

2017 Training Schedule



Course 1100: Gas Regulator Technician

CEUs : 2.1.

Designed primarily for technicians responsible for the installation and maintenance of natural gas regulators. Emphasizing hands-on training, this course teaches students to install, troubleshoot, and adjust gas regulators.

Topics :

- Self-Operated Regulators
- Pilot Operated Regulators
- Overpressure Protection
- Series Regulation
- Monitors
- Slam Shut Options
- Regulator Failure Analysis
- Troubleshooting and Installation

<u>Date</u>	<u>Location</u>
Oct 31-Nov 2	Charlotte, NC



Course 1106 : Gas Regulator Troubleshooting

CEUs : 2.1

Actual gas regulator problems are simulated in the Workshops challenging the student to efficiently diagnose problems and restore the regulator to proper operation.

Topics :

- Self-Operated Regulator Fundamentals
- Pilot Operated Regulator Fundamentals
- Overpressure Protection
- Sizing Overview
- Stability Issues
- Installation Practices
- Regulator Troubleshooting Principles, Procedures and Best Practices
- Pilot Interchangeability Practices
- Failure Analysis

<u>Date</u>	<u>Location</u>
Aug 8-10	Charlotte, NC



Course 1300 : Control Valve Engineering

CEUs : 2.1

This course reviews design and operating principles of control valves, actuators, positioners and related accessories. It describes the sizing and selection methods for a broad variety of control valve assemblies.

Topics :

- Control Valve Selection: Rotary/Sliding Stem
- Actuator Selection and Sizing
- Liquid Valve Sizing
- Gas Valve Sizing
- Positioners and Transducers
- Valve Application Guidelines
- Valve Characteristics
- Valve Packing Considerations

<u>Date</u>	<u>Location</u>
July 11-13	Charlotte, NC
Nov 7-9	Richmond, VA



Course 1400 : Valve Technician I

CEUs : 2.1

Explains how valves and actuators function and how they are installed and calibrated. Emphasizes installation, troubleshooting, parts replacement, and calibration of control valves, actuators, and digital valve controllers.

Topics :

- Control Valve Terminology
- Globe / Ball / Butterfly Valves
- Packing
- Actuators, Positioners, and Digital Control Valves
- Bench Set
- Seat Leak Testing
- Eccentric Disc Valves
- Valve Characteristics

<u>Date</u>	<u>Location</u>
Aug 1-3	Charlotte, NC
Oct 10-12	Richmond, VA



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Course 1450 : Valve Technician II

CEUs : 2.1.

This course discusses a basic approach to troubleshooting and correcting many common control valve problems; cavitation, flashing, and aerodynamic noise and common solutions.

Topics :

- Control Loop Basics
- Influences on Loop Performance
- Control Valve Selection and Sizing
- Valve Troubleshooting
- Actuator Troubleshooting
- Instrument Selection
- Basic Instrument Troubleshooting
- Severe Services Considerations

<u>Date</u>	<u>Location</u>
Oct 24-26	Charlotte, NC



Course 2025 : Wireless Self Organizing Network

CEUs : 2.1

This course combines courses 2025 & 2375

Topics :

- Vibration Basics and Terminology
- Import Data into AMS Machinery Manager
- View Data using AMS Machinery Manager
- Troubleshooting and Maintenance
- Correctly Install and Setup the 1420 Wireless Gateway
- Properly Install and Configure Wireless Transmitters
- Properly Integrate Host Interfaces to the Wireless Gateway

<u>Date</u>	<u>Location</u>
Dec 5-7	Richmond, VA



Course 2032 : Intermediate Vibration Analysis

CEUs :2.8

This course complies with Category II Vibrations Analyst per ISO standard 187436-2: Vibration condition monitoring and diagnostics.

Topics :

- Equipment Testing and Diagnostics
- Phase Analysis using Single and Dual Channel
- Reporting and Documentation
- Fault Severity Determination, Reference Standards
- Analyzer Averaging Techniques
- Sideband Analysis, Pump/fan Vibration
- Rolling Element Bearing Failure Modes
- Advanced Electrical Analysis Techniques

<u>Date</u>	<u>Location</u>
June 26-30	Charlotte, NC



Course 2033 : Advanced Vibration Analysis

CEUs : 2.1

This course complies with Category III Vibration Analyst per ISO standard 18436-2: Vibration condition monitoring and diagnostics.

