

COMPRESSOR CONTROL SYSTEM CCS: OPERATION & TROUBLESHOOTING



OUR ACCREDITATION & PARTNERS



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OVERALL DESCRIPTION:

This program goes beyond the basics to provide your personnel with the practical skills needed to not just operate the Compressor Control System (CCS), but to truly master it. We will bridge the gap between theoretical knowledge and real-world application, offering a hands-on approach to diagnosing issues with precision and confidence. The ultimate goal is to build a team that can ensure maximum uptime, enhance operational safety, and protect your organization's most critical assets.

Course Objectives:

Upon completion of this course, participants will have the knowledge and skills to:

- **Recognize** the critical components and control philosophies of various compressor systems.
- **Diagnose** common operational and control issues using a structured and systematic approach.
- **Implement** best-practice procedures for safe and efficient startup, shutdown, and process optimization.
- **Analyze** alarm and fault codes to accurately pinpoint the root cause of a problem.
- **Apply** advanced troubleshooting techniques to resolve complex control system malfunctions.
- **Enhance** system reliability and safety through a comprehensive understanding of protective logic and interlocks.

Course Outline:

- **Introduction to Compressor Control Systems**
 - Types of compressors and their control requirements
 - Understanding the control loop and instrumentation
 - Control philosophies: analog vs. digital, hardware vs. software



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Course Outline:

- **Anti-Surge and Performance Control**
 - Anti-surge control theory and its critical role in asset protection
 - Tuning and calibration of anti-surge controllers
 - Optimizing compressor performance and efficiency
- **Advanced Operations and Process Integration**
 - Sequential logic for safe startup and shutdown
 - Load sharing and system integration for multiple compressors
 - Process variable monitoring and key performance indicators (KPIs)
- **Systematic Troubleshooting and Diagnostics**
 - Structured fault-finding methodologies
 - Analyzing HMI and annunciator alarms
 - Sensor, transmitter, and final control element diagnostics
 - Practical lab scenarios for hands-on troubleshooting
- **Safety, Maintenance, and Emerging Technologies**
 - Understanding safety interlock systems (SIS)
 - Predictive and preventive maintenance strategies for CCS
 - Introduction to modern control technologies and data analytics

WHO SHOULD ATTEND?

- Instrumentation and Control Technicians
- Maintenance and Reliability Engineers
- Plant Operators and Supervisors
- Process Engineers
- Commissioning and Startup Engineers
- Anyone responsible for the performance and safety of centrifugal or axial compressor systems.

Course Methodology:

We utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This training course will be conducted as a highly interactive workshop session. A variety of training methodologies will be used Before and during the course whenever applicable. Some of these methods are gamification, online pre-post test, role plays, self-assessment instruments, group exercises & case studies.

