



Process Plant Startup, Commissioning & Troubleshooting Training Course





# Process Plant Startup, Commissioning & Troubleshooting Training Course

## Introduction

In the competitive and dynamic field of process plant operation, the strategic importance of the Technical/Operations function is often underestimated in its potential to drive productivity improvements, enhance product quality, and secure market share gains.

This process plant startup, commissioning, and troubleshooting training course is meticulously designed to impart the fundamental principles of problem-solving and problem prevention within an operational or process environment.

Mastering excellent troubleshooting skills is identified as a core competency among best-in-class industrial corporations. Organizations seeking to minimize system downtimes will find this process plant startup, commissioning, and troubleshooting workshop indispensable, as it is centered on delivering prompt and secure Troubleshooting methodologies.

## Commissioning and Startup

The Commissioning and Startup phase of a plant involves a series of critical tasks that ensure a newly constructed facility or revamped unit is technically sound, functioning optimally, and ready for operation. This phase encompasses everything from testing individual pieces of equipment to ensuring that the plant operates as an integrated whole.

This process plant startup, commissioning, and troubleshooting training course will delve into these stages, providing detailed guidance on Startup Commissioning, steering through the intricacies of startup and commissioning, and ensuring that participants are well-versed with the best processes for troubleshooting.

## Targeted Groups

- General Managers have oversight responsibilities for plant startup and commissioning.
- Operations and Maintenance Managers have direct responsibility or staff support roles in plant startup and commissioning.
- Commissioning Managers, Engineers, and Technical Personnel are seeking support for plant startup and commissioning initiatives.
- Supervisors and Engineers from both Operations and Maintenance engaged or potential participants in Plant Startup and Commissioning.
- Production, Maintenance Engineering, and Process Engineering Staff.

## Course Objectives

At the end of this process plant startup, commissioning, and troubleshooting course, the participants will be able to:

- Acquire advanced troubleshooting skills to become a top gun troubleshooter.
- Learn a structured approach to troubleshooting and problem-solving with a common terminology and shared understanding.
- Discover the pathway to continuous improvement in operational processes for incremental efficiency gains.
- Discern the difference between merely possessing a techniques manual and actively implementing it.
- Identify key personnel who should champion troubleshooting and problem-solving and those who should follow suit.
- Comprehend work practices that encourage success in troubleshooting and problem-solving by minimizing process variability.

## Targeted Competencies

Upon the end of this process plant startup, commissioning, and troubleshooting course, the target competencies will be able to improve:

- Understand the critical stages of the commissioning process.
- Balance technical and managerial challenges in commissioning.
- Handle machine and equipment-specific commissioning issues.
- Understand effective management of risks and problem-solving during commissioning.
- Re-defining the operations process.
- Utilize maturity indexing.
- Competency in problem analysis.
- Address people's topics relevant to the process.

## Course Content

### Unit 1: Introduction and Preparation

- Overview of process plant startup and commissioning.
- Organizational roles and responsibilities.
- Additional subjects.
- Techniques for cost estimation.
- Plan for spare parts.

## **Unit 2: Commissioning Strategy**

- Develop a commissioning strategy.
- Learn about mechanical completion and integrity checks.
- Understand pre-commissioning tasks and operational testing methodologies.
- Learn about the initial phase of startup/initial operation.
- What are detailed testing and acceptance criteria?

## **Unit 3: Process Plant and Machinery-Specific Issues**

- Specialize in commissioning for process plants and machinery.
- Commission of instrumentation and control systems.
- Learn about procedures for preparing and isolating process plants.

## **Unit 4: Management, Planning, and Control**

- Learn about strategic planning and control for startup and commissioning.
- Accelerate planning techniques.
- Understand effective monitoring and control of progress.
- Overview introduction to earned value analysis.

## **Unit 5: Managing Risks during Commissioning**

- Adopt best practices for troubleshooting and problem-solving.
- Stringent risk management.
- Uphold safety and quality during the commissioning process.

## **Unit 6: Concepts**

- Explore the nature of process issues that affect performance.
- Define performance through generic variables speed, quality, and cost.
- Contextualizing effort inputs.
- Differentiate between asset-based and business process-based methods.
- Structured approaches to challenges.
- Clarify the operations process.
- Overview of configuration, operation, and optimization.
- Learn about maturity indexing in terms of planning, control, congruence, and empowerment.
- Understand the 6 significant losses and the 7 wastes concepts.

## **Unit 7: Tools and Techniques**

- Understand the analysis of interactive and dynamic variable relationships.
- Understand the introduction to various techniques and tools.
- In-depth problem analysis.
- Learn about the practical application of tools and techniques.
- Choose the appropriate Tools and techniques methods.

## **Unit 8: People Issues**

- Discuss the impact of working practices on empowerment.
- Learn about group dynamics and their relevance to commissioning.
- Identify individual motivators.
- Develop troubleshooting and problem-solving expertise.
- Manage change within the organization.

## **Unit 9: Operator, Maintainer, Designer Interface**

- Foster cross-functional and teamwork skills.
- Understand the introduction to the theory of inventive problem-solving TRIZ.
- Auditing processes against dynamic standards.
- Analyze the effects of maintenance/operations strategies.
- Develop standards and critical performance indicators.
- Emphasize life cycle costing, design for operation, and design for maintenance.
- Review of concepts, tools, and techniques.