Topics :

- Specify Appropriate Vibration Instrumentation Hardware for Both Portable and Permanently Installed Systems
- Perform Spectrum and Time Waveform Analysis Under Both Steady-State and Unsteady Operating Conditions.
- Establish Specifications for Vibration Levels and Acceptance Criteria for New Machinery
- Measure and Analyze Basic Operational Deflection Shapes (ODS)
- Measure and Analyze PeakVue Measurements
- Slow Speed Technology (SST)

<u>Date</u>	<u>Location</u>
July 31-Aug 4	Richmond, VA



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Course 2068 : Intro to AMS Suite: Machinery Health Manager

CEUs : 2.8.

Students learn methods of database creation and vital features of route creation such as collecting reference data, analyzer/computer communication, and the basic concepts of Analysis Parameter Sets, Alarm Limit sets, and Fault Frequency Sets.

Topics :

- Navigation
- Database Collection
- Data Collection
- Basic Analysis and Reporting
- Link to RBMview

<u>Date</u>	<u>Location</u>
Sept 26-29	Charlotte, NC



Course 5590 : DeltaV Power & Grounding/Electronic Systems

CEUs : 1.4

This course focuses on specific power and grounding requirements of a control system. You will learn: how to conduct site verifications, audit using "hands-on" testing labs, to detect power and grounding problems on existing sites.

Topics :

- Review of Power Basics, Power System Measurements, Low Voltage Power Systems
- Power System Grounding, Earthing vs Grounding, Code Requirements
- Building Power Distributions, Feeders
- Single Point Grounding,
- Isolated Ground Installations
- Power Quality Problems
- Applying Power Conditioning
- SIS Power & Grounding Installation

<u>Date</u>	<u>Location</u>
July 18-19	Richmond, VA



Course 7009 : DeltaV Implementation I

CEUs :3.2

Define system capabilities, define nodes, configure continuous and sequential control process alarms, operate alarms, operate the system, troubleshoot the system and modify operator displays.

Topics :

- System Overview
- DeltaV Explorer/Diagnostics
- Control Modules/Studio
- Motor/Cascade/Regulatory Control
- DeltaV Operate
- Alarms & Process History View
- Sequential Function Charts
- Configure Theme Dynamos

<u>Date</u>	<u>Location</u>
Aug 14-18	Richmond, VA



Course 7016: DeltaV Systems Batch Implementation

CEUs : 3.2

Covers the implementation of a batch application including Recipe Configuration, Aliasing, Phase Logic, Operations and Unit Procedures. Equipment entities will also be configured including, Unit modules and Process cells.

Topics :

- Batch Overview
- Unit Phase/Module/Procedure/Aliasing
- Alias Definition, Process Cell
- Class Based Control Modules
- Class Based Equipment Modules
- Operation, Equipment Trains
- Unit Aliasing
- Dynamic Unit Allocation

<u>Date</u>	<u>Location</u>
July 17-21	Charlotte, NC



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Course 7017 : DeltaV Implementation II

CEUs : 3.2

The student will be able to identify function block structures, interpret function block status values, design error masking, define nodes, configure class-based control modules using the Command-Driven algorithm.

Topics :

- Function Block Structures & Status Values
- Analog Control Palette Blocks
- HART Inputs and Outputs/Device Alarms
- AMS Intelligent Device Manager
- Unit Alarms
- DeltaV Tune and InSight
- Device Control Options
- Class Based Control Modules

<u>Date</u>	<u>Location</u>
Nov 6-10	Charlotte, NC



Course 7018 : DeltaV Hardware & Troubleshooting

CEUs : 2.8

Course material covers the hardware components that make up the DeltaV system. The student will assemble the system, power up the controller, I/O subsystem and work-station. Learn to use the diagnostic tools available to verify fault conditions.

Topics :

- DeltaV Overview
- Operator Alarms
- DeltaV Diagnostics/Smart Switches
- DeltaV I/O Cards and Carriers
- Controllers and Power Supplies
- Electronic Marshalling (CHARMs)
- HART I/O
- DeltaV and AMS Suite Intelligent Device Manager
- Redundant I/O

<u>Date</u>	<u>Location</u>
June 27-30	Charlotte, NC
Sept 25-28	Richmond, VA



Course 7025 : DeltaV Advanced Graphics

CEUs : 3.2

For process control engineers responsible for configuring advanced functionality in the DeltaV user interface. It expands on graphic topics covered in both the DeltaV Implementation I and DeltaV Implementation II.

