

EDUCATIONAL SERVICES

**2025 DeltaV, Ovation and AMS European Training Offerings**

ENABLE YOUR PEOPLE TO GET SKILLED IN PROCESS CONTROL AND INDUSTRIAL AUTOMATION

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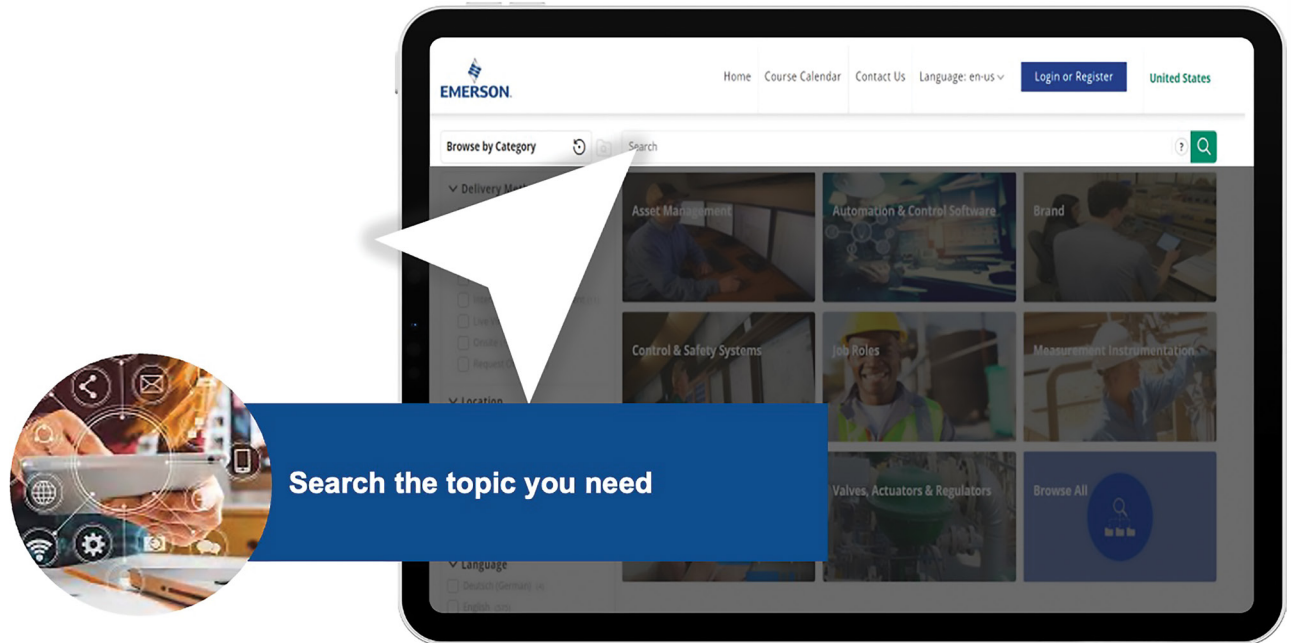


# MyTraining

An evergreen catalogue of Emerson offerings



Visit for Registration  
[mytraining.emerson.com](http://mytraining.emerson.com)



**Search for Courses**



**Browse for Upcoming Classes**



**Choose your Learning Style**



**Track your Learning History**



**Request for Quote, Order and more**

## Improve the operational effectiveness of your workforce

Companies are investing in new products and technologies to improve performance and create value. With these advancements comes the added challenge of retaining and training the people needed to unlock the full potential of those investments.

Ensuring your workforce has the skills needed to meet your business goals is critical to any successful operation. By giving employees the knowledge and skills they need to succeed, you can help to keep them engaged while improving your organization's ability to meet performance targets.

You want to develop and retain the kind of capable, experienced workers you need to maximize performance, now and in the future. Here's how Emerson's Training Services can help.

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### IMPROVING SKILLS OPTIMIZES PERFORMANCE

Across four key technology functions,  
**only 1 in 10 organizations**  
was found to have the skills needed to be  
successful.<sup>1</sup>

**71%** of CEOs  
identified human capital as a key  
source of sustained economic  
value.<sup>2</sup>

**84%** of employees in  
**top-performing organizations**  
are receiving the training they need.<sup>3</sup>

<sup>1</sup> The 2012 IBM Tech Trends Report, Fast Track to the Future.

<sup>2</sup> According to our Industry

<sup>3</sup> IBM Smarter Workforce Survey, 2013.



## Keep Pace with Evolving Technologies

Advancements in technology happen quickly, with a high degree of complexity. Companies that fail to continually enhance their process technology skills—and effectively adapt work processes to keep pace with new technologies—risk lagging behind. Our experts equip technicians and engineers across industries with the practical knowledge they need to do their jobs well.

## Develop and Retain a Capable Workforce

To ensure your employees are qualified to help your organization reach its full potential, Emerson provides higher education training opportunities all over the world to develop your workforce through advanced automation courses.





## Customizable, Scalable Training Solutions

Learn from Emerson experts in a format that works for you

- **Blended Learning**
- **Classroom Training** at an Emerson office or **On-site** at your facility
- **Virtual Instructor-led** training
- **Microtraining**

# Emerson Training Solution

## LEARNING AND DELIVERY MODALITIES

OUR DELIVERY SOLUTIONS	DESCRIPTION	BENEFITS
<b>Classroom Training</b> 	<ul style="list-style-type: none"> <li>Ask questions, meet in person, and get direct access to our experts</li> </ul>	<ul style="list-style-type: none"> <li>Emerson training centers are strategically located around the world</li> </ul>
<b>Blended Learning</b> 	<ul style="list-style-type: none"> <li>Contemporary approach to training that “blends” different teaching methods and deploys them via digital and online media</li> </ul>	<ul style="list-style-type: none"> <li>Self-paced</li> <li>Access to a library of offerings</li> </ul>
<b>Virtual Instructor-led Training</b> 	<ul style="list-style-type: none"> <li>Get a live classroom experience with the convenience of remote accessibility</li> </ul>	<ul style="list-style-type: none"> <li>Virtual Machine workshop exercises</li> <li>Train in an environment that works best for your team</li> </ul>
<b>Microtraining</b> 	<ul style="list-style-type: none"> <li>Collection of task-oriented videos</li> </ul>	<ul style="list-style-type: none"> <li>24/7 availability of content</li> <li>Would you like an Emerson Expert with you on the go?</li> </ul>



# Virtual Instructor-Led Training

We understand that getting your employees trained can often be a challenge due to budgets, scheduling conflicts, or upcoming project deadlines.

Working alongside Emerson™ certified trainers, provide your team full access to software systems and training solutions without having to leave the office. Using a modern high tech approach, students can absorb content and engage with peers in a location and time that works best for their schedule.

## KEY FEATURES

- State-of-the-art technology with IT Infrastructure
- Live Demo sessions with Theoretical training
- Easy Connectivity with Customer sites through VOiP

## COURSE OFFERINGS AVAILABLE:

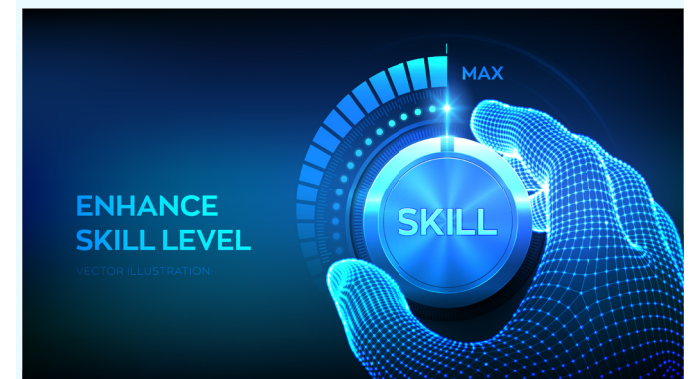
- IACET compliant Emerson Standard Courses
- Competency Development Courses for Automation
- Webinars for Digital Solution and IIOT

## HOW TO CONNECT (REQUIREMENTS INCLUDE):

- High-speed internet access
- Audio enabled computer
- Access to launch Microsoft Teams
- Access to Skytap.com

## OPPORTUNITIES:

- ✓ Save time and effort by scheduling at your convenience.
- ✓ Meet the range of diverse learning styles in the workplace.
- ✓ Delivering a new modern approach to teaching that enhances participation and engagement.





## Product Preview

Software shapes the changes in the way we work and live. The new, multiple communication channels we deploy throughout our work day allow us to complete tasks easily. Microtraining is the first delivery channel allowing you to seamlessly enhance your automation learning journey with bite-sized, on-the-go videos and support your interactions with our DeltaV, AMS, Syncade software. Inspired by you, developed by us for the way we train now.

## You can master skills in minutes with our new player in town!

Micro-Training is an online DeltaV, AMS, Syncade video library that offers you exclusive access to a comprehensive **collection of videos** featuring Emerson experts. Each video is designed to complement legacy, instructor-led training by providing ancillary knowledge not typically covered in the traditional classroom while offering the convenience of **on-demand accessibility**.

Microtraining is designed to empower you with bite-sized knowledge boosts whenever needed. Our **mobile-friendly** Micro-Training videos make learning accessible on the go or serve as a great refresher on popular topics.

### Subscription Service

- License per user exclusive price for 1-Year per user
- Multi-year: 1, 3, 5 years (prices differ based on no. of students and subscription duration)

### Microtraining

See free videos in [Guardian](#).

Or get a Microtraining subscription at your sales office starting today.

Learn more about [Microtraining](#).



# Europe Education Services

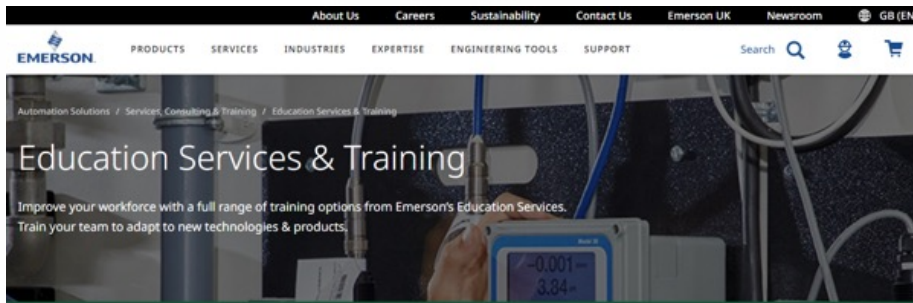
504 Happy Customers in 2024  
10 European Locations

Enable Your People to get skilled in process control and industrial automation. Elevate your team's potential with Emerson's Education Services. Innovative, leading-edge training designed to boost performance and drive success.

We can train 1000+ engineers, operators, administrators, operations personnel

## Learning and Delivery Modalities

Search   



CLASSROOM TRAINING

VIRTUAL INSTRUCTOR-LED TRAINING

E-LEARNING

BLENDED LEARNING

MICRO-TRAINING

## Product Categories

DeltaV DCS

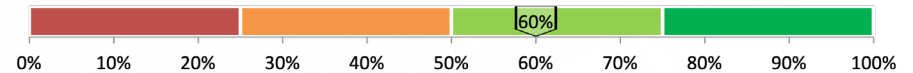
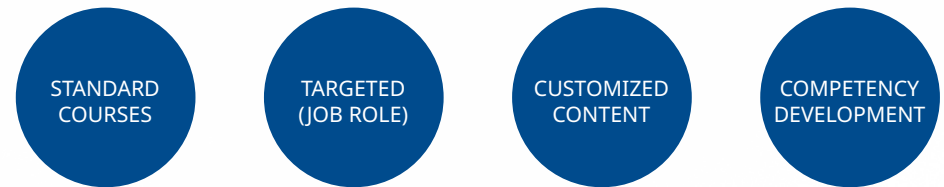
DeltaV MES

AMS

Ovation



## Educational Program Categories



**60%**

of our customers believe the training will improve their job performance

## Our Customers Say:

“ *Contenu volumineux et rythme soutenu. Mais très bon formateur et très bon support Session exercice adapté* ”  
DeltaV Implementation I

“ *Il corso si è svolto in maniera eccellente e professionale.* ”  
DeltaV Implementation I

“ *Die Kursinhalte waren sehr gut auf die Bedürfnisse der Teilnehmer abgestimmt und wurden sehr gut vermittelt. Bei Detailfragen waren die Antworten immer sehr zufriedenstellend.* ”  
DeltaV Hardware & Troubleshooting

“ *I totally recommend the training.* ”  
DeltaV Implementation using DeltaV Live

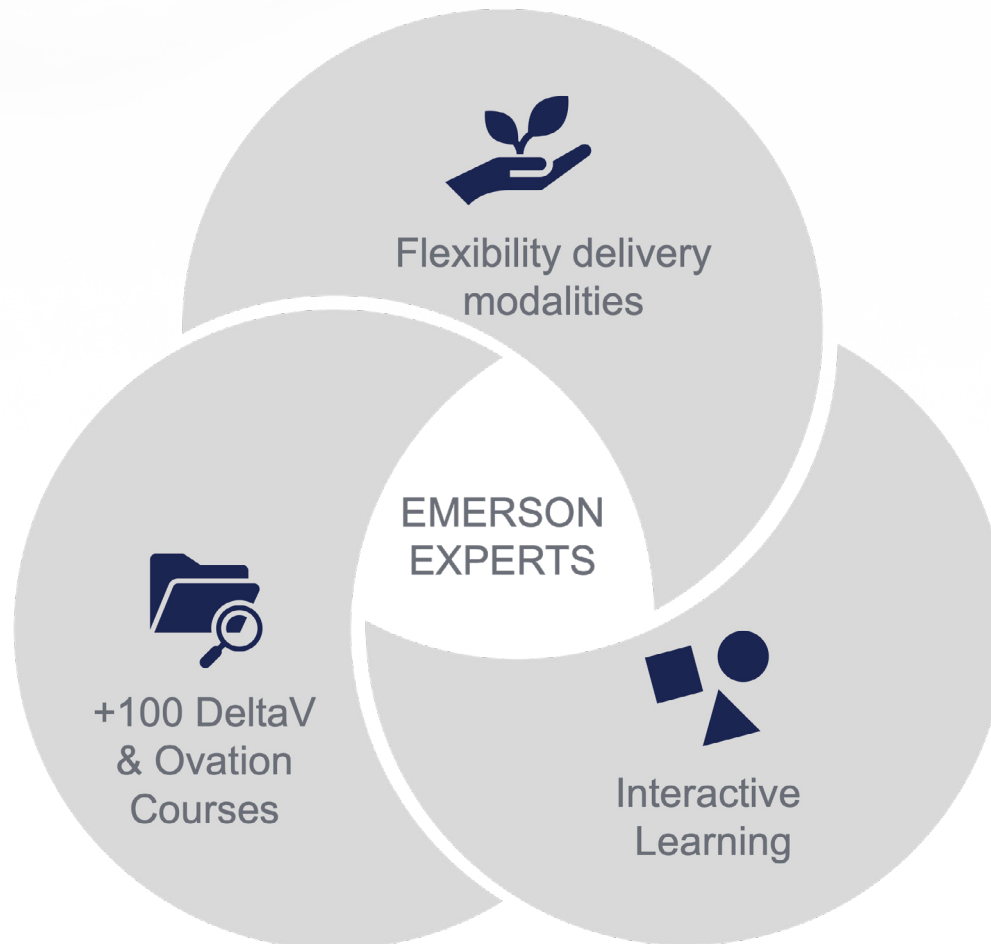
# Enable Your People to Get Skilled in Process Control and Industrial Automation

## Delivery Modalities

Flexibility to choose between classroom, virtual instructor led training, blended and MicroTraining

## DeltaV & Ovation Courses

Categorized by job role and based on competencies



## Interactive Learning

Students receive access to a cloud-based virtual machine for hands-on workshop exercises

# DeltaV Operator Training Solutions Tiered Approach

## Basic Operator Training

- Generic process displays and simulation
- Level 1 operator training basic navigation and controls

## Essential Operator Training – Level 1

- Your process displays with Mimic tieback models
- Operator training basic navigation and controls
- Also available “Quick Start” with reduced scope
- Customer owns the material

## Essential Operator Training – Level 2

- Understanding the process abnormalities, malfunctions, and corrective actions
- Critical process control, specific equipment handling
- Startup and shutdown process
- Skills Assessment for Certification

		DeltaV			
		Operator Training Features	Basic Operator Training	Essential Operator Training Level 1	Essential Operator Training Level 2
Basic Training	Instructions		✓	✓	✓
	Instructor Demonstrations		✓	✓	✓
	Hands-On Workshops		✓	✓	✓
	Knowledge Assessments Quizzes		✓	✓	✓
Custom Courseware & Simulation Models	Custom Specific Courseware			✓	✓
	Mimic Tie-Back Modeling Custom Specific			✓	✓
	Simulated Workshops			✓	✓
	Skill Assessments for Certification			✓	✓
Advanced Courseware with High Fidelity Simulation	Understanding the process abnormalities, malfunctions, and corrective actions				✓
	Scenario based training				✓
	Critical process control, specific equipment handling				✓
	Startup and shutdown process				✓

# DeltaV Training Bundles Seats Subscription

Enable Your People to Get Skilled in Process Control and Industrial Automation.

