

Introduction:

The startup and commissioning of new plants and equipment are complex tasks that involve significant technical and management challenges. It is essential for personnel to become familiar with the new equipment, processes, and advanced technologies. Additionally, the creation of appropriate operational and safety procedures is crucial for the success of the process.

This training course on process plant commissioning and startup offers an integrated approach to the key activities required for the safe, effective, and timely commissioning and startup of a new plant or facility.

Commissioning Management and Startup Strategies:

Understanding the fundamentals of commissioning management is vital for carrying out startup and commissioning tasks. This course includes a dedicated section that focuses on the complexities of managing the commissioning of equipment and ensuring that all commissioned equipment meets operational standards.

Special emphasis is placed on equipment commissioning, machinery commissioning, and machine commissioning—critical components that drive the successful commissioning and startup of process plants. Throughout the course, participants will be guided on how to handle the technical challenges associated with these tasks and apply efficient commissioning strategies.

Target Audience:

- General Managers overseeing plant startup and commissioning activities.
- Operations and Maintenance Managers with responsibility for and staff support during plant startup and commissioning.
- Plant Startup and Commissioning Managers and Engineers.
- Technical personnel supporting plant startup and commissioning operations.
- Supervisors and Engineers involved in the plant startup and commissioning process.

Course Objectives:

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

1. Understand the six key stages of the commissioning process.
2. Develop a comprehensive strategy for commissioning and plant startup.

3. Address commissioning challenges specific to machinery and equipment.
4. Handle the commissioning of Electrical, Instrumentation, and Utility Systems.
5. Create a commissioning management plan, resource plan, and budget.
6. Apply troubleshooting and problem-solving techniques to resolve issues during startup and commissioning.
7. Assess and manage risks associated with the commissioning phase.

Targeted Competencies:

Upon completion of the course, participants will be able to:

1. Understand the key stages of the commissioning process.
2. Balance both technical and managerial aspects of the commissioning process.
3. Address commissioning challenges related to specific machinery and equipment.
4. Effectively manage risks and resolve problems that may arise during commissioning.

Course Content:

Unit 1: Introduction and Preparation

- Overview of the process plant startup and commissioning.
- Organizational structures and roles.
- Estimating costs for commissioning.
- Preparing for spare parts and materials.

Unit 2: Commissioning Strategy

- Developing a commissioning strategy.
- Mechanical completion and integrity checking.

- Understanding pre-commissioning and operational testing procedures.
- Strategies for startup and initial operations.
- Conducting tests and obtaining system acceptance.

Unit 3: Process Plant and Machinery-Specific Issues

- Detailed insights into process plant and machinery commissioning.
- Considerations for instrumentation and control systems.
- Steps for preparing and isolating process plants for commissioning.

Unit 4: Management, Planning, and Control

- Planning and controlling the startup and commissioning process.
- Adopting streamlined approaches to commissioning planning.
- Techniques for monitoring and controlling commissioning progress.
- Implementing earned value analysis during the commissioning phase.

Unit 5: Managing Risks During Commissioning

- Strategies for troubleshooting and problem-solving during commissioning.
- Principles of risk management throughout the commissioning process.
- Ensuring safety and maintaining quality during commissioning.
- Final thoughts and conclusions on the commissioning process.

By completing this course, participants will be well-equipped to manage the complex tasks associated with process plant startup and commissioning, ensuring that these projects are executed smoothly, efficiently, and safely.