Instrumentation & Controls

Process Plant Troubleshooting

Course Introduction

This course is designed to equip participants with comprehensive knowledge and practical skills for troubleshooting process plants. The course covers fundamental principles of plant operations, the diagnostic techniques used to identify issues, and effective solutions to restore optimal performance. Through hands-on exercises, real-life case studies, and expert guidance, participants will be empowered to tackle plant inefficiencies, equipment failures, and process disruptions.

Target Audience

- Process engineers and plant operators.
- Maintenance engineers and technicians.
- Production supervisors and plant managers.
- Engineers involved in process optimization and troubleshooting.

Learning Objectives

- Diagnose and troubleshoot common issues in process plants.
- Analyze process data to identify root causes of equipment and process failures.
- Apply systematic troubleshooting methodologies.
- Enhance plant performance through effective problem-solving strategies.
- Implement preventive measures to minimize operational disruptions.

Course Outline

- **01 Day One**

Introduction to Process Troubleshooting and Systematic Approaches

Session 1: Overview of Process Plant Operations

- Introduction to process plants and key operational parameters.
- Common challenges and issues encountered in plant operations.

Session 2: Systematic Troubleshooting Methodologies

- The importance of a structured approach to troubleshooting.
- Step-by-step diagnostic process: observation, analysis, and solution.
- Tools and techniques for effective problem identification.

Session 3: Root Cause Analysis (RCA)

- Introduction to RCA and its significance in troubleshooting.
- Methods for performing RCA in process environments.
- Techniques for gathering process data and using it for failure analysis.

Session 4: Case Study: Troubleshooting Process Inefficiencies

- Real-life case studies focused on diagnosing process inefficiencies.
- Group discussion and exercise on identifying root causes

- **02 Day Two**

Troubleshooting Equipment and Process Failures

Session 1: Troubleshooting Common Equipment Failures

- Identifying issues in pumps, compressors, heat exchangers, and valves.
- Common symptoms and failure modes of process equipment.
- Techniques for resolving equipment-related issues in process plants.

Session 2: Process Flow and Control Issues

- Troubleshooting flow inconsistencies, pressure imbalances, and control loop failures.
- Diagnosing control valve issues and instrumentation problems.
- Understanding process upsets and their impact on plant operations.

Session 3: Troubleshooting Process Variables

- Examining temperature, pressure, flow, and composition variances.
- Analyzing deviations from process setpoints and their root causes.
- Practical techniques for correcting abnormal process conditions.

Session 4: Case Study: Equipment and Process Troubleshooting

- Analysis of real-world cases where process and equipment failures occurred.
- Participants work in groups to identify and resolve the issues.

- **03 Day Three**

Advanced Troubleshooting Techniques and Preventive Measures

Session 1: Advanced Troubleshooting Tools and Software

- Overview of diagnostic tools and software used in modern process plants.
- Using predictive analytics and data-driven approaches to prevent failures.
- Applying advanced monitoring systems to enhance troubleshooting efficiency.

Session 2: Preventive and Predictive Maintenance Practices

- Implementing preventive maintenance to reduce plant downtime.
- Integrating predictive maintenance with troubleshooting efforts.
- Monitoring equipment health and performance trends.

Session 3: Best Practices in Plant Troubleshooting

- Guidelines for developing a troubleshooting culture in the workplace.
- Continuous improvement strategies for enhancing plant reliability.
- Building effective communication between operations and maintenance teams.

Session 4: Final Case Study and Troubleshooting Exercises

- Participants apply the course concepts to a comprehensive troubleshooting scenario.
- Group presentations and peer evaluations.
- Final Q&A session and course wrap-up.

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
June 23, 2025	June 25, 2025	3 days	4250.00 $	UAE - Dubai
Oct. 23, 2025	Oct. 25, 2025	3 days	4950.00 $	Spain - Madrid
Nov. 24, 2025	Nov. 26, 2025	3 days	4250.00 $	UAE - Abu Dhabi
Dec. 6, 2025	Dec. 8, 2025	3 days	4950.00 $	Bahrain - Manama