**Our Value:** Streamlined Enrollment Process & Training Budget

Plan	Seat Options	MicroTraining
1 YEAR PLAN Seat Subscription	5 seats 10 seats 20 seats	MicroTraining Included
3 YEAR PLAN Seat Subscription	15 seats 30 seats 60 seats	MicroTraining Included
5 YEAR PLAN Seat Subscription	25 seats 50 seats 100 seats	MicroTraining Included

All delivery modalities are included, except for on-site training.

## What Customers say about our Trainings

*Contenu volumineux et rythme soutenu. Mais très bon formateur et très bon support Session exercice adapté*

EDU-PSS-7009

*Emerson facilities are good. All equipment which is required for the training is available and trainee have opportunity for testing and understanding system better. The size of groups is just enough for quality learning.*

EDU-PSS-7018V

*I am very satisfied with the education, even though I had no contacts and prior knowledge about the topic.*

EDU-PSS-7009V

*All round brilliant course and instructor*

EDU-PSS-7009

*Sehr effektive Möglichkeit einen schnellen Überblick über das System zu erhalten.*

EDU-PSS-7009V

*Il corso si è svolto in maniera eccellente e professionale*

EDU-PSS-7009V

*The setup of the course is ideal for starters with DeltaV*

EDU-PSS-7018

*+ Bon support de formation et déroulé logique. Fait appel au personnel EMERSON en cas de questions poussées.*

EDU-PSS-7016

*Very appropriate for our line of work which will include DeltaV upgrades in 2023. New hardware will be installed which will mean the contents of this course are very relevant and useful.*

EDU-PSS-7018

*Ottimi e chiari gli argomenti trattati, specifici e ben spiegati.*

EDU-PSS-7016

*Great training and instructor, lots of examples on real equipment*

EDU-PSS-7018

*Very good course, covers a wide selection of topics for batch implementation, course is very full on, I would recommend people to have a bit of experience on top of completing course 7009 before attempting to get full experience.*

EDU-PSS-7016V

## What Customers say about our Trainings (continued)

*“ A very enjoyable course packed full of useful information and tips. ”*

EDU-PSS-7028V

*“ Education is always important ”*

EDU-PSS-7016

*“ I totally recomend the training ”*

EDU-PSS-7409

*“ Course gave a good foundation to using the DeltaV system for Batch implementation. Instructor was very knowledgeable on delivering the material, and very patient to help everyone troubleshoot issues. ”*

EDU-PSS-7016V

*“ Bon timing, qualité du matériel mis à disposition. Formateur très disponible et qui donne un bon rythme. ”*

EDU-PSS-7009

*“ Awesome trainer, good technical skills, good soft skills ”*

EDU-PSS-7016

*“ Everything was carried out according to the best practice rules of training sessions. The trainer was nothing but understanding, open to suggestions and very knowledgeable on the subject, being able to help me understand a lot. ”*

EDU-PSS-7180V

*“ The facility for training had a laboratory, where we can simulate on the controllers; the instructor is very open and answered to all our questions, explaining very well the process and he program. ”*

EDU-PSS-7016

*“ Because the trainer was very kind, explain very well and have so much patience with all of us to stay and explain in each detail everything that it wasn't clear. ”*

EDU-PSS-7409V

*“ Die Lehrerin zeigte ein tiefes Verständnis des Kursmaterials und war in der Lage, komplexe Konzepte klar zu erklären. Ihr Lehrstil war interaktiv und ansprechend, und sie passte die Schulung an unsere individuellen Bedürfnisse an. Die Kommunikation war ausgezeichnet und insgesamt war ich mit ihrer Leistung sehr zufrieden. ”*

EDU-PSS-7017V

*“ Les supports de cours et les outils mis à disposition sont très bien. C'est une bonne formation qui permet de commencer à travailler sur DeltaV. ”*

EDU-PSS-7009

## Europe SYSS Training Locations

- Belgium
- France
- Germany
- Netherlands
- Poland
- Romania
- Spain
- Sweden
- United Kingdom & Ireland
- Italy

We hope you will invite Emerson to instill confidence in your personnel and develop the capabilities of your workforce. We will guide them to be interested in potential solutions — ready to move your facility to greater efficiency and profitability.

Whether for a new project or for ongoing operations and maintenance, Emerson provides consulting services, skills assessments and the right training solutions at the right time.

- Project consultants identify targeted business results where training solution can improve plant operations. A skills assessment identifies skills gaps that can be addressed with training and prescribes the proper training solution.
- Your staff will be prepared when your project comes on line and throughout continuing operations and maintenance.

Across the world over several decades, Emerson has developed and dedicated substantial resources to training operators, engineers, technicians and maintenance personnel. We are ready for you anywhere and anytime.





2025 TRAINING CALENDAR BY EUROPEAN LOCATION



## TRAINING CALENDAR - FRANCE

CODE	LIEU	INTITULÉ DU STAGE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<b>DU LUNDI 13H AU VENDREDI 12H</b>														
EDU-PSS-7409	St Priest ou Virtual	Implementation DeltaV Operate I	20-24		31-4		12-16		7-11		1-5	27-31		13-19
EDU-PSS-7009	St Priest ou Virtual	Implementation DeltaV Live I			3-7			2-6				20-24		
EDU-PSS-7425	St Priest ou Virtual	DeltaV Live Graphics Avancés		10-14	17-21			16-20			8-12		24-28	
EDU-PSS-7016	St Priest ou Virtual	Mise en oeuvre du système DeltaV Batch	27-31					23-27			15-19		17-21	
EDU-PSS-7017	St Priest ou Virtual	Mise en oeuvre du système DeltaV Niveau II		17-21			19-23				22-26			1-5
EDU-PSS-7018	St Priest	Maintenance du système DeltaV		13-17						25-29				
EDU-PSS-7027	St Priest	Administration du système DeltaV			24-28							6-10		
EDU-PSS-7305	St Priest	Mise en oeuvre du système DeltaV SIS			10-14				30-4		29-3			8-12
<b>DU MARDI 9H AU MERCREDI 17H</b>														
EDU-PSS-7412	Virtual	Operateur process continu DeltaV Live				7-11			21-25					
<b>ON DEMAND</b>														
EDU-PSS-7999	Virtual	Nouveautés DeltaV V13-V14												
EDU-PSS-7304	St Priest	Maintenance DeltaV SIS avec Electronic Marshalling												
EDU-PSS-7076	Virtual	DeltaV - Standard de configuration PMO												
<b>The following courses will be added as face-to-face sessions in MyTraining:</b>														
7229	On Demand	DeltaV Virtualization with HCI												
7028	On Demand	DeltaV Administration with HCI												

## TRAINING CALENDAR - GERMANY

KURSNR.	KURS	ORT	TAGE	JAN	FEB	MAR	APR	MAI	JUN	JUL	AUG	SEP	OKT	NOV	DEZ
7009	DeltaV Implementierung I mit DeltaV Operate – Einführung	Langenfeld	4,5	13-17				05-09			25-29			10-14	
7009V	DeltaV Implementierung I mit DeltaV Operate – Einführung	Virtuell	4,5			10-14			23-27				06-10		08-12
7409	DeltaV Implementierung I mit DeltaV Live – Einführung	Langenfeld	4,5	20-24				12-16				01-05		17-21	
7409V	DeltaV Implementierung I mit DeltaV Live – Einführung	Virtuell	4,5			17-21			30-04				13-17		15-19
7014V-C	DeltaV Rezepterstellung	Virtuell	3												
7016V	DeltaV Batch-Implementierung	Virtuell	4,5			24-28				14-18			20-24		
7017	DeltaV Implementierung II – Weiterführender Kurs	Langenfeld	4,5	27-31						07-11					
7017V	DeltaV Implementierung II – Weiterführender Kurs	Virtuell	4,5			31-04								24-28	
7018	DeltaV – Hardware und Störungsanalyse/-beseitigung	Langenfeld	4			04-07			10-13		18-21		27-30		
7425V	DeltaV Live Grafikschnittstelle – Für Fortgeschrittene	Virtuell	4,5		03-07			19-23				08-12			01-05
7023V	DeltaV Informationstechnologie für Automatisierungspersonal	Virtuell	3			05-07						16-18			
7023V English	DeltaV Information Technology for Automation Personnel	Virtuell	3			24-28						02-04			
7226V	DeltaV – Cybersecurity – Administration	Virtuell	3					15-17			29-31				
7226V English	DeltaV Cybersecurity Administration	Virtuell	3					28-30			05-07				
7027V	DeltaV - System - Administration	Virtuell	4,5					07-11						03-07	
7027V English	DeltaV - System - Administration	Virtuell	4,5			10-14							20-24		
7305	DeltaV - SIS-Implementierung	Langenfeld	4		10-13							15-18			

## TRAINING CALENDAR - CLUJ CENTER OF EXCELLENCE

COURSE	LOCATION	DURATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
7009 DeltaV Implementation I	Virtual	4.5 Days	13-17	3-7	3-7	7-11	5-9	2-6	7-11	4-8	2-6	1-5	3-7	8-12
7016V DeltaV Batch Implementation	Virtual	4.5 Days		10-14	10-14	7-11	12-16	16-20	14-18	14-18	18-22	13-17	10-14	15-19
7409V DeltaV Implementation using DeltaV Live	Virtual	4.5 Days			3-7			2-6			1-5			
7027V DeltaV Systems Administration	Virtual	4.5 Days	27-31		17-21		19-23		21-25		15-19		17-21	
7018 DeltaV Hardware& Troubleshooting	Face to Face	4.5 Days	20-24		3-7		5-9		7-11		1-5		3-7	
7304 DeltaV SIS with Electronic Marshalling Maintenance	Face to Face	4.5 Days		25-29		21-25			21-25			20-24		
7017V DeltaV Implementation II	Virtual	4.5 Days						30-4			29-2			8-12
7425V DeltaV Live Graphics Interface	Virtual	4.5 Days		24-28			19-23				18-22		17-21	
7028V DeltaV Virtualization Administration	Virtual	3 Days		12-15			14-17				12-15		12-15	
7226V DeltaV Cybersecurity Administration	Virtual	3 Days	13-15		4-6			3-5			2-4			
7305 DeltaV SIS Implementation	Face to Face	4.5 Days		17-21			19-23			18-22			17-21	
7601V Mimic Dynamic Simulation	Virtual	3 Days						23-25						15-17
7180V Syncade Operations Implementation	Virtual	4.5 Days	13-17											
7181V Syncade Recipe Authoring Principles	Virtual	4 Days		17-20			19-22				18-21			17-20
7999V DeltaV New Features (Version 15)	Virtual	4.5 Days												
7229 DeltaV Virtualization	Face to Face	4.5 Days	27-31		24-28	14-18	26-30	30-4, 28-1, 25-30			29- 3, 27-31		24-28	15-19
7501V Backup & Recovery	Virtual	1 Day						9						9
7412V DeltaV Live Continuous Operation	Virtual	2 Days			11-12			10-11			9-10			9-10
7014V DeltaV Batch Operation	Virtual	2.5 Days	20-22			21-23			21-23			20-22		
7012V DeltaV Continuous Operation	Virtual	2 Days	20-21			21-22			21-22			20-21		

## TRAINING CALENDAR - BENELUX TRAINING CENTER

COURSE	LOCATION	DURATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
7009 DeltaV Operate Implementation I	Rijswijk	4.5 Days	6-10		3-7			16-20			1-5	27-31		
7016 DeltaV System Batch Implementation	Rijswijk	4.5 Days	13-17	10-24	10-14, 31-4			2-6	23-27		8-12	6-10	3-7	8-12
7017 DeltaV Implementation II	Rijswijk	4.5 Days		24-28			19-23					20-24		
7018 DeltaV Hardware & Troubleshooting	Rijswijk	4 Days	20-23	17-20	17-20			30-3			15-18	13-16	10-14	15-18
7400 PK-Controller Standalone	Rijswijk	1 Day					6,7,8							
7425 DeltaV Live Graphics Interface Advanced	Rijswijk	4.5 Days		17-21	7-11				7-11		22-26	13-17	24-28	15-19
7039 AMS Device Manager with DeltaV	Rijswijk	4Days				14-17								
<b>The following courses will be added as face-to-face sessions in MyTraining:</b>														
7409 DeltaV Implementation using Live	Rijswijk													
7027 DeltaV System Administration	Rijswijk													
7039 AMS Device Manager with DeltaV	Rijswijk										2-5	28-31		
7076 PMO Configuration Standard for DeltaV (PCSD)	Rijswijk							30-4			15-19			
7305 DeltaV SIS Implementation	On Demand													
7229 DeltaV Virtualization with HCI	On Demand													
7028 DeltaV Administration with HCI	On Demand													

## TRAINING CALENDAR - NORDIC AREA

COURSE	LOCATION	LANGUAGE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
7009 DeltaV Operate Implementation I	Karlstad	Swedish	13-17											
7017 DeltaV Implementation II	Karlstad	Swedish		3-7										
7016 DeltaV System Batch Implementation	Gothenburg	English		17-21										
7018 DeltaV Hardware and Troubleshooting	Karlstad	Swedish		17-20										
7425 DeltaV Live Graphics Interface - Advanced	Gothenburg	English			17-21									
7409 DeltaV Implementation using DeltaV Live Introduction	Karlstad	Swedish			24-28									
7009 DeltaV Operate Implementation I	Bergen, Norway	English				7-11								
7009 DeltaV Operate Implementation I	Karlstad	Swedish					5-9							
7016 DeltaV System Batch Implementation	Karlstad	Swedish					12-16							
7017 DeltaV Implementation II	Karlstad	Swedish					19-23							
7018 DeltaV Hardware and Troubleshooting	Karlstad	Swedish						2-5						
7425 DeltaV Live Graphics Interface Advanced	Karlstad	Swedish						23-27						
7009 DeltaV Operate Implementation I	Karlstad	Swedish							4-8					
7018 DeltaV Hardware and Troubleshooting	Karlstad	Swedish							11-15					
7409 DeltaV Implementation using DeltaV Live Introduction	Gothenburg	English							25-29					
7017 DeltaV Implementation II	Karlstad	Swedish								8-12				
7009 DeltaV Operate Implementation I	Bergen, Norway	English								22-26				
7016 DeltaV System Batch Implementation	Gothenburg	English									29-3			
7425 DeltaV Live Graphics Interface Advanced	Karlstad	Swedish										5-10		
7409 DeltaV Implementation using DeltaV Live Introduction	Karlstad	Swedish											3-7	
7009 DeltaV Operate Implementation I	Karlstad	Swedish											17-21	
7017 DeltaV Implementation II	Karlstad	Swedish												1-5
7425 DeltaV Live Graphics Interface Advanced	Gothenburg	English												15-19

Visit: [www.emerson.com/education](http://www.emerson.com/education)  
 Email: [training.benelux@emerson.com](mailto:training.benelux@emerson.com)

TRAINING CALENDAR - NORDIC AREA

COURSE	LOCATION	LANGUAGE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
The following courses will be added as face-to-face sessions in MyTraining:														
7012 DeltaV Continuous Operation	On Demand													
7412 DeltaV Live Continuous Operation	On Demand													
7028 DeltaV Administration with HCI	On Demand													
7305 DeltaV SIS Implementation	On Demand													
7229 DeltaV Virtualization with HCI	On Demand													
7027 DeltaV System Administration	On Demand													
7039 AMS Device Manager with DeltaV	On Demand													

## TRAINING CALENDAR - ITALY

CORSO - CODICE	LUOGO	DURATA	GEN	FEB	MAR	APR	MAG	GIU	LUG	AGO	SET	OTT	NOV	DIC
<b>GESTIRE E CONTROLLARE</b>														
Hardware DeltaV e Diagnostica 7018	Seregno (MB)	4 gg		18-21					8-11				4-7	
DeltaV Operate Implementazione I Introduzione 7009/7009V	Seregno (MB & V)	4,5 gg		24-28			12-16	30-4		8-12	20-24			1-6
Implementazione I di DeltaV con DeltaV Live nroduzione 7409/7409V	Seregno (MB & V)	4,5 gg						23-27				6-10		
DeltaV - Implementazione II Intermedio 7017/7017V	Seregno (MB & V)	4,5 gg					26-30				29-3			
Implementazione Batch per sistemi DeltaV 7016/7016V	Seregno (MB & V)	4,5 gg		10-14					21-26				10-14	
Interfaccia grafica di DeltaV Live Avanzato 7425/7425V	Seregno (MB & V)	4,5 gg					5-9					13-17	24-29	
Amministrazione del sistema DeltaV 7027/7027V	Seregno (MB & V)	4,5 gg				31-3								
Amministrazione di sistemi DeltaV virtualizzati 7028/7028V	Seregno (MB & V)	3 gg		10-12				4-6				27-29		
Corso per Operatore DeltaV Batch con DeltaV Operate e PCSD 7074/7074V	Seregno (MB & V)	3 gg		4-6	3-7 17-21									
Corso per Operatore DeltaV - Batch con DeltaV Live e PCSD 7474/7474V	Seregno (MB & V)	3 gg			24-26		31-4 7-11							
Implementazione DeltaV SIS 7305	Seregno (MB)	4 gg	13-16					9-13			15-19			
<b>CORSI DISPONIBILI SU RICHIESTA</b>														
"Corso per Operatore DeltaV - Processi Continui con DeltaV Operate - 7012/7012V"	Seregno (MB & V)	2 gg												
"Corso per Operatore DeltaV - Batch con DeltaV Operate e PCSD - 7072/7072V"	Seregno (MB & V)	3 gg												
"Corso per Operatore DeltaV - Processi Continui con DeltaV Live - 7412/7412V"	Seregno (MB & V)	2 gg												
"Corso per Operatore DeltaV - Batch con DeltaV Live - 7414/7414V"	Seregno (MB & V)	3 gg												
Corso per Operatore / Manutentore Ovation	Seregno (MB)	3 gg / 4 gg												

■ sessioni in aula a Seregno (MB)

■ Sessioni in classe virtuale (V)

**Nota:**

- per i corsi con sessioni schedulate a calendario, è possibile aggiungere ulteriori sessioni a richiesta.
- Ogni sessione sarà confermata con un minimo numero di partecipanti registrati.
- Consulta il portale web di [Emerson](http://emerson.com)
- Accedi al calendario nel portale Emerson [MyTraining](http://mytraining.com) e registra il tuo account.

