### Educational Courses 2016

**Course 1106 : Gas Regulator Troubleshooting**  
**CEUs : 2.1**  
**Prerequisite : Course 1100 or 2 years experience**

This course is intended for technicians responsible for installing, maintaining and troubleshooting gas regulators. Actual gas regulator problems are simulated in the intensive hands-on workshops.

**Topics :**
- Self-Operated Regulators
- Pilot Operated Regulator
- Overpressure Protection
- Sizing Overview for Technicians
- Regulator Failure Analysis
- Regulator Troubleshooting and Installation

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<tr>
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**Course 1300 : Control Valve Engineering**  
**CEUs : 3.2**

This course is for engineers, technicians and others responsible for the selection, sizing, and application of control valves, actuators and control valve instrumentation.

**Topics :**
- Control Valve Selection: Rotary / Sliding Stem
- Actuator Selection and Sizing
- Corrosion Resistant Valves
- Liquid Valve Sizing
- Gas Valve Sizing
- Positioners and Transducers
- Valve Application Guidelines
- Valve Characteristics
- Valve Packing Considerations
- Cavitation
- Valve Noise

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**Course 1400 : Valve Technician I**  
**CEUs : 3.2**

An explanation of how valves and actuators function as well as how they are installed and calibrated. Geared toward instrument technicians responsible for pneumatic and electronic instrument calibration, installation & troubleshooting.

**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

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**Course 1451 : Valve Maintenance & DVC Calibration**  
**CEUs : 3.2**

Material covers sliding stem and rotary valves and actuators, valve and actuator setup, maintenance, repair and troubleshooting, installation, and calibration of the FIELDVUE™ digital valve controllers using the 475 Field communicator.

**Topics :**
- Control Valve Terminology
- Globe Valves / Packing
- Actuators / Bench Set
- Ball Valves / Butterfly Valves / Eccentric Disc Valves
- FIELDVUE™ Digital Valve Controller Theory of Operation
- HART™ Communication Signal
- FIELDVUE™ Instrument Installation
- 475 Field Communicator
- Configuration / Calibration / Troubleshooting
- ValveLink™ Mobile Overview

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To register for a class, or for more information please contact Connie Goodman at connie.goodman@remasonco.com  (804) 858-5878  [www.remaso.com](http://www.remaso.com)
Course 2031 : Basic Vibration Analysis/Category 1 Compliant

CEUs : 2.8

This course is intended to enable students to operate single channel machinery analyzers, dump and load routes, recognize the difference between good and bad data, and compare vibration measurements against pre-established alert settings. This course complies with Category I Vibration Analyst per ISO standard 18436-2.

Topics :
- Principles of Vibration
- Data acquisition & Signal Processing
- Condition monitoring & Corrective Action
- Equipment Knowledge
- Acceptance Testing
- Basic Analyzer Functions

Date | Location
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Aug 2-5 | Richmond, VA
Nov 1-4 | Charlotte, NC

Course 2035 : PeakVue Mystery and Autocorrelation

CEUs : 2.1

Provides insight into advanced functionality of Emerson’s patented PeakVue™ technology and Autocorrelation. Machine vibrations generate both macro and microscopic vibrations, and microscopic vibrations generate stress waves that have frequency ranges determined by the mass of the impacting object. The properties of these stress waves will be explained.

Topics :
- Proper PeakVue™ Set-Ups for all Speeds
- Sensor Selection and Sensor Mounting
- Setting Alarm Levels
- Choosing Trend Parameters
- Analyzing PeakVue™ Spectra and Waveforms
- Uses of the Circular Waveform Plot
- Introduce the Autocorrelation Coefficient
- Demonstrate the Computation of the Autocorrelation Coefficient Data from the Time Waveform Data
- Highlight the Strengths of the Autocorrelation
- Demonstrate the use of the Autocorrelation Coefficient Data as a Diagnostic Tool
- Identify Unique Patterns of the Autocorrelation

Date | Location
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Oct 4-6 | Richmond, VA

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 Creation
- Data Collection
- Basic Analysis and Reporting
- Link to RBMview™

Date | Location
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Aug 2-5 | Charlotte, NC

Course 2082 : Level I & II Lubrication with Certification

CEUs : 2.1

Level I focuses on the basic properties of lubricants and lubricant specifications including additive packages. Level II focuses on the use of oil analysis with other predictive technologies to enhance your machinery health program.

Topics :
- Starting a Productive Lubricant Analysis Program
- Analyzing Oil Data
- Identifying Common Types of Wear Debris, their Origins, and Corrective Actions
- The Importance of Contamination Control
- Designing Sampling, Storage and Handling Procedures

Date | Location
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Oct 4-6 | Charlotte, NC

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## Course 7009 : DeltaV Implementation I
### CEUs: 3.2
Covers a complete DeltaV system implementation. Upon completion of this course the student will be able to define system capabilities, assemble the system, define nodes, run diagnostics, configure continuous and sequential control strategies, operate the system and define users and security.

### Topics:
- System Overview
- DeltaV Explorer / Diagnostics
- Control Modules / Studio
- Motor / Cascade / Regulatory Control
- DeltaV Operate
- System Operation
- Alarms & Process History View
- Sequential Function Charts
- Configure Theme Dynamos
- Custom Faceplates
- Custom Dynamos
- Electronic Marshalling (CHARMS)

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## Course 7016 : DeltaV Systems Batch Implementation
### CEUs: 3.2  Prerequisite Required: Course 7009
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
- Dynamic Unit Allocation

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## Course 7017 : DeltaV Implementation II
### CEUs: 3.2  Prerequisite Required: Course 7009
For process control engineers responsible for configuring the DeltaV system. Advanced topics will be covered including displays, function blocks, and configuration tips.

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

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## 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 workstation. Learn to use the diagnostic tools available to verify fault conditions related to hardware. Introduces configuration tools and operator interface.

### 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 Intelligent Device Manager
- AMS Suite Intelligent Device Manager
- Redundant I/O

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Course 7020 : AMS Device Manager  
CEUs : 2.1
Hands-on instructor assisted training modules and exercises provide the quickest route to your productive use of this predictive maintenance application. The training exercises are based on real world tasks that most users will encounter on the job.

Topics :
- Configuring and Using AMS Device Manager
- System Administration
- SNAP-ON Applications

Course 9000 : Introduction to Process Control  
CEUs : 3.2
Basic, overall fluid process controls knowledge needed to better understand the interrelationships associated with automated control loops.

Topics :
- Process Control Terminology and Symbols
- Process Loop Introduction
- Measurement Instrumentation for Flow, Level, Temp, Pressure
- Instrument Calibration Concepts
- Final Control Elements
- Control Valves, Actuators, Instrumentation
- Introduction to Loop Dynamics, Tuning and Control

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 of this course the student should be able to effectively work with and commission single and multi-loop control strategies. Interactive workshops allow the student to apply what they learn in class.

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 Lambda concepts and taught with a focus on minimizing process variability. Learn how to recognize acceptable / unacceptable control loop performance and to identify the most common source of problems.

Topics :
- Process Dynamics / Model Identification
- Self Regulating and Integrating Loops
- Control Resolution and Valve Non-linearity
- PID Forms and Structures
- Interactive Control Loops
- Pressures for Load Recovery and Setpoint Response
- Process Interactions
- Tuning Methods
- 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.

Licensing / Certification available.

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