



Process Plant Start-up, Commissioning, & Troubleshooting



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Introduction:

There is an alarming trend in the industry to discount the potential of the Technical/Operations function for productivity improvement, product quality, and gains in market share. In This Process, Plant Start-up, Commissioning, and Troubleshooting training, participants understand the nature of problem-solving techniques and problem prevention in the operational/process environment. Excellent troubleshooting skills are the core competency for best-in-class industrial companies.

If your company's goals include minimizing downtime, this Process, Plant Start-up, Commissioning, and Troubleshooting course delivers rapid, safe Troubleshooting. Plant commissioning and start-up procedures initiate the successful operation of an installed or revamped process plant. The tasks that lead to bringing a plant or facility into full operation encompass preparatory checks, tests, calibrations, and adjustments required before normal operational use.

A process plant is an industrial environment designed to take raw materials and process them through various physical and chemical changes to produce a finished product. This production environment often involves complex machinery and intricate coordination of human and machine interfaces for optimal performance.

An intelligently devised process plant maintenance routine can avert unnecessary downtime, improve safety, extend equipment life, and reduce overall operation costs. Furthermore, such proactive maintenance fosters a reliable and predictable plant environment, enhancing the plant's troubleshooting capabilities and effectiveness.

Targeted Groups:

- General Managers are responsible for overseeing the plant start-up and commissioning.
- Operations and Maintenance Managers with direct line responsibility and staff support responsibility for delivering effective Plant Start-up and Commissioning.
- Plant Start-up and Commissioning Managers and Engineers.
- Technical personnel involved in supporting Plant Start-up and Commissioning activities.
- Supervisors and engineers, both operations and maintenance, are involved or likely to be involved in plant start-up and commissioning situations.
- Production, Maintenance Engineering, and Process Engineering personnel.

Course Objectives:

At the end of this Process, Plant Start-up, Commissioning, and Troubleshooting course, the participants will:

- Become a Top Gun Troubleshooter by acquiring new skills.
- Develop a structured approach to Troubleshooting and Problem Solving using common terminology and shared understanding.
- Point the way to Continuous Improvement in how they run their processes and make incremental efficiency gains.
- Understand the difference between having a techniques manual on the bookshelf - and making it work.
- Identify the motivated people who should be the champions of Troubleshooting and Problem Solving - and who should follow.
- Understand work practices that allow success in Troubleshooting and problem-solving by reducing the variability of your process.

Targeted Competencies:

By the end of this Process, Plant Start-up, Commissioning, and Troubleshooting training participants competencies will:

- The key stages of the commissioning process.
- Balancing the technical and management challenges of commissioning.
- Dealing with machinery and equipment-specific commissioning issues.
- Managing risks and solving the types of problems likely to occur during commissioning.
- The Operations Process was redefined.
- Maturity Indexing.
- Problem Analysis.
- People Issues.

Course Content:

Unit 1: Introduction and Preparation:

- Introduction to Process Plant Start-Up and Commissioning.
- Organization and Roles.
- Supplementary Topics.
- Cost Estimation.
- Spare Parts Planning.

Unit 2: Commissioning Strategy:

- Commissioning Strategy.
- Mechanical Completion and Integrity Checking.
- Pre-commissioning and Operational Testing.
- Start-up/Initial Operation.
- Testing and Acceptance.

Unit 3: Process Plant and Machinery-Specific Issues:

- Process Plant and Machinery Commissioning.
- Instrumentation and Control Systems.
- Preparing and Isolating Process Plants.

Unit 4: Management, Planning, and Control:

- The Start-Up and Commissioning Planning and Control.
- A Short-cut Approaches to Planning.
- Progress Monitoring and Control.
- Earned Value Analysis.

Unit 5: Managing Risks during Commissioning:

- Trouble Shooting and Problem Solving.
- Risk Management.
- Managing Safety and Quality.

Unit 6: Concepts:

- The nature of process problems affecting performance.
- Performance is defined in terms of generic variables: Speed, Quality, and Cost.
- Effort inputs in context.
- Asset-based or Business Process-based.
- Structured approach.
- The Operations Process was redefined.
- Configuration Operation and Optimization.
- Maturity Indexing: Planning, Control, Congruence, Empowerment.
- 6 Big Losses, 7 Wastes.

Unit 7: Tools and Techniques:

- Interactive and Dynamic variable relationships analysis.
- Techniques introduction.
- Tools introduction.
- Problem Analysis.
- Practical Use of Tools and Techniques.
- Tools and Techniques - selecting the right one.

Unit 8: People Issues:

- Working practices - empowerment or impairment?
- Group dynamics.
- Individual motivators.
- Developing Troubleshooting and Problem-Solving skills.
- Managing change.

Unit 9: Operator, Maintainer, Designer Interface:

- Cross-functional and Teamworking.
- Introduction to the Theory of Inventive Problem Solving.
- Auditing your process to a dynamic standard.
- Effect of Maintenance/Operations strategy.
- Development of Standards and Key Performance Indicators.
- Life Cycle Costing, Design for Operation, Design for Maintenance.
- Revisit Concepts, Tools, and Techniques.