## TRAINING CALENDAR - UNITED KINGDOM &amp; IRELAND

COURSE	LOCATION	DURATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
7018C DeltaV™ Hardware & Troubleshooting	Leicester		13-17		10-14		12-16	23-27		18-22		13-17		8-12
7009C DeltaV™ Implementation I	Leicester		20-24		17-21		19-23		14-18		15-19		17-21	
7027C DeltaV Systems Administration Win 7 / Server 2008	Leicester			10-14	31-4			30-4			1-5	27-31		15-19
7026C DeltaV™ CyberSecurity	Leicester			24-28					28-1		29-3			
<b>The following courses will be added as face-to-face sessions in MyTraining:</b>														
7409 DeltaV Implementation using Live	Leicester				3-7									1-5
7016 DeltaV Batch Implementation	Leicester					7-11		9-13		11-15		20-24		
7017 DeltaV Implementation II Intermediate	Leicester				24-28			16-20						
7305 DeltaV SIS Implementation	On Demand													
7020 AMS Device Manager	On Demand													
7028 DeltaV Administration with HCI	On Demand													
7229 DeltaV Virtualization with HCI	On Demand													

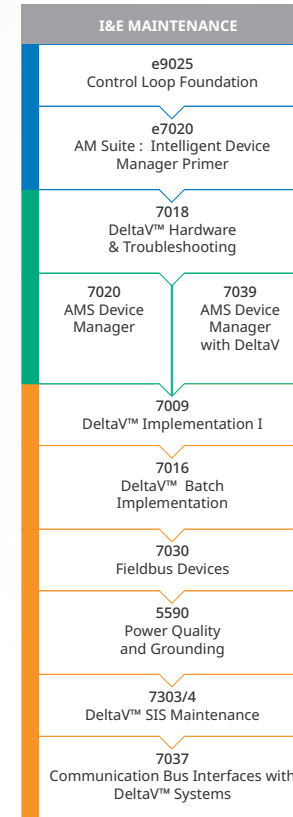
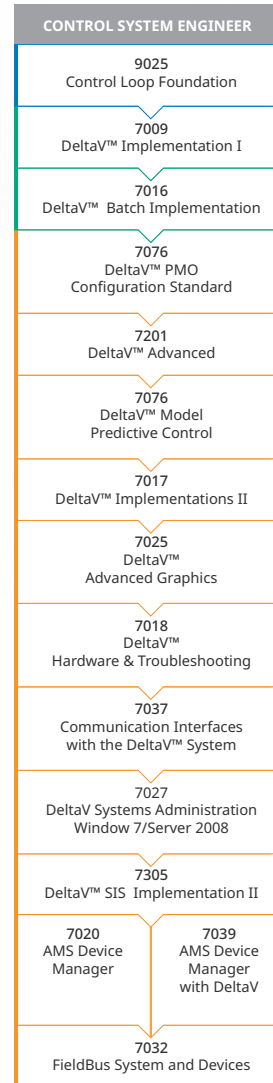


## TRAINING CALENDAR - OVATION COURSES

COURSE	LOCATION	DURATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
OV200 Ovation Building & Maintaining Ovation Control	Warsaw	5 Days		20-24										
OV210 Ovation Building Ovation Graphics	Warsaw	5 Days	27-31											
OV216 Ovation Hardware Project	Warsaw	5 Days		2-7 17-21										
OV235 Ovation SIS Implementation	Warsaw	5 Days		10-14				09-13	14-18					15-19
OV215 Ovation Software Project	Warsaw	10 Days			03-14	07-16	26-6, 30-11			8-19				1-12
OV230 Ovation System Administration	Warsaw	5 Days			24-28									
OV360 Ovation Security Administration	Warsaw	6 Days			31-4									
OV100 Ovation Data Acquisition	Cluj	5Days			17-21									
OV200 Ovation Building & Maintaining Ovation Control	Cluj	5Days			24-28									

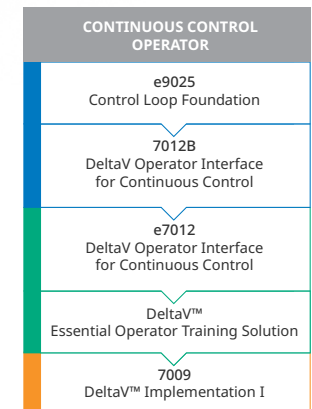
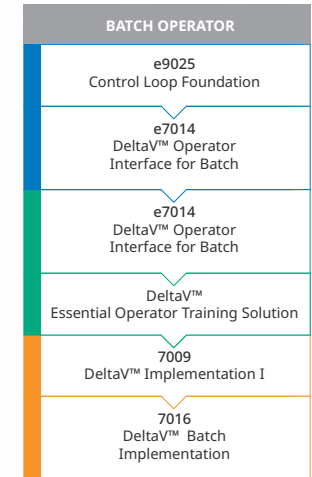
# DeltaV Learning Path

This architecture is designed to take full advantage of the communications capabilities of the FOUNDATION™ fieldbus technology and its capacity for the open, continuous communication of large volumes of digital information generated by intelligent field devices. This information is accessed by the AMS Device Manager software and used for a variety of time and money-saving functions. The DeltaV™ Digital Automation System serves as an ideal automation system host in this environment.



**LEGEND :**

- Self-Guided Primers
- Core Competencies
- Additional Competencies



## COURSE 7039

CEUs : 2.8

## AMS Device Manager with DeltaV

### Overview

This 4-days course is for instrumentation technicians and engineers responsible for all areas of managing and ensuring the reliability of instrumentation in the plant process including startup and commissioning, normal operations, maintenance, and troubleshooting.

The hands-on workshops with AMS Device Manager and DeltaV will address areas relating to the instrument technician's daily tasks, device troubleshooting/commissioning/replacement, alert configuration, and many other best practices relating to AMS Device Manager and the interactions with the DeltaV DCS.

### Topics

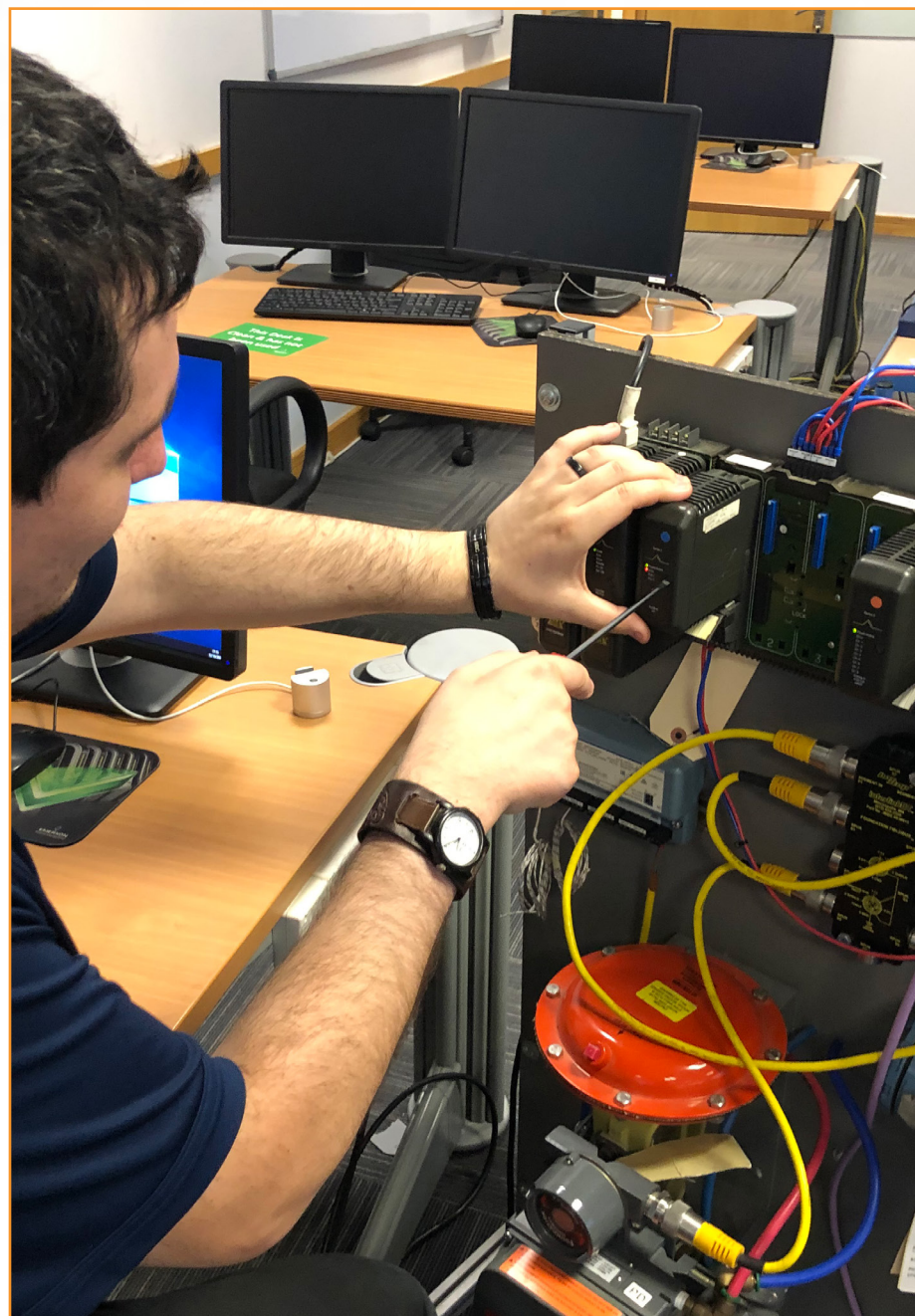
- DeltaV and PlantWeb Overview
- HART Overview
- AMS Device Manager Overview
- AMS Device Manager User Interface
- Location Hierarchy & Adding Devices
- AMS Device Manager Browser Functions
- Monitoring System Alarms
- DeltaV Device Alarms
- Device Replacements
- Reviewing Audit Trail
- AMS Device Manager User Permissions
- QuickCheck SNAP-ON
- ValveLink SNAP-ON
- ValveLink Status Window
- ValveLink DVC Setup
- Device Calibration
- Smart Commissioning

### Audience

- Responds to work orders created to calibrate, troubleshoot, repair, service, and replace instruments and valves
- Monitors alerts to preemptively address problems prior to operators seeing a problem in the control room
- Provides loop testing and assistance with instrumentation on plant turnarounds, startups, and for project work
- Improves process availability and reduces operations and maintenance costs

### Prerequisite

Microsoft windows experience. Course 7018 or 7009 or 7409.



**COURSE 7020****CEUs : 2.1****AMS Intelligent Device Manager Overview****Overview**

Completing 3-day of AMS Device Manager hands-on instructor assisted training modules and exercises provide the quickest route to your productive use this predictive maintenance application. The training exercises focus on skills required by engineers and technicians and are based on real-world tasks that most users will encounter on the job.

**Topics**

- Viewing and Modifying Devices
- Creating a Plant Database Hierarchy and Adding Devices
- Field Communicator AMS Device Manager
- AMS Device Manager Browser Functions
- Audit Trail
- Calibrating Device Calibration Assistant
- Configuring and Monitoring System Alerts
- AMS Device Manager System Overview
- Installing an AMS Device Manager Server Plus Standalone
- Starting AMS Device Manager for the 1st Time
- Network Communication Interface Setup
- AMS Device Manager Database Management
- Installing a Distributed System
- Installing Device Types from Media

This instructor assisted course is operated in a hands-on, self-paced environment which allows the student to work at their individual pace. Training can also be delivered at your plant with the help of our certified instructors. AMS Device manager modules may also be purchased for self-study which comes in three separate paper/bound modules. POA.

**COURSE 7021****CEUs : 2.1****AMS Device Manager with Rosemount HART Instruments****Overview**

This 3-day course teaches maintenance and calibration of measurement devices using AMS Device Manager software to communicate and track information. The student will learn how pressure and temperature transmitters function are installed and calibrated using AMS Device Manager. The course uses hands-on training, labs and lecture to teach the student how to:

- Configure and use AMS Device Manager
- Correctly perform transmitter installation and setup procedures
- Properly configure SMART transmitters
- Properly calibrate transmitters
- Perform basic troubleshooting-transmitters

**Topics**

- Configuring and Using AMS Device Manager
- HART Communication
- SMART Transmitters (3051C, 3144P)
- Test Equipment Selection
- Transmitter Installation
- Transmitter Configuration
- Transmitter Calibration
- AMS Calibration Manager
- Intelligent Calibrators
- Transmitter Troubleshooting

## COURSE 7032

CEUs : 2.8

**Fieldbus Systems & Devices****Overview**

This 4-day lecture/lab provides maximum hands-on experience working with the integration of FOUNDATION™ Fieldbus devices and the DeltaV™ scalable system. The student will be able to install Fieldbus instruments and segment checkout for the correct operation of the physical layer. The student will be able to use the DeltaV™ system to perform AMS Device Manager methods such as calibration, setup wizards, zero trim and diagnostics. The student will be able to implement a pressure loop using FOUNDATION™ Fieldbus function blocks with the DeltaV™ Control Studio application. The student will configure PlantWeb Alerts and device alarm parameters.

**Prerequisites**

Course 7009 or 7018. 7009 DeltaV Implementation I or 7018 DeltaV Hardware Installation and Troubleshooting or 7409, Using DeltaV Live Operator Interface Implementation

**Topics**

- FOUNDATION™ Fieldbus Overview
- Macro Cycle Execution
- Fieldbus Function Blocks
- Control Strategy Configuration
- Control Anywhere
- FieldVue Theory of Operation
- Transmitter Theory of Operation
- AMS Device Manager Methods
- Fieldbus Wiring Practices
- System Troubleshooting
- Configuring Fieldbus Device
- Alarms and PlantWeb Alerts
- Configuring a Fieldbus Operator Display
- Segment Checkout Procedures



## COURSE 7037

CEUs: 2.5

## Communication Bus Interface with DeltaV™ System

### Overview

This 3-1/2 day course covers the integration of fieldbus compliant devices using DeltaV systems. Upon completion of the course the student will be able to install, configure and verify proper operations of AS-I, Profibus DP, DeviceNet Serial, EtherNet IP, and Wireless HART devices, including proper wiring practices. The AMS Intelligent Device Manager will be used to interrogate PROFIBUS DP and Wireless HART devices.

### Prerequisites

7009 DeltaV Implementation I or 7018 DeltaV Hardware and Troubleshooting or 7049 DeltaV Live Operator Interface Implementation I

### Topics

- Responds to work orders created to calibrate, troubleshoot, repair, service, and replace instruments and valves
- Monitors alerts to preemptively address problems prior to operators seeing a problem in the control room
- Provides loop testing and assistance with instrumentation on plant turnarounds, startups, and for project work
- Improves process availability and reduces operations and maintenance costs

### Audience

The hands-on workshops with DeltaV along with AMS Device Manager will address areas relating to the instrument technician's daily tasks.



