces between contracts.
- Contractors.
- Local content.
- Monopole/Oligopole.
- Single sourcing/Open Book Tendering.
- Patrimonial contracts (JOA, PSA...).
- Design Competition.
- Interfaces between Patrimonial Agreements and Operations Contracts.

CALL FOR TENDER PROCEDURES
- Tendering phase.
- Prequalification.
- Instructions to tenderers.
- Tender schedule.
- Tender evaluation procedure.
- Inflation and currency hedging.
- Final selection and contract award.
- Single source contract.
- Contractor bid preparation.

EPC CONTRACT CONTENT AND CORE ARTICLES, EXHIBITS
- Agreement (Articles and Annexes).
- Exhibits.
- Examples of Main articles.
- Vendor lists.

EPC CONTRACT, LIABILITY AND INSURANCE
- Insurance Basis.
- Knock for knock principle.
- Risk Assessment and Reduction.
- Claim Control for Projects.

PROCUREMENT, EXPEUTING, STOCK MANAGEMENT, TRANSPORTATION, CUSTOMS
- Procurement Strategy.
- Procurement Management Process.
- Procurement Management organization.
- Company Control of Procurement.
- Inspection.
- Procurement Systems.
- Material control.
- Logistics and Incoterms.

CONTRACT ADMINISTRATION
- Progress measurement and control.
- Change orders.
- Claim management.
- Closing, reception and warranties.

NEGOTIATION
- Principles and methodology.
- Case study.

LEVEL: Proficiency

Ways and Means
The course is illustrated by numerous examples taken from actual Exploration & Production project.

Coordinator: Camilo Arias-Rivera

Language Dates Location Fees Registration Contact
EN Mar 23 - 27 Rueil 3,060 € PL pl.rueil@ifptraining.com
EN Oct 26 - 30 Rueil 3,060 € PL pl.rueil@ifptraining.com
Commissioning and Start-Up of Process Units

Level: Proficiency

PURPOSE
To provide knowledge for the successful commissioning and start-up of a new plant.

AUDIENCE
Supervisors, engineers and technicians of refining, petrochemical and engineering companies. Operating and technical staff responsible for the commissioning and start-up of a new or upgraded plant.

LEARNING OBJECTIVES
- To learn how to plan and organize the start-up and acceptance of process units.
- To take into account the specific constraints of these activities.
- To solve problems related to financial, technical, operational and organizational aspects.

WAYS AND MEANS
- Numerous applications and cases studies.
- An interactive delivery method that draws on participants’ experiences.

AGENDA

1 d
Organization and risks management
Main steps: pre-commissioning, mechanical completion, commissioning, ready for start-up, start-up permit, performance test runs, temporary and final acceptance. Responsibilities of partners.
Plant breakdown into systems and sub-systems.
Reference documents: equipment specifications, PIDs, technology transfer manual, control loops, diagrams, …
Commissioning and start-up schedule.
Risks related to transient phases and utilities start-up: explosive atmospheres, nitrogen, steam, air, fuel gas.
Fluid behavior and related hazards: pressure, temperature, thermal expansion, vacuum, water hammer.
Changing risks between construction and start-up.
Management of changes.
Practical case studies on a typical process unit.

Commissioning
Commissioning activities. Cleaning: chemical cleaning, flushing and blowing.
Equipment drying and dynamic testings.
Practical exercise: steam flushing.
Preparation for the start-up of rotating equipment.
Case study on a typical process unit.

End of construction - Precommissioning
Precommissioning activities: hydraulic tests and equipment cleaning.
Mechanical acceptance, punch list classification, follow-up and close out.
Practical checks on construction standards: static equipment, instrumentation, utilities systems.
Standard precommissioning checks for rotating equipment.
Practical exercise: verification of static equipment installed on-site - Case study on a typical process unit.

Start-up and acceptance
Pre-start-up safety review - Start-up acceptance: checks required before oil-in.
Start-up: leak tests, air removal, plant feeding.
Transition towards industrial production: start-up and performance tests, temporary acceptance certificate, mechanical warranty period, final acceptance certificate.
Case study on a typical process unit.
Practical exercise: groupwork to establish acceptance checklists or commissioning and start-up procedures on equipment.

Note
This course is also available in Spanish.

Coordinator: Alain Giliberti

Language | Dates | Location | Fees | Registration Contact
--- | --- | --- | --- | ---
EN | Sep 28 - Oct 01 | Bahrain | 2,380 € | rr.rueil@ifptraining.com

Can be tailored to your specific needs and made available at the location of your choice

For additional in-house courses, please see the In-house Training section page 114

Refining & Chemicals  www.ifptraining.com  IFP Training
Maintenance Management - Equipment Availability Control

Level: Advanced

AGENDA

Maintenance policy
Safety, cost, schedule and quality objectives. Integration of the maintenance policy within the company.
Reliability methods: criticality Analysis, TPM, RCm.
Various types of maintenance: corrective, preventive, condition-based.
Applications: criticality rankings, priorities and spare parts management.
Maintenance subcontracting: reasons, risks and control.
Different types of maintenance contracts. Maintenance audits.
Inspection plans: goals of inspection department, links with maintenance work.
Risks Based Inspection and Safety Instrumented Systems (SIS).

Improving the reliability and maintenance costs
FMEA, RCm, Fault Tree analysis: application, basic techniques, estimates and probabilities.
Maintenance action plan and implementation.
Reliability Key Performance Indicators: MTBF, MTTR, availability.
“Bad actors” detection.
Redundancies studies, on-site spare management, models.
Overall cost of failure: non efficiency costs.
Life Cycle Cost (LCC). Application to investment choices.
Spare parts management: costs and risks.

Improving the maintenance work management
Routine maintenance: from the notification to the work acceptance.
Work scheduling: tasks sequencing, procedures and work planning.
Resources optimization.
From failures management to equipment management.
Operation department contribution to maintenance optimization.
Requirements for safety. Prevention.
Analysis and action plans following accidents related to maintenance department.

Turnaround management
Turnaround justification: local regulation, maintenance, projects, plant availability.
Turnaround frequency and objectives: date, safety, duration and cost.
Typical data used for a turnaround: scope, challenge.
Steering committee, organization and Key Performance Indicators.
Financial breakdown and cost estimate: maintenance and projects.

PURPOSE
To impart knowledge on how to implement a customized maintenance policy.
To provide the practical tools for implementing reliability engineering processes.

AUDIENCE
Engineers, supervisors and staff involved in maintenance in equipment availability control or in charge of maintenance.

LEARNING OBJECTIVES
- To implement and control maintenance policy.
- To set goals in terms of both overall and corporate efficiency.
- To understand reliability analysis and improvement techniques.
- To set up conditions for the successful management of unit turnarounds.
- To implement a subcontracting policy.

WAYS AND MEANS
- Numerous workshops and case studies illustrating the techniques studied and the topics discussed.
- The delivery method is interactive and based on participants’ own experience.

Coordinator: Olivier Silaire

5 Days

<table>
<thead>
<tr>
<th>LANGUAGE</th>
<th>DATES</th>
<th>LOCATION</th>
<th>FEES</th>
<th>REGISTRATION CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN</td>
<td>May 18 - 22</td>
<td>Rueil</td>
<td>2,500 €</td>
<td><a href="mailto:rc.rueil@ifptraining.com">rc.rueil@ifptraining.com</a></td>
</tr>
</tbody>
</table>