Topics :

- Visual Basic Primer, Forms, Modules
- Schedules, User Preferences
- Picture Sizing
- Environmental Customization
- Custom Faceplates
- Function Block Faceplates
- FRS Function, Pop Up Menus
- Color Threshold Tables, Custom Dynamos

<u>Date</u>	<u>Location</u>
Aug 7-11	Charlotte, NC



Course 7027 : Administration Windows7/Server 2008

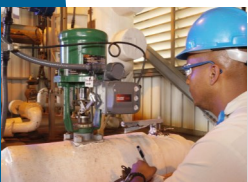
CEUs : 3.2

Course is designed for control system administrators, process engineers and IT specialists responsible for managing, installing, and commissioning a DeltaV system running on the Windows 7 operating system and Windows Server 2008.

Topics :

- Overview/Review of System Components and Topologies
- DeltaV Licenses, Database Administration
- User Administration
- Network Node Diagnostics
- Auto Update Service
- Cybersecurity Tools-Smart Firewall, Controller, Smart Switches
- Installation of the DeltaV Software and AMS Device Manager
- DeltaV Control Networks and Remote Access
- DeltaV Domains and Workgroups

<u>Date</u>	<u>Location</u>
July 17-21	Charlotte, NC



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Course 7029 : DeltaV Virtualization

CEUs : 3.2

Focuses on the installation, configuration and system administration of a virtualized DeltaV distributed control system.

<u>Date</u>	<u>Location</u>
Oct 23-27	Richmond, VA

Topics :

- Virtualization Primer
- Overview of DeltaV Virtualization Solutions
- Planning a DeltaV Virtual Studio System
- Cluster Health Monitoring & Troubleshooting
- Creating DeltaV Virtual Machines
- Configuring a WYSE Thin Client
- Create a Highly Available Fallover Cluster
- Upgrading and Capacity Expansion



Course 9025 : Control Loop Foundation

CEUs : 3.2

Course covers the concepts and terminology that are needed to understand and work with control systems. Upon completion, the student should be able to effectively work with and commission single and multi-loop control strategies. Interactive workshops.

<u>Date</u>	<u>Location</u>
June 5-9	Richmond, VA
Sept 11-15	Charlotte, NC

Topics :

- Basic Transmitter Types, Limitations, Analyzers
- Final elements-Valves and Variable Speed Drives
- Field Wiring and Communications
- Control Strategy Documentation
- Operator Graphics and Metrics
- Control Objectives
- Single and Multi Loop Control
- Tuning and Loop Performance
- Model Predictive Control
- Process Modeling



Course 9032 : Applied Modern Loop Tuning

CEUs : 2.1

Introduces participants to control loop troubleshooting and controller tuning. The non-oscillatory EnTech tuning techniques are based on Lamda concepts and taught with a focus on minimizing process variability. Learn how to recognize acceptable/unacceptable control loop performance and to identify the source of problems.

<u>Date</u>	<u>Location</u>
June 27-29	Charlotte, NC
Sept 12-14	Richmond, VA

Topics :

- Process Dynamics/Model Identification
- Self Regulating and Valve Non-linearity
- Control Resolution and Valve Non-linearity
- Operator Graphics and Metrics
- Pressure for Load Recovery and Setpoint Response
- Process Interactions
- Tuning Interactions, Cascade Control Tuning
- High-Fidelity Process Simulator Software



Course REM410 : Steam Boiler Operator Training

Provides information on virtually all facets of steam boiler operation, maintenance, and troubleshooting. Common boiler auxiliaries and operating techniques are covered in detail. Safety and efficiency of operation are stressed.

<u>Date</u>	<u>Location</u>
Aug 21-25	Richmond, VA
Oct 9-13	Charlotte, NC

- Boiler Operator's Workbook—Fourth Edition Included
- Licensing/Certification



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Course 7305: DeltaV—SIS Implementation

CEUs : 3.2

Course covers complete DeltaV SIS Implementation including hardware and software architecture. Also design of a DeltaV SIS Network and Safety Instrumented Functions.

Topics :

- DeltaV SIS Overview
- SLS 1508 Hardware Architecture
- Electronic Marshaling Hardware Architecture
- DeltaV Safety Instrumented Functions
- Rosemount SIS Instruments
- AMS Device Manager Relating to DeltaV SIS
- Fisher SIS Digital Valve Controllers
- SISNet Repeaters
- DeltaV SIS Security
- DeltaV Version Control

<u>Date</u>	<u>Location</u>
Oct 2-6	Richmond, VA

Course REM410A: Advanced Steam Boiler Operator Training

Provides information on virtually all facets of steam boiler operation, maintenance and troubleshooting. This advanced class gives attention to super-heated steam turbines and thermo-dynamics math problems. This is for Power Plant Operators Level 2—Chief.

- Workbook Stationery Engineering 5th edition included
- Licensing/Certification

<u>Date</u>	<u>Location</u>
June 19-23	Richmond, VA



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