Today's plant is a myriad of process control hardware and software. Everything from valves to compressors, from level measurement devices to real-time data servers, and from boilers to condensers, just operating this collection of technologies is challenging. Making them all work together at their best to produce the best product at a profit is a daunting task. It takes more than just monitoring the process to be successful. It takes optimizing the devices and the process together in the right environment with people who have a clear understanding of both.

Working in a plant for long periods of time can create "legacy thinking", where even when it is in the best interest to change, nobody can bring themselves to do so because "that's the way we've always done it." Emerson's Educational Services offerings can show how to optimize existing equipment with new methods and technology.

## DeltaV™ Operator Training Simulation (OTS)

### Overview

DeltaV Operator Training Simulation (OTS) is an engineered, hands-on, process-specific learning environment designed to up-skill our customers' operations workforce. DeltaV OTS exposes operators to what they will experience in their actual control room. This enables operations personnel to gain experience in an off line, non-intrusive environment. Operators will learn DeltaV operating concepts while learning their actual process in preparation to effectively handle incidents or process upsets. The ability to practice how to handle potential incidents in a simulation environment is invaluable. The OTS training solution is not only key to preparing operations personnel prior to the start-up of new automation projects. It is an ongoing tool to train future operators, a great refresher tool and a platform for more advanced training for current operators.

### DeltaV™ OTS includes the following key deliverables:

- Self-Guided Custom Curriculum Based on the Customer's Configuration and actual displays
- DeltaV Training Simulators that include both hardware and software that operate the customer configuration in a simulated environment
- Student Testing that includes realistic failure scenarios that record actual operator responses

### Key tangible savings and benefits include:

- Quicker, Smoother Start-Ups
- Reduced Operator Error
- Product Loss Reduction/Elimination
- Improved Product Quality
- Regulatory Violation Reduction/Elimination
- Reduce Incident Reporting
- Operator Acceptance and Endorsement to Change Management
- To discuss OTS and simulation contact us at [OTS@EmersonProcess.com](mailto:OTS@EmersonProcess.com)

## COURSE 7009

CEUs : 3.2

## DeltaV™ Implementation I

### Overview

This 4½-day course covers a complete DeltaV system implementation. Upon completion of this course the student will be able to define system capabilities, define nodes, configure continuous and sequential control strategies, operate the system and define users and security.

### Prerequisites

Windows experience. It is recommended that prospective attendees new to process control systems attend Course 7101 or 7018.

### Topics

- System Overview
- Explorer
- Control Modules
- Control Studio
- Motor Control
- Regulatory Control
- Work Space
- System Operation
- Alarms & Process History View
- Sequential Function Charts
- Phase Logic
- Security

## COURSE 7012

CEUs : 1.4

## DeltaV™ Operator Interface for Continuous Control

### Overview

This course is for operators, supervisors and managers responsible for the operation of continuous processes using DeltaV system. This 2-day course uses lectures and hands-on workshops to provide an in-depth overview on operating the DeltaV™ System. Students who complete this course will:

- Access operator displays
- Manipulate various control module operating Parameters to operate the process
- Respond to process alarms
- Monitor process performance
- View real-time and historical trend data

### Topics

- System Overview
- Accessing DeltaV™ Operate Window, Menus Displays and Directories
- Discrete and Analog Control Module Operation
- Accessing Alarm Displays/Alarm Handling
- Motor Control Module Operation
- Regulatory/Cascade Control Module Operation
- Accessing Real-time/Historical Trend Data
- Unit Alarms
- Sequential Function Chart Operation
- Phase Logic Modules

**COURSE 7012B****CEUs : 1.2****Blended Learning: DeltaV™ Operator Interface for Continuous Control****Audience**

Operators, supervisors and managers responsible for the operation of continuous processes with a DeltaV System. Ideal students for this course are new to the DeltaV System but already have process control/plant experience. This interactive on-line course includes audio presentations, demonstrations, practice sessions, workshops, quizzes and a final examination. The average time to complete the course is 12 hours.

**Topics**

- System Overview; Accessing DeltaV™ Operate
- Navigating in DeltaV Operate
- Discrete, Analog, Regulatory and Cascade
- Control Module Operation
- Motor Control Module Operation
- Accessing: Alarm Displays; Real-Time/
- Historical Trend Data; Process History View

**COURSE 7014****CEUs : 2.1****DeltaV™ Operator Interface for Batch****Overview**

This course is for operators, supervisors and managers responsible for the operation of batch processes using DeltaV system. This 3-day course uses lectures and hands-on workshops to provide an in-depth overview on operating the DeltaV System. It includes all content in course 7012 plus students will:

- Understand basic batch terminology
- Manipulate Unit Module parameters
- Access the Batch Operator Interface
- Run procedures
- Review batch history data

**Topics**

- System Overview
- Accessing DeltaV Operate
- Window, Menus Displays and Directories
- Discrete, Analog, Regulatory and Cascade Control Module Operation
- Motor Control Module Operation
- Accessing Alarm Displays/Alarm Handling
- Accessing Real-time/Historical Trend Data
- Accessing Process History View
- Sequential Function Chart Operation
- Phase and Recipe Controls
- Batch Operator Interface
- Batch Historian
- Campaign Manager

**COURSE 7016****CEUs : 3.2****DeltaV™ Systems Batch Implementation**

This course is designed for individuals responsible for configuring and commissioning DeltaV Batch software.

**Overview**

This 4½-day course covers the implementation of a complete batch application. A process simulator will provide a batch application. Students will use DeltaV Batch software to configure recipe entities including, Aliasing, Equipment Trains, Dynamic Unit Allocation, Phase Logic, Operations and Unit Procedures. Equipment entities will also be configured including, Units modules and Process cells.

**Prerequisites**

Course 7009, DeltaV Implementation I

**Topics**

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



**COURSE 7017****CEUs : 3.2****DeltaV™ Implementation II****Overview**

This sequential course is for users that have completed course 7009. This 4½-day course is for process control engineers responsible for configuring the DeltaV system. Advanced topics will be covered including displays, function blocks and configuration tips.

**Prerequisites**

Course 7009, DeltaV Implementation I

**Topics**

- Function Block Structure
- HART Inputs and Outputs
- Analog Control Blocks
- DeltaV Tune with InSight
- Device Control Options
- Class Based Control Modules
- Expressions
- Unit Alarms
- Multi-Dimensional (Array Parameter)
- Equipment Modules
- Display Environment
- Custom Faceplates
- Custom Dynamos

**COURSE 7014B****CEUs : 1.6****Blended Learning: DeltaV™ Operator Interface for Batch Control****Audience**

Operators, supervisors and managers responsible for the operation of a batch process using the DeltaV system. This is an interactive 16-hour on-line course with DeltaV screens including audio presentations, demonstrations, practice sessions, workshops, quizzes and a final examination.

**Topics**

- System Overview
- Accessing DeltaV Operate
- Navigation in DeltaV Operate
- Discrete, Analog, Regulatory and Cascade
- Control Module Operation
- Motor Control Module Operation
- Accessing Alarm Displays
- Accessing Real-Time/  
Historical Trend Data
- Accessing Process History View
- Phase and Recipe Controls
- Batch Operator Interface
- How to Add/Run Batches

**Note:**

Course access is 3 months

**COURSE 7018****CEUs : 2.8****DeltaV™ Hardware & Troubleshooting**

This course is recommended for instrumentation, maintenance technicians, their managers, and for configuration engineers prior to taking configuration classes. It provides an overview of the DeltaV Control Network, hardware and software applications. Upon completion, you will be able to describe the hardware and perform troubleshooting techniques for the DeltaV Control Network, Controllers, I/O subsystem and workstation.

**Overview**

This 4-day course focuses on the hardware components that make up the DeltaV system. Using a combination of lectures and workshops, you will assemble the system and power up the Controller, I/O subsystem, and workstation. You will learn how to use the diagnostic tools available to verify and locate hardware-related fault conditions, and you will be introduced to configuration tools and the operator interface. If your systems include bus technologies, we recommend courses 7030, 7032 or 7037. The 7018 course satisfies the prerequisite requirement for these bus courses.

**Prerequisites**

Windows experience.

**Topics**

- DeltaV™ Overview
- Controllers
- I/O Cards
- Carriers
- Field Power
- System Power Supplies
- Control Network
- Workstation
- Diagnostics
- Troubleshooting
- DeltaV™ Operate Overview
- Interpreting the Event Journal, Trend Charts & Alarm List
- Introduction to HART Devices and AMS
- Intelligent Device Manager

**COURSE 7027****CEUs : 3.2****DeltaV™ Systems Administration for Windows 7 and Server 2008****Overview**

This 4½-day course is designed for system engineers and administrators responsible for installing, commissioning, and managing a DeltaV system running on the Windows 7 operating system and Windows Server 2008.

**Prerequisites**

Course 7009, DeltaV Implementation I or Course 7018, DeltaV Hardware and Troubleshooting

**Topics**

- Overview/Review of System Components and Topologies
- Installation Checklist of the Windows 7 and Windows Server 2008 Operating Systems
- Installation of the DeltaV Software Components
- DeltaV Control Networks and Remote Access
- DeltaV Domains and Work groups
- User Administration and Network Security
- Upgrading Hardware and Software
- Backup and Restore Procedures
- Importing/Exporting



## COURSE 7026

CEUs : 3.2

**DeltaV™ CyberSecurity Virtual****Overview**

The 4½-day DeltaV Cyber security course focuses on the DeltaV Security Manual and the practical implementation of the guidance provided within. Students will engage in activities to properly apply Emerson's Defense-in-Depth strategies so that students can have the skills to apply these same strategies on their DeltaV systems. Students are encouraged to read the DeltaV Security Manual before attending class.

**Prerequisites**

Course 7027

**Topics****DeltaV™ Deployment Guidelines and Physical Security**

- Define the expected DeltaV installation environment
- Define physical access rules (cabinets, switches, consoles, etc.)

**DeltaV™ Area Control Network**

- Define proper network segmentation and topology rules
- Use DeltaV Firewall-IPD and Smart Switches
- Lock and protect embedded nodes

**Communications Security and Remote Access to DeltaV**

- Define communication and security requirements for remote access
- Use Emerson Smart Firewall
- Deploy Remote Desktop Gateway server
- Configure DeltaV remote desktop server Active Directory Design and User Account Management
- Define Active Directory implementation guidelines
- Create customized DeltaV users and groups
- Audit user privileges
- Configure password policies through Group Policy Objects

**Audience**

DeltaV System Administrators or IT personnel responsible for implementing DeltaV security

**Device Hardening and Event Logging**

- Define device internal and interface protection rules
- Deploy DeltaV Endpoint protection and Application White listing
- Configure Windows Firewall
- Create USB/Removable media Group Policy Object
- Configure syslog and other device logs to report to a System Information and Event Management (SIEM) appliance
- Configure DeltaV Network Security Monitoring appliance
- Use and customize SIEM dashboard to show system events

**Software Patching**

- Define how to obtain and install security patches
- Use Emerson's Automated Patch Management solution

**Backup and Recovery**

- Define best practices and available technologies to backup critical data
- Use the DeltaV Backup and Recovery (Acronis) software

## COURSE 7023

**DeltaV Information Technology for Automation Personnel****Overview**

This 3-day course will provide students a set of essential information technology (I.T.) skills. The course touches different technologies like Physical and Virtualization environments, Networks, Domains and Security. By learning these new technologies using a combination of lecture and hands-on workshops. The student will learn to successfully setup, maintain, and troubleshoot a DeltaV distributed control system, integrate and exchange information with Business Systems and create CyberSecurity awareness. The course will distill the core learnings and techniques required from the Information Technology skill set, providing a targeted launch point for the student to adopt and successfully use these technologies. After attending, students will be prepared to dive deeply into these technologies by attending other higher-level courses like 7027 DeltaV System Administration, 7028 DeltaV Virtualization Administration and 7226 DeltaV CyberSecurity Administration.

**Prerequisites**

None

**Topics**

- Overview
- Networking
- Virtualization
- Domain
- Servers
- DeltaV
- Security
- Troubleshooting
- Custom Faceplates
- Function Block Faceplates
- FRS Functions
- Pop Up Menus
- Color Threshold Tables
- Custom Dynamos
- Tag Groups
- Key Macro Editor

**Audience**

DeltaV System Administrators, Process Control Engineers, Instrumentation/Electrical Technicians, and I.T. Staff supporting the DeltaV system.

**COURSE 7229****CEUs : 3.2****DeltaV Virtualization with HCI****Overview**

This 4 1/2-day course will allow students to perform the installation and configuration of HCI servers with DeltaV Virtual Studio. Additionally, students will learn to configure virtual networking, deploy VMs from template, configure various thin clients, and identify key health metrics and troubleshooting information. The course uses a combination of lectures and hands-on workshops to enable an understanding of the underlying technology and gain skills to implement the solution at site.

**Prerequisites**

Course 7023 or 7027 or equivalent work experience

**Topics**

- Virtualization and Failover Clustering Overview
- Virtualization Hardware Bill of Materials Review
- Network Architecture Planning
- Installation Map / Flow
- Install and Configure the Host Server Operating System
- Using Dell Integrated Dell Remote Access Controller (iDRAC)
- Configuring Remote Direct Memory Access (RDMA)
- Configuring Virtual LANs (VLANs)
- Configure a Hirshmann Greyhound GRS105 switch
- Build Cluster Domain Controller
- Create Cluster Domain
- Install and License DeltaV Virtual Studio (DVS)
- Create a Failover Cluster
- Configure Cluster Quorum
- Storage Pool Operation and Monitoring
- Virtual Switch Configuration
- Review Virtual Machine (VM) Templates
- Create VMs from Templates
- Import/Export VMs
- Creating additional DeltaV Workstation VMs
- Using Various Tools Available in DVS
- Configure Amulet Hotkey DX1600 Thin Client
- Configure Lenovo ThinkCentre M70q Thin Client
- Configure P&F BTC12 Thin Client
- Review Troubleshooting Guides & Info Required for Support Calls
- Enabling HCI Passthrough Alarms into the DeltaV DCS Alarm Banner
- Review Failover Cluster Diagnostics

**Audience**

This course is designed for system administrators responsible for installing and maintaining DeltaV Workstations on a virtual platform.

**COURSE 7025 CEUs : 3.2****DeltaV™ Advanced Graphics****Overview**

This 4½-day course is for process control engineers responsible for configuring advanced functionality in the DeltaV user interface. This course expands on graphic topics covered in both the DeltaV Implementation, course 7009 and DeltaV Implementation II, course 7017.

**Prerequisites**

Course 7009, DeltaV Implementation I

**Topics**

- Visual Basic Primer
- Forms
- Modules
- Schedules
- User Preferences
- Picture Sizing Environment Customization
- Custom Faceplates
- Function Block Faceplates
- FRS Functions
- Pop Up Menus
- Color Threshold Tables
- Custom Dynamos
- Tag Groups
- Key Macro Editor

**COURSE 7028V****CEUs : 2.1****DeltaV Virtualization Administration Virtual****Overview**

This 3 day DeltaV Virtualization course focuses on the various software that is used in the management of a DeltaV Virtualization environment. Students will engage in workshops that will reinforce the material discussed to successfully run and maintain a Virtualized DeltaV system.

**Prerequisites**

7024 DeltaV Systems Administration: XP/Server 2003 or; 7027 DeltaV System Administration

**Topics****Virtualization Hardware Setup**

- Overview of a typical virtualization system
- Differences between a Host and DC Servers
- Role of a DC
- Networks within a virtualized system
- Clusters
- Virtual Networks

**Virtual Machines**

- Review Templates
- Process to create Virtual machines
- Overview of classroom setup
- Create additional DeltaV Workstations

**DeltaV Virtual Studio Tools**

- Grouping
- VM Modifications
- Edit Collection Settings

**Thin Clients**

- DeltaV Remote Desktop Connection (DRDC)
- Redundant Thin Client Networks

**Replication & Disaster Recovery**

- Install/Configure Replication
- Examine replication options
- Recover from failovers

**Health Monitoring & Troubleshooting**

- Emerson SHM
- DVS/Cluster Diagnostics
- DeltaV Alarming
- Failure Scenarios

**Host Patching & Moving VMs**

- Patching Procedures, Verification

**Audience**

This course is designed for system administration personnel that will be maintaining DeltaV workstations on a virtual platform after installation.

**COURSE 7425****CEUs : 3.2****DeltaV Live Graphics Interface Advanced****Overview**

This 4-1/2 day course is for process control engineers responsible for configuring graphics in the DeltaV Live operator interface. This course teaches basic options through advanced configuration topics.

