



Process Plant Start-up, Commissioning  
& Troubleshooting



# Process Plant Start-up, Commissioning & Troubleshooting

## Introduction:

There is an alarming trend in the industry to discount the potential contribution of the Technical/Operations function to productivity improvement, product quality, and gains in market share. Principles taught in this training session will help you to understand the true nature and different techniques of problem-solving and problem prevention in the operational/process environment.

Excellent Troubleshooting skills are considered a core competency for 'Best-in-Class' industrial companies. If your company's goals include minimizing downtime then this workshop is a must because it delivers rapid, safe Troubleshooting

## Targeted Groups:

- General Managers who have oversight responsibility for Plant Start-up and Commissioning
- Operations and Maintenance Managers with direct line responsibility as well as staff support responsibility for delivering on 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 who 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 course the participants will be able to:

- Become a 'Top Gun' Troubleshooter by acquiring new skills
- Develop a structured approach to Troubleshooting and Problem Solving which uses a common terminology and shared understanding
- Point the way to Continuous Improvement in the way 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 just follow
- Understand work practices which "allow" success in Troubleshooting and Problem Solving through reducing the variability of your process

## Targeted Competencies:

- 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 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 & 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 Plant

### **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 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 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 & 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