Process Plant Start Up, Commissioning & Troubleshooting

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Introduction

In the fast-paced and competitive world of industrial operations, the potential contributions of Technical Operations to improving productivity, product quality, and market share are often overlooked. However, effective troubleshooting and commissioning are core elements that can significantly boost operational performance. This course is designed for process plant operators, maintenance teams, and engineering professionals who are involved in the start-up, operation, and troubleshooting of industrial processes. Participants will gain valuable insights into the principles and techniques of problem-solving, problem prevention, and the commissioning of process plants. The course covers the latest research and practical tools, helping you minimize downtime and optimize operational efficiency.

By the end of this course, you will not only understand the technical aspects of plant commissioning, start-up procedures, and troubleshooting but also learn how to implement these skills effectively in your organization to achieve continuous improvement and reduce process variability.

Course Objectives

- Become a Top Gun Troubleshooter: Acquire new, actionable skills to identify and resolve process issues quickly and effectively, improving operational performance.
- Develop a Structured Troubleshooting Approach: Learn how to use common terminology and a shared understanding to approach troubleshooting and problem-solving in a systematic way.
- Drive Continuous Improvement: Understand how to implement incremental changes that lead to long-term improvements in efficiency and effectiveness.
- Bridge the Gap Between Theory and Practice: Learn how to move from just reading technique manuals to actually implementing troubleshooting methods in real-life operational environments.
- Identify Champions for Troubleshooting: Discover how to identify and empower individuals who should lead problem-solving efforts while others follow.
- Achieve Success Through Process Consistency: Learn the importance of reducing process variability and implementing best practices to ensure successful troubleshooting and problem-solving.



Course Outlines

Day 1: Introduction and Preparation

- Introduction to Process Plant Start-Up and Commissioning: An overview of the commissioning of process plants and start-up procedures. Understand the roles, responsibilities, and key steps involved.
- Organization and Roles: Learn about the structure of teams involved in plant commissioning and start-up, including operators, engineers, and maintenance teams.
- Supplementary Topics: Cost estimation, spare parts planning, and developing an effective commissioning strategy.
- Mechanical Completion and Integrity Checking: Focus on how to ensure mechanical integrity and complete pre-commissioning checks.
- Start-Up and Testing: Learn the processes involved in initial operation, testing, and acceptance procedures.

Day 2: Process Plant and Machinery Specific Issues

- Process Plant Commissioning: Dive deeper into commissioning procedures for specific plant processes and machinery, ensuring a smooth start-up.
- Instrumentation and Control Systems: Understand the integration of instrumentation and control systems in the commissioning process.
- Planning and Control: Explore best practices in start-up planning, monitoring progress, and control.
- Earned Value Analysis: Learn how to use this technique to measure the progress of commissioning.

Day 3: Managing Risks during Commissioning

- Troubleshooting and Problem Solving: Understand the essential techniques for identifying and resolving problems during the commissioning process.
- Risk Management: Learn about effective risk management strategies during commissioning and plant start-up.
- Managing Safety and Quality: Focus on ensuring that safety and quality standards are met during commissioning.
- Performance Variables: Study performance in terms of speed, quality, and cost, and identify the common causes of performance issues in process plants.



Day 4: Tools and Techniques - Practical Experience

- Interactive Problem Analysis: Learn how to analyze dynamic relationships within the process and troubleshoot effectively using structured techniques.
- Tools Introduction: Gain hands-on experience with troubleshooting tools and techniques tailored to process plants.
- Case Studies: Review real-world troubleshooting case studies to apply learned concepts.
- Selecting the Right Tools: Understand how to choose the appropriate troubleshooting tools for various issues and situations in your plant operations.
- People Issues: Address the human element of troubleshooting, including empowerment, group dynamics, and individual motivators.

Day 5: Operator, Maintainer, Designer Interface

- Cross-Functional Teamworking: Learn how to foster collaboration between operators, maintainers, and designers during commissioning and troubleshooting.
- Theory of Inventive Problem Solving: Gain insight into the TRIZ methodology and other inventive problem-solving techniques to enhance troubleshooting skills.
- Auditing Process Standards: Learn how to audit your processes to ensure compliance with dynamic operational standards.
- Life Cycle Costing and Design for Maintenance: Understand how to consider life cycle costs and design processes that are easy to maintain and optimize during the plant startup.
- Open Forum: Revisit the concepts, tools, and techniques learned during the course and create an action plan for implementing them within your organization.

Why Attend This Course: Wins & Losses!

- Enhanced Troubleshooting Skills: Participants will gain the knowledge and skills needed to identify and resolve issues quickly and effectively, ensuring smoother plant startup and fewer operational disruptions.
- Structured Approach to Problem Solving: Learn how to apply a consistent and methodical approach to troubleshooting that can be used across various plant operations.
- Increased Operational Efficiency: By minimizing downtime and improving problem-solving methods, you will help optimize plant performance, leading to increased productivity.
- Real-World Application: The course includes practical tools, case studies, and hands-on experience, ensuring that participants can immediately apply what they've learned to their daily work.



Conclusion

The Commissioning & Troubleshooting course is a crucial investment for anyone involved in process plant operations, from operators and maintenance teams to engineering professionals. The knowledge gained will help you minimize downtime, improve process reliability, and ensure smooth plant startup procedures. By understanding the essential techniques of troubleshooting, problem-solving, and commissioning, you will be equipped to handle challenges in process plants effectively, leading to long-term improvements in efficiency, safety, and cost-effectiveness. This course will empower you to take control of your processes, optimize plant performance, and contribute to continuous improvement within your organization.