**Prerequisites**

7009, 7409, or 7025

**Topics**

- Graphics Studio
- Environment Customization
- DeltaV Live
- DeltaV Live Administration
- Display Interactions
- Conversion Functions
- Class Based Graphical Element Modules (GEMs)
- Contextual Displays
- Custom Faceplates
- Pop Up Pictures
- Forms
- Layout Configuration - Multi Monitor Configuration
- Display Frame Customization
- Publishing
- Display Hierarchy
- Script Assistant
- Language Changes
- Theme GEMs
- Importing and Exporting Displays

**Audience**

This course is designed for process & process control engineers responsible for obtaining key production data, maintaining, configuring and troubleshooting a DeltaV system with the DeltaV Live Operator Interface.

**COURSE 7303****CEUs : 2.1****DeltaV™ Safety Instrumented System (SIS) Maintenance****Overview**

This course is for individuals responsible for maintaining a DeltaV™ SIS. This 3-day course is a hands-on instructor led course. The course covers the architecture of the DeltaV SIS including Rosemount SIS instruments and Fisher SIS Digital Valve Controllers. Students will gain a working knowledge of the hardware and software allowing them to troubleshoot and maintain the system.

**Prerequisites**

Course 7018, DeltaV Hardware and Troubleshooting, is a requirement.

**Topics**

- Safety Life cycle
- DeltaV SIS Overview
- DeltaV SIS Hardware
- Safety Instrumented Functions
- Rosemount SIS Instruments
- AMS Device Manager

Fisher SIS Digital Valve Controller SISNet Repeaters course offerings and are not part of this course.

**COURSE 7501V****CEUs : 0.7****DeltaV Backup & Recovery Virtual****Overview**

This 1.0-day course is designed for control system administrators and IT specialists responsible for managing, installing and executing Backup and Recovery procedures for DeltaV. The course will be a combination of lectures and hand-on workshop exercises.

**Prerequisites**

7023 or 7027 or equivalent DeltaV administration experience

**Topics**

- Backup and Recovery Overview
- Backup and Recovery
- Backup and Recovery Installation
- Installing Components on Manage Machines
- Universal Restore Utility
- Backup Plan Templates
- Backup Recovery Groups
- Backup Recovery Vaults
- Backing up a System
- Scheduling Backups
- Monitoring the Backup and Recovery System
- Recovering Backups
- Maintaining and Troubleshooting DeltaV Backup and Recovery
- Creating Reports for DeltaV Backup and Recovery

**Audience**

This course is designed for control system administrators and IT specialists

## COURSE 7201

CEUs : 3.2

**DeltaV™ Advanced Control****Overview**

This 4½-day course introduces students to the advanced control tools available within DeltaV™ and how they may be used to improve plant operations. The principal technology that is utilized in each product will be discussed. The areas of improvement that may be achieved will be detailed. Also, each student will gain hands-on experience with these tools in class exercises based on realistic process simulations.

**Prerequisites**

Courses 7101, PlantWeb™ DeltaV™ Intro or 7009, DeltaV Implementation I or equivalent field experience.

**Topics****The Control Foundation in DeltaV™**

- Traditional Tools e.g. Override, Cascade, Ratio
- Improvements Provided by Advanced Control

**DeltaV™ Inspect with InSight**

- Detection of Abnormal Conditions
- Performance Indices
- Performance Reports

**DeltaV™ Tune with InSight**

- Tuning Response
- Process learning
- Adaptive Tuning
- Adaptive Control

**DeltaV™ Fuzzy**

- Principles of logic Control FIC Function Block, Tuning

**DeltaV™ Predict**

- MPC for Multi Variable Control
- Model Identification, Data Screening
- Simulation of Response, Tuning

**DeltaV™ Neural**

- Creation of Virtual Sensor
- Data Screening, Training
- DeltaV Simulate Suite
- Process Simulation



## COURSE 7303

CEUs : 2.1

**DeltaV™ Safety Instrumented System (SIS) Maintenance****Overview**

This course is for individuals responsible for maintaining a DeltaV™ SIS. This 3-day course is a hands-on instructor led course. The course covers the architecture of the DeltaV SIS including Rosemount SIS instruments and Fisher SIS Digital Valve Controllers. Students will gain a working knowledge of the hardware and software allowing them to troubleshoot and maintain the system.

**Prerequisites**

Course 7018, DeltaV Hardware and Troubleshooting, is a requirement.

**Topics**

- Safety Life cycle
- DeltaV SIS Overview
- DeltaV SIS Hardware
- Safety Instrumented Functions
- Rosemount SIS Instruments
- AMS Device Manager
- Fisher SIS Digital Valve Controller
- SISNet Repeaters course offerings and are not part of this course.

COURSE 7999

CEUs : 1.4

## DeltaV™ New Features

### Overview

This 2-day course covers the new features and enhancements made to the DeltaV Distributed Control System in v13 and v14 using a combination of lectures, demos and hands-on workshop exercises.

Students who complete the course will:

- Understand the new features and enhancements introduced in DeltaV v13 and v14
- Understand the benefits of the new features
- Understand how to apply the new features
- Perform workshop exercises implementing the new features

### Prerequisites

- Course # 7009, 7409 or 7018

### Topics

The course includes 40 core topics and 32 optional topics categorized under the following functional areas:

- Administration
- Alarm Management
- Batch
- Hardware
- Logic Configuration
- Miscellaneous
- Operator Interface
- Security
- SIS

The 40 core topics require 2-days to complete. The course may be customized based on the individual site's topics of interest. For customized course delivery, the course duration will be determined based on the topics to be included or excluded.

### Audience

This course is intended for plant personnel responsible for configuring, administering, securing, maintaining and operating DeltaV. This includes control system engineers, administrators, maintenance engineers and technicians.



## COURSE 7304

CEUs : 2.1

## DeltaV™ Safety Instrumented System with Electronic Marshalling Maintenance

### Overview

This course is for Electrical & Instrument technicians, maintenance technicians, E&I/ reliability engineers and other personnel responsible for maintaining DeltaV SIS with Electronic Marshalling. This 3-day hands-on instructor led course covers the architecture of the DeltaV™ SIS with Electronic Marshalling including Rosemount™ SIS instruments and Fisher™ SIS Digital Valve Controllers. Students will be able to identify the DeltaV™ SIS with Electronic Marshalling hardware and software components. Students will be able to configure Partial Stroke Test using DeltaV™ SIS with Electronic Marshalling. Students will practice troubleshooting and maintenance techniques with DeltaV™ SIS simulators throughout the course.

### Prerequisites

Course 7018, DeltaV™ Hardware and Troubleshooting, is a requirement.

### Topics

- Safety Life cycle
- DeltaV™ SIS Overview
- DeltaV™ SIS with Electronic Marshalling Hardware Architecture Including Power Requirements
- Commissioning & Downloading the DeltaV™ SIS with Electronic Marshalling components
- Safety Instrumented Functions
- Rosemount SIS Instruments
- AMS Device Manager
- Fisher™ SIS Digital Valve Controller
- DeltaV™ Diagnostics
- Partial Stroke Test using DeltaV™

## COURSE 7305

CEUs : 3.2

## DeltaV™ SIS Implementation

### Overview

This course is for personnel who design, implement, commission and service DeltaV™ SIS. This 4½-day course is a hands-on instructor led course. The course covers complete DeltaV™ SIS Implementation including hardware and software architecture. Students will be able to design a DeltaV™ SIS Network and Safety Instrumented Functions (SIFs). Additionally, students will be able to configure smart SIS instruments and their associated alerts, including partial stroke testing.

### Prerequisites

Course 7009 is a requirement. Recommend IEC 61511 knowledge.

### Topics

- DeltaV™ SIS Overview
- DeltaV™ SIS Hardware
- Configuring SIFs in DeltaV™
- Rosemount™ SIS Instruments
- AMS Device Manager
- Fisher™ SIS Digital Valve Controller
- SISNet Repeaters
- DeltaV™ SIS Security
- DeltaV™ Version Control





**COURSE 7409****CEUs : 3.2****DeltaV Using DeltaV™ Live Operator Interface Implementation I****Overview**

During the 4½-day course, the student will be able to define system capabilities, define nodes, configure continuous and sequential control strategies, create process alarms, operate the system, troubleshoot the system and modify operator displays using the DeltaV Live Operator Interface introduced with DeltaV™ Version 14.3.

This course includes access to a virtual DeltaV system to practice and review course workshops complete with brief recorded demonstrations available after course completion.

This course is designed for process & process control engineers responsible for obtaining key production data, maintaining, configuring and troubleshooting a DeltaV™ system.

**Prerequisites**

Microsoft Windows experience. Prospective attendees lacking process control experience should first attend Control Loop Foundation, Course 9025.

**Topics**

- System Overview
- DeltaV Explorer
- DeltaV Diagnostics
- Control Modules
- Control Studio
  - Motor Control with Interlocking & Permissive Conditions
- Cascade Control
- Regulatory Control DeltaV Live
- Graphics Studio
- System Operation
- Alarms & Process History View
- Alarm Help
- Sequential Function Charts
- Configure Theme Dynamos
- Electronic Marshalling (CHARMS)

**COURSE 7009****CEUs : 3.2****DeltaV Operate Implementation I Introduction****Overview**

During the 4-1/2 day course, the student will be able to define system capabilities, define nodes, configure continuous and sequential control strategies, create process alarms, operate the system, troubleshoot the system and modify operator displays.

This course includes access to a DeltaV system to practice and review course workshops complete with brief recorded demonstrations available after course completion.

**Prerequisites:**

Microsoft Windows experience. Prospective attendees lacking process control experience should first attend Control Loop Foundation, Course e9025.

**Topics**

- System Overview
- DeltaV Explorer
- DeltaV Diagnostics
- Control Modules
- Control Studio
- Motor Control with Interlocking and Permissive Conditions
- Regulatory Control
- Cascade Control
- DeltaV Operate
- System Operation
- Alarms & Process History
- Sequential Function Charts
- Theme Dynamos

**Audience**

This course is designed for process & process control engineers responsible for obtaining key production data, maintaining, configuring and troubleshooting a DeltaV system.

**COURSE 7309****CEUs : 2.8****AMS Device Manager with DeltaV™****Overview**

This 4-day course is for instrumentation technicians responsible for all areas of managing and ensuring the reliability of instrumentation in the plant process including startup and commissioning, normal operations, maintenance, and troubleshooting. The target audience usually does following:

- Responds to work orders created to calibrate, troubleshoot, repair, service, and replace instruments and valves
- Monitors alerts to preemptively address problems prior to operators seeing a problem in the control room
- Provides loop testing & assistance with instrumentation in plant turnarounds, startups, and for project work
- Improves process availability & reduces operations and maintenance costs

**Prerequisites**

Microsoft windows experience. Minimal DeltaV™ and AMS experience is recommended but not required. Recommended to take 7018, but not required.

**Topics**

- DeltaV™ and PlantWeb™ Overview
- AMS Device Manager Overview
- FOUNDATION™ fieldbus Overview
- ValveLink™ SNAP-ON Introduction
- ValveLink™ DVC Setup
- ValveLink™ SNAP-ON Tests and Diagnostics
- HART® Overview
- PROCONEX QuickCheck SNAP-ON
- PROFIBUS Overview
- PlantWeb™ Alerts
- AMS Device Manager User Interface
- Setup and use of Alert Monitor in AMS Device Manager
- Device Replacement for HART, Fieldbus, and PROFIBUS Devices
- AMS Device Manager Audit Trail
- AMS Device Manager Calibration

**COURSE 7201CV****CEUs : 0.7****DeltaV InSight Virtual****Overview**

This 1-day course introduces students to DeltaV™ InSight and how it may be used to improve the plant operations. The measurement of the process dynamics will be discussed, and the DeltaV™ Tune application will be introduced and used with Adaptive Tuning and Adaptive Control. Also, each student will gain hands on experience with these tools in class exercises based on realistic process simulations.

**Prerequisites**

7009, DeltaV Implementation I or equivalent field experience.

**Topics**

- DeltaV Tune with InSight
- Measurement of Process Dynamics
- Tuning Methods Tuning Response
- Process Learning
- Adaptive Tuning
- Adaptive Control
- DeltaV Inspect with InSight
- Detection of Abnormal Conditions
- Performance Indices
- Performance Reports

**COURSE 7027V****CEUs : 3.2****DeltaV Administration Virtual Course****Overview**

This 4½-day course is designed for control system administrators, process control engineers and IT specialist responsible for managing, installing, and commissioning a DeltaV™ system. This course includes access to a virtual DeltaV system to practice and review course workshops complete with brief recorded demonstrations available after course completion. This course is designed for control system administrators, process control engineers and IT specialist responsible for managing, installing, and commissioning a DeltaV system.

**Topics**

- Overview of system components and topologies
- DeltaV domain setup, including independent deltav domain controllers
- DeltaV installation procedures
- Licensing
- Import and export of configuration
- Firmware upgrades
- Controller health diagnostics
- User administration
- Configuration Database administration
- Creating additional workstations
- Auto Update services
- Continuous historian administration
- Advanced continuous historian administration
- Remote desktop services
- Event chronicle administration
- Network Time Protocol configuration/diagnostics
- Backup and restore procedures

**COURSE 7202****CEUs : 2.5****DeltaV™ Model Predictive Control****Overview**

This 3-1/2-day course is designed for process and control engineers who are applying DeltaV™ Predict and Predict Pro. It provides practical examples of how to determine the benefits of MPC application and how this control may be used to meet specific application requirements. Students will gain hands on experience through lab exercises based on realistic dynamic process simulations.

This course is designed for process and control engineers who are applying DeltaV™ Predict and Predict Pro.

**Prerequisites**

7201 DeltaV™ Advanced Control Topics

**How to Justify an MPC Project**

- Evaluating the cost of process variation
- Estimating the reduction in variation that is possible using mpc
- Calculating the benefit of maximizing throughput when plant production is restricted by input limits or measurable constraint
- Meeting application requirements
- Meeting control requirements when the response times are very different
- Understanding the design and testing of an integrating process
- Tailoring control performance
- Placing more emphasis on selected control or constraint parameters
- Improving control performance when the process is dead time dominant
- Compensating for large changes in process gain or dynamics
- Minimizing the impact of process noise on control performance
- MPC application
- Selecting and applying MPC, MPC-Pro and MPC-Plus blocks
- Optimizing control
- Optimizing the control

## COURSE 7028

CEUs : 2.1

## DeltaV Virtualization Administration with HCI

**Overview**

This 3 day DeltaV Virtualization course focuses on the various software that is used in the management of a DeltaV Virtualization environment. Students will engage in workshops that will reinforce the material discussed to successfully run and maintain a Virtualized DeltaV system.

**Prerequisites**

7024 DeltaV Systems Administration: XP/Server 2003 or;  
7027 DeltaV System Administration

**Topics****Virtualization Hardware Setup**

- Overview of a typical virtualization system
- Differences between a Host and DC Servers
- Role of a DC
- Networks within a virtualized system
- Clusters
- Virtual Networks

**Virtual Machines**

- Review Templates
- Process to create Virtual machines
- Overview of classroom setup
- Create additional DeltaV Workstations

**DeltaV Virtual Studio Tools**

- Grouping
- VM Modifications
- Edit Collection Settings

**Thin Clients**

- DeltaV Remote Desktop Connection(DRDC)
- Redundant Thin Client Networks

**Replication & Disaster Recovery**

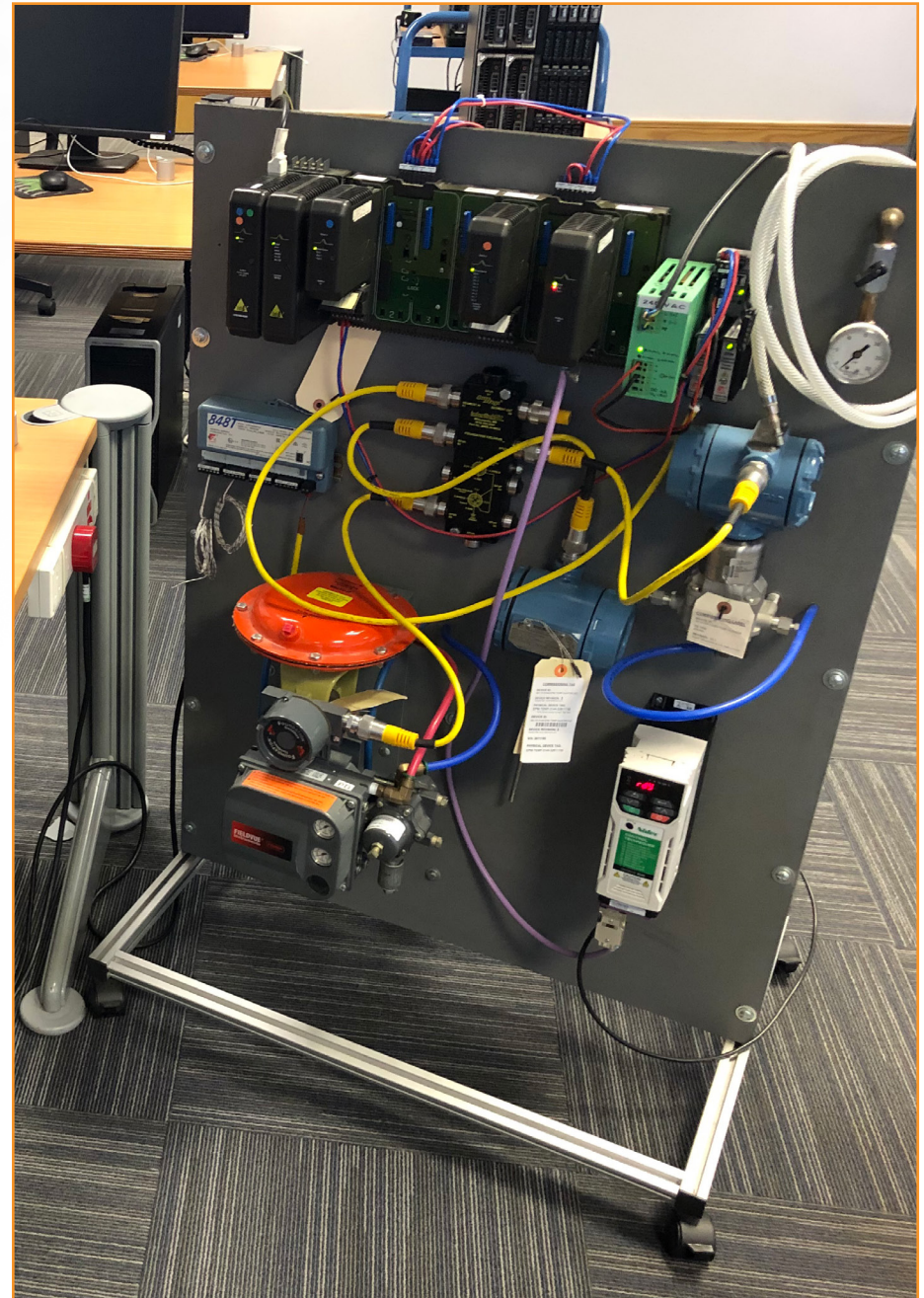
- Install/Configure Replication
- Examine replication options
- Recover from failovers

**Health Monitoring & Troubleshooting**

- Emerson SHM
- DVS/Cluster Diagnostics
- DeltaV Alarming
- Failure Scenarios

**Host Patching & Moving VMs**

- Patching Procedures, Verification



**COURSE 7180V****CEUs : 3.2****DeltaV MES Implementation  
Virtual****Overview**

This 4.5-day course aims to equip the students to understand where Syncade fits on a production environment. This includes the applications of different modules that Syncade has in a manufacturing environment. These modules are Security & Audit (SA), Document Control & Archiving (DCA), Equipment Tracking (ET), Materials and Inventory Management (MM & IM), Order Management (OM), Weigh & Dispense (WD), and Quality Review Manager (QRM). This course also allows the students to build a basic recipe to be created via Recipe Authoring (RA) application and simulate it via Workflow (WF).

**Prerequisites**

None

**Topics**

- Manufacturing Operations Management
- Security and Audit (SA)
- Portal
- Document Control & Archiving (DCA)
- Process Simulation
- Equipment Tracking (ET)
- Materials Management (MM)
- Inventory Management (IM)
- Recipe Authoring (RA) Overview
- Work Instruction (WI)
- RA Database Items
- Operations (OP), Unit Procedures (UP), Procedures (PRC)
- Process Segment (PS)
- Master Recipe (MR)
- Order Management (OM)
- Weigh & Dispense (WD)
- Workflow (WF)
- Manufacturing and Quality Review (MR/QRM)

**COURSE 7181V****CEUs : 3.2****DeltaV MES Authoring Principles  
Virtual****Overview**

A 4-day intensive recipe authoring course, which focuses on how users can effectively write recipes in DeltaV MES Recipe Authoring application using different strategies. These may include combination of principles in defining the work instruction and its parameters, configuring effective recipe steps pathways, automating tasks through behaviors, and understanding parameter data links implementation. Other recipe authoring functions are also discussed with respect to its formula and recipe hierarchy definitions. Supplementary recipe authoring tools, which includes RA Behavior Editor and Resource Editor, will also be discussed. An overview on DeltaV integration options will also be explored.

**Prerequisites**

7180 DeltaV MES Operations Implementation

**Topics**

- Batch Process Overview
- Defining the Batch Process
- Configuring Work Instructions
- Recipe Steps Pathway
- Behaviors
- Parameter Data Link
- Formula
- Resource Editor
- Configuring Recipes
- RA Database Update
- DeltaV Recipes
- Integrated Recipes Overview

**COURSE 7182V****DeltaV MES Quality Review  
Manager Virtual****Overview**

This course aims to equip students how to effectively configure and operate manufacturing review via review-by-exception methodology using the Quality Review Manager (QRM) of DeltaV MES Operations suite. This course discusses QRM settings and exception generation methodologies with hands on workshop to facilitate learning. Exception reviews, resolution, and manufacturing review through the QRM will also be explored. This course allows the students to see the entire review-by-exception approach of closing an order.

**Prerequisites**

7181 DeltaV MES Recipe Authoring Principles

**Topics**

- Quality Review Manager Overview
- QRM Administration
- General Settings
- Severities
- Resolutions
- Exception Types
- Perspectives
- Email Templates
- Subscriptions
- Manufacturing Review
- Syncade Exception Triggers
- Automation Exception Triggers
- Quality Review Manager Operations

**COURSE 7183V****CEUs : 2.1****DeltaV MES Equipment Management Virtual****Overview**

This 3-day course will provide the user with the necessary skills to create, configure and maintain equipment used in the production process. Users will configure equipment classes and equipment that will provide a solution for managing equipment use, maintenance and calibration information. Events will be set upon the equipment class that define actions that can be performed, or need to be performed, on equipment created from the equipment class. Rules and groups will be configured to assist in implementing controls on equipment and when certain events need to occur. Schedules will be created to set up periodic preventive maintenance and work orders will be created to cover the unscheduled activities that may be needed to fully utilize production equipment. Recipes will be created to manage equipment hygienic, assembly, and usage states using default behaviors.

**Prerequisites**

None

**Topics**

- Equipment Management Overview
- Equipment Class
- Equipment Instance
- Performing Events
- Groups & Rules
- Container Contents
- Parameter, Materials, Labor, & References
- Equipment Management Recipes
- Equipment Workflow
- Calibration
- Work Order
- Equipment Tracking Administration

**COURSE 7181V****CEUs : 2.1****DeltaV MES Operations Virtual****Overview**

This course is for operators, supervisors, and managers responsible for fulfilling manufacturing activities using DeltaV MES Operations.

This 2.5-day course uses lectures and hands-on workshops to provide an in-depth overview on operating the DeltaV MES Operations modules.

Activities that will be explored on a specific DeltaV MES module in this course are as follows:

- Viewing effective documents (DCA)
- Training self-certification (TD)
- Perform equipment events and launch equipment workflows (ET)
- Understand basic batch terminology
- Understand order lifecycle and performing electronic workflows (OM, WD, and WF)
- Respond to batch exceptions and generating batch reports (QRM)

**Prerequisites**

None

**Topics**

- Operations Management
- Documents and Trainings
- Simulated Process
- Equipment Management
- Materials and Inventory Management
- Recipe Overview
- Order Management and Execution
- Weigh & Dispense
- Workflows
- Manufacturing Review
- Quality Review Manager
- DeltaV MES Portal

**COURSE 7182V****DeltaV MES Quality Review Manager Virtual****Overview**

This class will provide the user with the necessary skills to create and manage all types of materials as they flow into, through and out of the production environment during order execution. Users will create material masters to define the material characteristics, create inventory, create and execute orders, allocate materials, create material samples, track lots and containers and perform weigh and dispense activities. Recipes will also be created to accomplish these activities using Emerson standard behaviors.

**Prerequisites**

7181 - DeltaV MES Recipe Authoring Principles

**Topics**

- Manufacturing Management Overview
- Materials Management
- Inventory Management
- Lots and Containers
- Order Management
- Creating Orders
- Material Allocation
- Material Dispensing
- Trusted Dispensing
- Consuming Inventory
- WD Equipment Recipes
- Material Handling Recipes
- Manufacturing and Quality Review
- Manufacturing Administration
- Materials Transaction



## AMS (ASSET RELIABILITY)

## ASSET RELIABILITY

### Paths to Success

Emerson training gives you the confidence and experience in industrial maintenance technologies. Our alumni can tell you about the recognition and job promotions they've received from plant management. With Emerson, you walk down a path that leads to full mastery of knowledge and skills necessary in a Machinery Health program. These "Paths to Success" are outlined here. They include both theory/ application courses for certification as well as product-specific courses. Offered at Emerson's training centers, these classes can also be held at your chosen facility. For a calendar schedule of courses and registration information, visit [https://mytraining.emerson.com/lmt/clmsbrowseV2.prmmain?in\\_sessionid=2J845A531298544](https://mytraining.emerson.com/lmt/clmsbrowseV2.prmmain?in_sessionid=2J845A531298544)

#### Category I Vibration Analyst Path to Success

- Fundamentals of Vibration Analysis
- Fundamentals of CSI 2130 Machinery Health Analyzer
- Basic Vibration Analysis
- Introduction to AMS Machinery Manager
- Category I Vibration Analyst Certification Exam

#### Category II Vibration Analyst Path to Success

- Intermediate Vibration Analysis
- Intermediate AMS Machinery Manager
- SI 2140 Advanced Function with PeakVue™
- Category II Vibration Analyst Certification Exam

#### Category III Vibration Analyst Path to Success

- Advanced Vibration Analysis
- Advanced AMS Machinery Manager
- PeakVue™ Mystery and Autocorrelation
- Category III Vibration Analyst Certification Exam

#### Online Monitoring Path to Success

- Online Prediction (CSI 4500/6500/XP32)
- Operation and Maintenance
- Online Protection (CSI 6000/6500)
- Operation and Maintenance
- Turbo Machinery Diagnostic

#### Lubrication Analyst Path to Success

- Lubrication Level 1 & 2 with Certification exam
- Wear Debris Analysis Workshop
- OilView® for AMS Machinery Manager
- Reliability Management Path to Success
- Maintenance Best Practice
- Root Cause Failure Analysis Adding other Technologies to your Credentials
- Laser Alignment
- Balancing Theory & Application
- Basic Ultrasonic Theory & Technology & Level 1 Certification Exam
- Electric Motor Diagnostics & Basic Motor View
- IR Thermography & Level 1 Certification Exam



Companies today rely on fewer people to do more work. That's why the need of training is more critical than ever to achieve and maintain cost-effective maintenance programs.

**COURSE 2069****CEUs : 1.4****Vibration Analysis Fundamentals**

This course is for individuals responsible for interfacing with Device Net, AS-i, Profibus DP HART and serial communication buses to a DeltaV™ scalable system.

**Overview**

This 2-day vibration training course is for those with no prior experience in vibration analysis. The class prepares participants for the Basic Vibration Analysis Course. Students learn about causes of vibration and methods of measurement. Although the training course does not provide instruction on Emerson's CSI technologies, the class will use them to demonstrate vibration principles.

**Prerequisites**

None

**Topics**

- Introduction to Vibration
- Components of a Predictive Maintenance Program
- Basic Fault Identification
- Vibratory Fault Characteristics and Patterns
- Information to Help Jump Start a Vibration Program

**COURSE 2031****CEUs : 2.8****Basic Vibration Analysis / Category I Compliant****Overview**

This course is for individuals needing an introduction to the technology and concepts used in the new generation of process control systems. This 4-day course complies with Category I Vibration Analyst per ISO standard 18436-2: Vibration condition monitoring and diagnostics. 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. Although this training course is not product specific, students will use Emerson's CSI technologies for demonstration purposes. The class shows the student how to use the vibration analyzer in conjunction with Emerson Machinery Health Management supported software to analyze basic vibration defects.

**Prerequisites**

Fundamentals of vibration or up to six months of vibration experience is recommended.

**Topics**

- Principles of Vibration
- Data Acquisition & Signal Processing
- Condition Monitoring & Corrective Action
- Equipment Knowledge
- Acceptance Testing
- Basic Analyzer Functions
- The Class Shows Students How to
- Recognize Machine Defects such as:
  - » Unbalance
  - » Shaft Misalignment
  - » Looseness
  - » Rolling Element Bearing Defects Gear Problems
  - » Resonance Introduction to Electrical Defects
  - » Introduction to Electrical Defects

Participants will receive a complimentary copy of the Pocket Vibration Analysis Trouble-Shooter Guide.

Emerson helps maximize the return on your investment in technology and people.

## COURSE E2069

CEUs : 0.2

## Fundamentals of Vibration eLearning

**Overview**

This 2 hour e-course provides instruction to individuals with no prior experience in vibration analysis. The course introduces the technology of vibration analysis by explaining what vibration analysis is and how it plays a critical role in any predictive maintenance program. Students are led through a self-paced discussion on how vibration analysis works with many examples of the types of faults that can be detected. Students will also gain an understanding of where and how vibration is measured with an emphasis on good data collection techniques. Students will learn important terminology that will be critical to their success as they progress to the next level of training in vibration analysis; Emerson's Basic Vibration Analysis course.

**Topics**

Chapter 1: Fundamentals of Vibration  
 Chapter 2: How is Vibration Measured?  
 Chapter 3: Understanding the Vibration Signal  
 Chapter 4: Vibration Units  
 Chapter 5: Analysis Parameters  
 Chapter 6: Data Analysis: Where to begin?

**Note:**

Typical duration of course access is 3 months. Contact [education@emerson.com](mailto:education@emerson.com) to request an extension.

Our instructors share their own **real-world experiences** and guide classes through **hands-on exercises** that reinforce the lesson. Reliability Solutions strategy includes training courses designed to help you start-up and maintain your mechanical equipment. Our goal is to provide you with the knowledge to keep your plant running smoothly.

## COURSE 2032

CEUs : 2.8

## Intermediate Vibration Analysis/Category II Compliant

**Overview**

This 4-day course complies with Category II Vibration Analyst per ISO standard 18436- 2: Vibration condition monitoring and diagnostics. Category II vibration analysts are expected to be able to select appropriate vibration measurement techniques, set up instruments for basic resolution of amplitude, frequency, and time, perform basic spectrum analysis, maintain a database of results and trends, perform single-channel impact tests, classify, interpret and evaluate test results in accordance with applicable specifications and standards, recommend minor corrective actions, and understand basic single plane field balancing concepts. This course also features the use of the CSI 2140 Machinery Analyzer in conjunction with advanced machinery analysis techniques. Discussions of case histories on machinery faults are one of the focal points of this course.

**Prerequisites**

Basic Vibration Analysis course and accumulative 18 months of field experience are recommended.

**Topics**

- Equipment Testing and Diagnostics
- Reference Standards
- Reporting and Documentation
- Fault Severity Determination
- Analyzer Averaging Techniques
- Slow Speed Applications using Slow Speed Technology (SST®)
- Sensor Selection Guidelines
- Introduction to Demodulation and PeakVue®
- Advanced Waveform Analysis
- Sideband Analysis
- Rolling Element Bearing Failure Modes
- Advanced Electrical Analysis Techniques
- Pump/fan Vibration
- Phase Analysis using Single and Dual Channel
- Perform Basic Single-Plane Field Balancing

**COURSE 2068****AMS Machinery Manager Introduction****Overview**

In this 4-day class 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. A machinery analyzer is used to demo the process of loading routes for data collection. This course will also include a basic overview of the vibration plotting application and reporting functions. This course is based on the current mass release of the AMS Machinery Manager software. Students can call to verify if the course is appropriate to the version they are using. Wireless technology, Infrared Analysis, Motorview, Online Monitoring and Oilview modules are covered in other course offerings and are not part of this course.

**Prerequisites:**

Computer experience with the Windows operating system and some vibration analysis experience are recommended.

**Topics:**

- RBM wizard
- Database Setup
- Route Management
- Reports
- Vibration Analysis Module

**Audience**

This course was designed for the new users of AMS Machinery Manager.

**COURSE 2076****Machinery Health AMS 2140 Introduction****Overview**

This 2-day hands-on course focuses on the basic operation of the AMS 2140 Machinery Health Analyzer. Students collect data on lab machines.

**Prerequisites:**

Understanding of vibration analysis. Familiar with basic vibration collection principles.

**Topics:**

- Analyzer/Computer Communication
- Predefined Route Data Collection
- Job Data Collection and Setup
- Manual Mode Measurements
- Introduction to AMS 2140 Analysis Expert Functions

**Audience**

This course is designed for personnel with little or no experience with AMS analyzers, but who are experienced in the field of vibration data collection and analysis.

**Note:**

You may take with Fundamentals of Vibration as a 4-day course.

**COURSE 2082****Machinery Health Lubrication Introduction & Intermediate****Overview**

Guidelines and instruction for starting an oil analysis program will be provided in this 4-day course. The course focuses on the basic properties of lubricants and lubricant specifications including additive packages.

An overview of laboratory testing methods and interpretation of test data is taught.

In addition, instruction is provided on proper storage and handling of new, unused lubricants, as well as sample point identification and best practices for collecting samples from machinery. Basic contamination control and wear debris analysis and identification is covered.

The focus of the level two portion of the course is the use of oil analysis with other predictive technologies to enhance a machinery health program. Machine life extension and reduction of unscheduled downtime will be covered in depth. Training includes introductions to lubricant engineering, failure concepts, and failure prevention. Information will be provided on greases and synthetic lubricants, including advantages and applications.

The importance of Wear Debris Analysis and contamination control and their impact on reliability will be stressed. Guidelines and step-by-step procedures will be offered for consolidating lubricants, setting alarm limits, as well as managing and enhancing existing lubrication programs. Optional Level I & Level II Lubrication Certification exams will be administered at the end of the course for no charge.

**Audience**

This course is designed for individuals who have limited or no oil analysis experience.

**COURSE 2076**

CEUs : 1.4

**Fundamentals of CSI 2140 Machinery Health Analyzer****Overview**

This 2-day hands-on course focuses on the basic operation of the CSI 2140 Machinery Health Analyzer. Students will collect data on lab machines. This course is designed for students with little or no experience with CSI analyzers, but who are experienced in the field of vibration data collection and analysis.

**Prerequisites**

Understanding of vibration analysis.

**Topics**

- Analyzer/Computer Communication
- Predefined Route Data Collection
- Off-Route Data Collection and Setup
- Monitor Mode Measurements
- Peak and Phase Measurements

**Note:**

You may take with Fundamentals of Vibration as a 4-day course.

**COURSE 2021EX****Vibration Analyst Exam Category I****Overview**

Category I exam, available at the end of course 2031.

**Test Format:** Written exam,

**Duration:** 2 hours,

**Passing Grade:** 75%

**Eligibility for Examination:**

- Recommended Minimum Duration of Cumulated Training (hours): 32
- Recommended Minimum Duration of Cumulated Experience (months): 6

**COURSE 2022EX****Vibration Analyst Exam Category I****Overview**

Category II exam, available at the end of course 2032.

**Test Format:** Written exam,

**Duration:** 3 hours,

**Passing Grade:** 75%

**Eligibility for Examination:**

- Recommended Minimum Duration of Cumulated Training (hours): 70
- Recommended Minimum Duration of Cumulated Experience (months): 18
- Passing Category I exam is NOT a prerequisite for taking Category II exam.

## COURSE 2035/2075

CEUs : 2.1

**Mystery PeakVue™ and Autocorrelation****Overview**

This 3-day course 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. The Autocorrelation section of the course will teach the power of the autocorrelation coefficient function for the analysis of vibration induced time wave form data. The autocorrelation function data generally are computed from the same time wave form data used to compute the spectrum. The strengths of the autocorrelation data are complimentary to the strengths of the spectral data. This course makes use of both case studies from real-life examples of common faults and live demonstrations illustrating specific mounting procedures to reliably detect certain faults. The difference between PeakVue™ techniques and demodulation will also be demonstrated

**Prerequisites**

Students should be familiar with vibration data collection and analysis techniques and the use of AMS Machinery Manager Software.

**Topics**

- Proper PeakVue™ Set-Ups for all
- Speeds (as low as 1 rpm)
- 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 Wave form Data
- Highlight the Strengths of the Autocorrelation Coefficient Function Data/ Spectra Data
- Demonstrate the use of the Autocorrelation
- Coefficient Data as a Diagnostic Tool to Support the Spectra Data for Vibration
- Analysis Through Several Case Studies
- Identify Unique Patterns of the Autocorrelation Function Data for Certain Classes of Bearing Faults, Gearing Faults, etc.

## COURSE 2068

CEUs : 2.8

**Introduction to AMS Machinery Manager****Overview**

This 4-day course was designed for the new users of AMS Machinery Manager. 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. A CSI 2140 Analyzer will be used to load routes and collect data on lab machinery for basic vibration analysis using Export and Diagnostic Plotting.

**Prerequisites**

Computer experience with the Windows operating system and Basic Vibration are recommended.

**Topics**

- Navigation
- Database Creation
- Data Collection
- Basic Analysis and Reporting
- Link to RBMview®
- Data locker Management (lite)

This course is based on the current mass release of the AMS Machinery Manager software. Students can call to verify if the course is appropriate to the version they are using. Advanced Vibration Analysis Module, Infrared Analysis, Motorview, CSI On-Line Machinery Health Monitor and Oilview modules are covered in other course offerings and are not part of this course.

**COURSE 2074****CEUs : 2.1****Intermediate AMS Machinery Manager****Overview**

This 3-day course was designed for students who have a basic understanding of AMS Machinery Manager. Students expand their knowledge of machinery analysis techniques, focusing on analysis and reporting using Plot- Data, Diagnostic Analysis, Export, PeakVue™ and the full version of RBMview®. Prerequisites Introduction to AMS Machinery Health Manager Course

**Topics**

- Vibration Analysis Module
- Export
- PeakVue™ Technology
- RBMview®
- PlotData

This course is based on the current mass release of the AMS Machinery Manager software. Students can call to verify if the course is appropriate to the version they are using. Infrared Analysis, Motorview, CSI On-line Machinery Health Monitor and Oilview modules are covered in other course offerings and are not part of this course.

**COURSE 2076****CEUs : 1.4****Fundamentals of CSI 2140****Overview**

This 2-day hands-on course focuses on the basic operation of the CSI 2140 Machinery Health Analyzer. Students collect data on lab machines. This course is designed for personnel with little or no experience with CSI analyzers, but who are experienced in the field of vibration data collection and analysis.

**Prerequisites**

Understanding of vibration analysis. Familiar with basic vibration collection principles

**Topics**

- Analyzer/Computer Communication
- Predefined Route Data Collection Job Data Collection and Setup
- Manual Mode Measurements
- Introduction to CSI 2140 Analysis Expert
- Functions

**Note:**

You may take with Fundamentals of Vibration as a 4-day course.

**COURSE 2088A****CEUs : 2.8****Online Prediction: Operation and Maintenance****Overview**

This 4-day course explores the operation, use and application of online monitoring and transient capture technologies using CSI's 4500, 6500, XP-32 and 2600 online products and AMS Suite: Machinery Health Monitoring Software.

**This course is intended for:**

- Anyone interested in online monitoring and transient capture
- Reliability managers
- Vibration analysts and technicians
- Responsible for reliability services

**Prerequisites**

Knowledge of vibration and industrial machinery is helpful, but not necessary.

**Topics**

- On-line Monitoring Database Configuration including Gross Scan and Spectral Scan
- Database Construction of Sleeve Bearing
- Configuration including Shaft Centerline
- Plots and Orbits
- Sensor Configurations for Various Sensor
- Types including: Accelerometer, Velocity,
- Proximity Probe, Microphone, Pressure,
- Laser Displacement, Temperature and other Sensors
- Practical Application of Input and Output Relays
- Troubleshooting Tools (Putty or Tel net)
- Constructing Analysis Parameter Sets for Normal Vibration, High Frequency Vibration, PeakVue™ and Process Signals
- Time and Predicate Based Data Collection Sets
- On-line Watch Program Operation
- Transient Capture Database Configurations
- Transient Auto Archive Creation
- Transient Data Extraction
- Online and Transient Capture Case Histories
- Analyzing On-line and Transient Data using the Vibration Analysis Program

**COURSE 2094****CEUs : 1.4****Advance CSI 2130 with PeakVue****Overview**

This 2-day course is intended for students with single-channel vibration analysis experience and little or no multi-channel experience. This class covers advanced signal processing using Emerson's patented PeakVue™ technology for slow-speed analysis, transient capabilities, coherence and cross-channel phase, operating deflection shapes (ODS), modal analysis and other advanced techniques.

**Prerequisites**

Single channel vibration analysis experience is required.

**Topics**

- PeakVue™
- Resonance Detection
- Dual Channel 1 data Collection
- Fundamentals of Cross-Channel Data Collection
- Introduction to Coherence and Cross-Channel Phase
- Orbit Data Collection
- Introduction to Operating Deflection Shape (ODS) Testing Methods
- Introduction to Modal Analysis Testing Methods
- Advanced Two-Channel DLP
- Zoom Analysis, Cascade and Overall Transient Wave Form Capture and Analysis
- CSI 2130 Analysis Experts

**COURSE 2033****CEUs : 3.5****Advanced Vibration Analysis/  
Category III Compliant****Overview**

This 5-day course complies with Category III Vibration Analyst per ISO standard 18436-2: Vibration condition monitoring and diagnostics. This course expands on the subjects covered in the Intermediate Vibration course (Category II), especially in the areas of fault analysis and corrective actions. The class details advanced analysis techniques. The dual channel machinery health analyzer features are introduced including the use of AMS™ Suite: Machinery Health Manager Software to set up the advanced analyzer features and the powerful downloadable programs for data collection. The transient machinery health analyzer capabilities are covered such as long-term time waveform. The class covers advanced resonance detection using a variety of testing methods, including triggered data collection.

**Prerequisites**

Intermediate Vibration Analysis course and a cumulative three years of field experience are recommended.

**Topics**

- Specify appropriate vibration instrumentation
- Hardware and software 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™ technology measurements
- Slow Speed Technology (SST®)
- Zoom Analysis
- Transient Techniques
- Dual Channel Machinery Analyzer Features
- Triggered Data Capture
- Resonance Detection

**COURSE 2016****CEUs : 1.4****Balancing Theory & Application  
for CSI 2140****Overview**

This 2-day class teaches how to perform single and dual-plane balancing using both graphical and analyzer-based balancing methods. The class uses the CSI 2130 Machinery Health Analyzer on lab machinery.

**Prerequisites**

Understanding of vibration analysis is recommended.

**Topics**

- Imbalance identification
- Use of vectors
- Calculating influence coefficients
- Use of the auxiliary analyzer balance functions
- Use of UltraMgr module
- Calculating a system lag
- Estimate trial weights
- Balancing flexible rotor systems
- Balancing overhung rotors
- Applying balancing techniques in an industrial setting

## COURSE 2051

CEUs : 2.1

## Time Waveform Analysis

### Overview

This 3-day course is designed to upgrade and enhance waveform analysis skills for vibration technician and reliability engineers. There are several reasons that vibration analysts want to understand and use waveform analysis, since some significant defects are better analyzed in the time domain. The time domain provides visual confirmation of amplitude enhancement and reduction. Time waveform analysis can present, in a static picture, amplitude variations and changes in frequencies that the FFT cannot display without using multiple (dynamic) graphics. Further, a waveform graphically presents accurate peak vibration amplitudes representing defect severity.

### Prerequisites

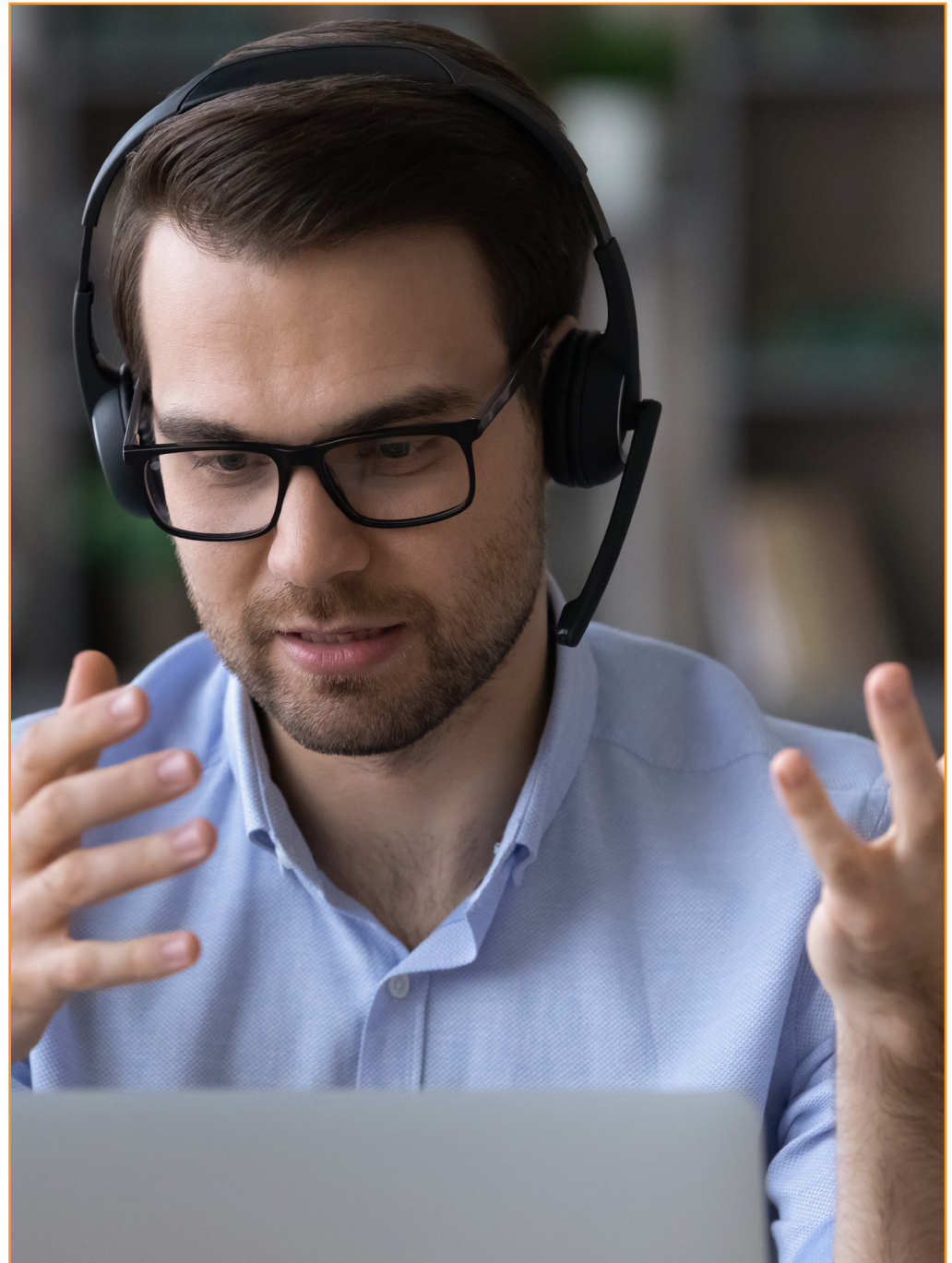
Intermediate vibration analysis or eighteen-month vibration related field experience is recommended.

### Topics

- Waveform Data Acquisition: Analog to Digital Conversion (A/D)
- Waveform Parameters for Trending: Peak to Peak, Crest Factor, and Analog Overall
- Waveform Tools: Revolution Markers, Difference Frequency markers, Phase, Peak, RMS, Crest Factor
- Waveform Patterns: Sinusoidal, Impacting, Truncated, Asymmetric, Transient/Random, Modulated and Discontinuity or Bad/Compromised Data.
- FFT vs. Waveform: Benefits and limitations of each Applications of Waveform Analysis: Synchronous Time Averaging (STA) for rolls in nip; Peak Hold averaging for maximum carrier/sideband frequency amplitudes for rolling element bearings; Time Difference cursors for identifying beat frequencies and repeating impacts (gear teeth cracks or defects); Transient Analysis of motor inrush current; Distinguishing Misalignment from Looseness using waveform analysis as a confirmation to the FFT data; and Gearbox Analysis using STA waveforms and standard waveform discontinuity analysis.

### Audience

Vibration technicians and reliability engineers





**COURSE 2070 OR 2070V****CEUs : 2.8****Advanced AMS Suite:  
Machinery Health Manager****Overview**

This 4-day course is the third in our series of AMS Machinery Manager courses. Its focus is on management, modification and optimization of the existing AMS Machinery Manager database. Students will learn how to modify existing Wizard configurations, add and edit users, statistically adjust alert and fault levels make global database changes, and many other very useful database functions. This course is intended for the advanced user who has already created a machinery database and has been acquiring, storing and analyzing data for six months or more.

**Prerequisites**

Intermediate Vibration course 2032 or one year vibration analysis experience is recommended. Experience with the Windows operating system is recommended.

This course is based on the current mass release of the AMS Machinery Manager software. Students can call to verify if the course is appropriate to the version they are using Infrared Analysis Motorview, CSI Online Machinery Health Monitor and Oilview modules are covered in other course offerings and are not part of this course.

**Topics**

- Advanced Analysis Features in Vibration
- Analysis Module
- Problem Reporting
- Status-at-a-Glance Operation and Reporting
- Nspectr®
- Data Locker Management
- Wizard Reporting Techniques and Modification/ Addition of Setup Information
- Austostat Database Utility
- Database Zip Utility
- Network Administration

**COURSE E2074V****CEUs : 1.4****eLearning: Vibration Analysis  
Module AMS Machinery Manager  
(V5.2 or Higher)****Overview**

This 2-day e-course provides thorough introduction on the Vibration Analysis module in the V5.2 or higher AMS Machinery Manager software. The interface of the Vibration Analysis module is much more user intuitive. With the V5.2N5.3 version of the Vibration Analysis module, powerful tools for the analysis and comparison of multiple types of data are right at your fingertips.

**Prerequisites**

Familiar with the AMS Machinery Manager Software I

**Topics**

- Introduction of the New Vibration Analysis Module (V5.2N5.3)
- Learn to Display Spectra,
- Waveform and Trends
- Use the Toolbar for Data Manipulation
- Custom Faceplates
- Custom Dynamos

**Note:**

Typical duration of course access is 3 months. Contact [education@emerson.com](mailto:education@emerson.com) to request an extension.

**COURSE 2080****CEUs : 1.4****Online Protection Operation  
and Maintenance****Overview**

This 2-day course is a hands-on training for anyone involved with operating and maintaining a CSI Online Protection System. Workshops include practice with "live" monitors and racks.

**Topics**

- Overview of hardware components
- Rack configuration
- Operator display software
- Data acquisition software
- Interface with the CSI online prediction system
- System troubleshooting and maintenance.



COURSE 2070CV

CEUs : 1.4

## AutoStat for AMS Suite : Machinery Health Manager

AutoStat is included in the standard curriculum of the 4-day Advanced AMS Machinery Manager, course 2.070. This 2-day session only covers AutoStat in the AMS Machinery Manager software. Alarms are an important part of any analysis program. Properly setting alarms allows the user to quickly identify an abnormal machine condition and reduces time spent analyzing machines that are running in acceptable or “normal” condition. AMS Machinery Health Manager provides the user the ability to create up to 12 parameter bands with alarms in addition to the Overall value. Calculating ideal alarm values for these parameters can be very complicated. Autostat uses statistical analysis to provide limit value, for the individual parameter bands by analyzing the data associated with similar pieces of equipment.

### Overview

This 2-day hands-on course focuses on the basic operation of the CSI 2140 Machinery Health Analyzer. Students collect data on lab machines. This course is designed for personnel with little or no experience with CSI analyzers, but who are experienced in the field of vibration data collection and analysis.

### Topics

- Analysis Parameter Alarm vs Narrow band
- Alarms -What's the Difference?
- Database Setup Requirements and Reports
- Creating and Editing Analysis Groups
- Modifying and Creating New Parameter Alarms
- Creating and Editing Statistical Envelopes
- Using these Alarms within the Vibration Analysis Plotting Application

COURSE E2140

CEUs : 0.6

## eLearning: Fundamentals of CSI 2140 Machinery Health Analyzer

Emerson's Machinery Health Management training now includes the Fundamentals of the CSI 2140 elearning course, designed to provide you with the tools you need to perform data collection using the CSI 2140 Machinery Health Analyzer. The 6 hour e-course leads you through a basic introduction of the analyzer including panel descriptions and reviews of the purpose and function of all connectors, ports, slots, keys, indicators and buttons. The user learns how to load a pre-defined route into the analyzer, take general data as well as specialized data and then dump that data back into the computer for further diagnostic analysis.

### Topics

- Analyzer/Computer Communication
- Predefined Route Data Collection
- Job Data Collection and Setup
- Manual Mode Measurements
- Introduction to CSI 2140 Analysis Expert Functions

**COURSE REL003****CEUs : 1.4****Introduction to Developing Reliability-Based Maintenance Strategies****Overview**

This 2-day course is an introduction to the basic maintenance strategy model that will act as the foundation for developing RCM techniques, choosing and deploying PMs and creating an effective maintenance strategy to support an efficient maintenance environment.

**Topics**

- Maintenance Strategy Models
- Basic RCM Techniques
- PM Task Selection
- Basic PM Tools
- PM Program Design
- PM Development Principles
- PM Scheduling Techniques
- PM Program Monitoring

**COURSE REL004****CEUs : 1.4****Introduction to Planning and Scheduling Principles****Overview**

This 2-day course is an introductory course designed to provide participants with an understanding of the fundamentals of creating and maintaining an efficient planning and scheduling program.

**Topics**

- Planning and Scheduling World Class Model
- Planning Principles
- Scheduling Principles
- Planning and Scheduling Program Monitoring

**COURSE REL006****CEUs : 1.4****Materials Management Strategies****Overview**

This 2-day course is an introductory course designed to provide participants instructions about how to manage, organize and control inventory risk through strategic MRO inventory management.

**Topics**

- Introduction to Material Management
- Organizing for Maintenance Stores and Management Control
- Stores Management Tools
- Purpose and Strategic Importance
- High Performance Stores
- Stores KPI Metrics and World Class Benchmarks

**COURSE REL007****CEUs : 1.4****Reliability Centered Maintenance (RCM) Principles****Overview**

This 2-day course covers the principles of RCM. RCM is a key foundational element of a Reliability Based Maintenance program. This course covers all important aspects of Reliability Centered Maintenance Analysis and Implementation. Participants will learn how to effectively participate in an RCM program and have all necessary information to support such an implementation.

**Topics**

- Introduction
- History of RCM
- Why RCM
- Selecting candidate equipment
- Team approach
- RCM philosophies
- Conducting RCM Analysis
- RCM terms and definitions
- Identifying system parameters
- Answering the 7 questions of RCM
- Determining failure mitigation strategies
- Implementing the results of RCM analysis
- Conducting RCM Analysis
- Facilitating RCM at your site
- Who should lead
- Choosing the appropriate analysis tools
- Tracking progress through to completion
- Avoiding the causes of failed RCM
- Implementations
- Conducting RCM Analysis
- Leveraging the Benefits of RCM
- Lateral deployments
- The FMEA library
- Celebrating results
- Showing the business case

**COURSE REL009****CEUs : 2.8****Foundational Awareness for Maintenance & Reliability Professionals****Overview**

This 4-day comprehensive course provides participants with an overview of both technical and non-technical, key foundational elements of maintenance and reliability profession. This is required to be most effective in the maintenance and reliability profession.

**Topics****The Business of Maintenance and Reliability**

- Setting goals and objectives
- Selling change
- Measuring performance evaluation
- Building the business case
- Communication
- Resource planning and budgeting
- Performance agreements

**Work Management Best Practices**

- Work identification
- Work prioritization
- Planning and scheduling
- Backlog management
- Resource management
- Work history documentation
- Analyzing work history for improved performance
- Performance measures
- Capital project planning
- Information technology

**Production System Reliability**

- Process and industry standards
- Production system understanding
- Process improvement methods
- Environmental, Health and Safety considerations

**People and Culture Management**

- Assessing organizational competence
- Defining the maintenance and reliability organization
- Skills development
- Communication for change

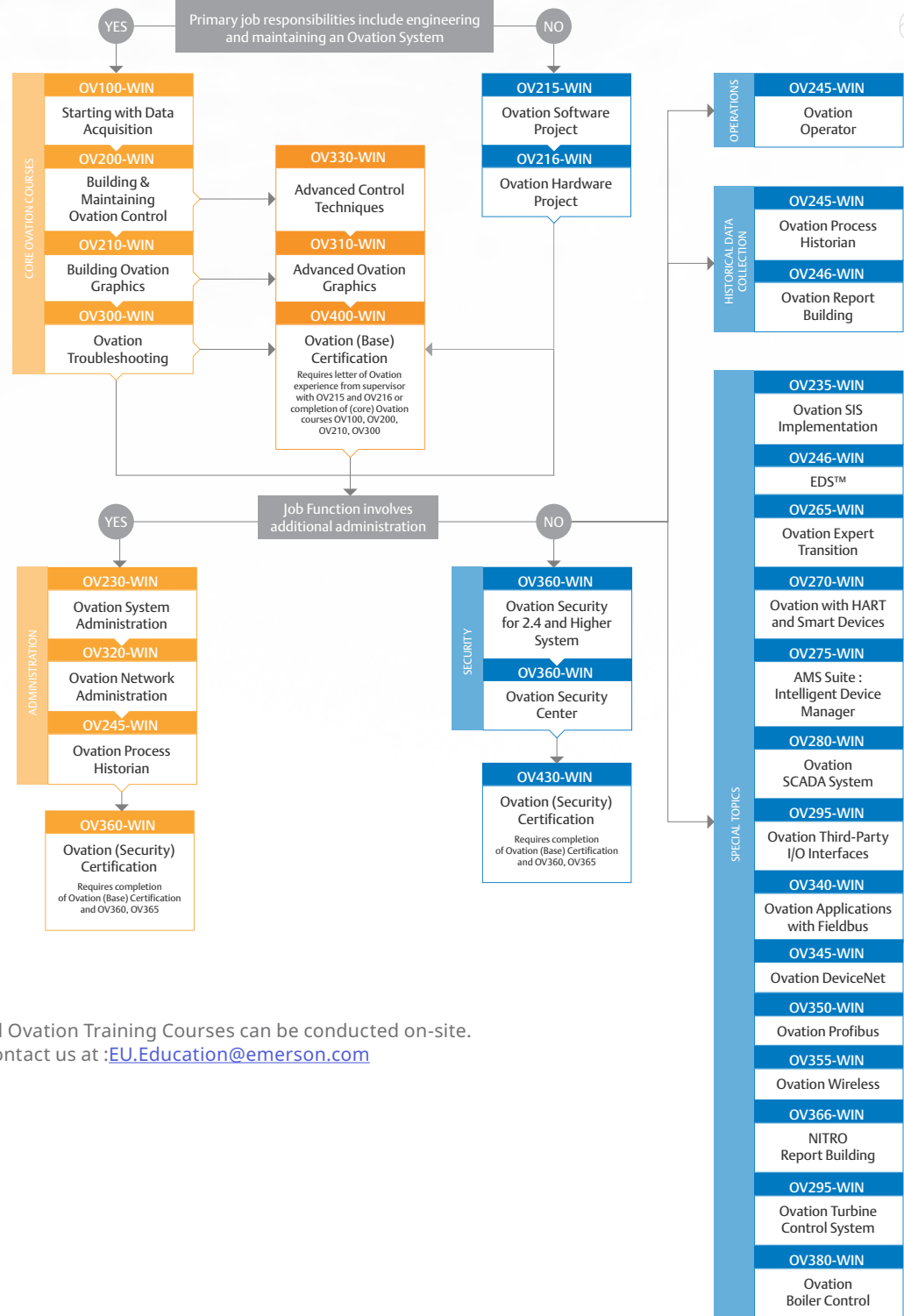
**Management of Change**

- Equipment Reliability Tactics
- Establishing reliability targets
- Reliability gap analysis
- Equipment maintenance strategy development
- Continuous improvement

# OVATION Course Map

The Ovation Course Map is designed to help students determine their course path for Ovation training. Emerson offers the industry's broadest array of process automation products and services; a total solution for your plant automation needs. We are committed to providing our customers with an exceptional level of education that spans every aspect of our product portfolio. We work hard to ensure that our academic deliverables are as applicable to your everyday job functions and responsibilities as possible.

Our course map is an instrumental tool for charting your path to success.



All Ovation Training Courses can be conducted on-site. Contact us at :[EU.Education@emerson.com](mailto:EU.Education@emerson.com)

**COURSE OV100-WIN****CEUs : 3.5****Starting with Data Acquisition****Overview**

This 5-day course provides experience using an Ovation Data Acquisition System (DAS). Ovation terminology and proper use of Ovation documentation are discussed. Students are introduced to the major components of the system and practice using Ovation tools that are designed to make data acquisition easy. Exercises include modifying and building database point records for analog and digital points. The students physically connect various field devices to the I/O and test the signals. Basic techniques for troubleshooting data acquisition hardware and software are also included in the course. These courses are intended for anyone who will need to work with the DAS of the Ovation system in a Windows environment.

**Prerequisites**

There are no prerequisites for this course.

**Topics**

- Recognize Ovation terminology and identify the types of drops used for data acquisition in an Ovation system.
- Demonstrate the ability to effectively use Ovation documentation
- Describe the functions of the Ovation network and its components
- Describe the general architecture of an Ovation system
- Describe the database point record movement between various drops as points are monitored, modified and built
- Monitor plant processes using data acquisition tools
- Recognize, modify and build the various types of database point records in an Ovation system
- Select and configure I/O modules for typical field devices
- Wire and test complete signal paths between various field devices and appropriate / database point records
- Analyze problem situations and implement appropriate corrective solutions

**COURSE OV200-WIN****CEUs : 3.5****Building and Maintaining Ovation Control****Overview**

This 5-day course is designed to provide proficiency in reading Ovation functional control schemes. Tuning, building and implementing new control schemes to improve performance are covered. Both modulating (analog) and discrete digital control schemes are included in the scope of the course. Discussions include the various types of control algorithms available and how they can be used to create effective control. These courses are intended for people who work with Ovation Controllers to tune and build the analog and digital control schemes.

**Prerequisites**

Students must have a good understanding of the Ovation system architecture and how database point records are built and maintained in the Ovation Windows-based system. It is recommended that students attend an OV100-WIN course prior to attending this course.

**Topics**

- Interpret and apply a control functional to the Windows-based system.
- Interpret and tune implemented control using the available tools.
- Edit existing control schemes.
- Demonstrate proficiency in building digital & analog control.
- Design and implement a tracking scheme to meet specific control requirements.
- Recognize the relationship between control schemes and graphic diagrams.
- Implement given control requirements using the Control Builder.
- Evaluate and determine the proper operation of a control scheme using the tools and methods provided.

**COURSE OV210-WIN****CEUs : 3.5****Building Ovation Graphics****Overview**

This 5-day course will teach the user to build Ovation system graphic diagrams. Students will learn how to use the Ovation Graphics Builder in various applications. Course topics include the layout and implementation of static and dynamic objects, linking to control and creating perspective-type diagrams. Methods for standardizing information entities and control interfaces and troubleshooting problems within the graphics code are also covered. These courses are intended for anyone who will build process diagram displays to the Ovation system.

**Prerequisites**

Students must understand Ovation point record fields and Ovation control algorithm structures. It is recommended that students attend OV100-WIN prior to attending these courses. If the student will be heavily involved in creating control interfaces or OV200-WIN is also recommended.

**Topics**

- Describe the different coding areas within the graphic source code
- Build graphics to display live plant data
- Use various drawing techniques to create 3D graphics
- Interface graphics to the control system by using poke fields
- Design and implement macros to be used within graphics.
- Use conditional statements to create dynamic indications in graphics.
- Employ various techniques to make graphics code execute more efficiently
- Use various application programs within a graphic to perform specific actions
- Assess and correct problems in graphics using available tools

**COURSE OV010-WIN****CEUs : 1.7****Ovation Operator****Overview**

This 2½-day course is designed to provide students with the ability to efficiently perform routine plant operations using the Ovation control system. Key topics include data acquisition, process analysis and control interfaces. Students will be able to use the tools provided to monitor processes controlled by the Ovation system and will learn to take appropriate actions to control these processes. These courses are intended for all operations personnel using the Ovation system in Windows environment.

**Prerequisites**

There are no prerequisites for this course.

**Topics**

- List the major components of the Ovation control system
- Display process diagram graphics
- Use process diagrams to interface with the control system
- Evaluate point alarm conditions and acknowledge emergent alarms
- Differentiate various point types and use the Point Information system to find and edit point records
- Create live and historical trends
- Navigate through control tuning diagrams
- Analyze problem conditions
- Use system reporting procedures
- Describe the function of Ovation applications icons
- Demonstrate familiarity with menu bars and tool bars in the various process diagram windows
- Demonstrate familiarity with the task bar and other Windows utilities

**COURSE OV246-WIN****CEUs : 2.1****Global Ovation OPH Report Building****Overview**

This 3-day course will teach students to configure and retrieve historical data using the Ovation Process Historian (OPH) and Crystal Reports. Students will learn how to use the OPH Report Manager to define: Alarm, Soe, Point and Operator Event Reports. Students will also learn how to configure demanded reports, triggered reports and timed reports in the OPH Report Manager. Students will also use Crystal Reports to create new report formats for use in the OPH Report Manager.

**Prerequisites**

There are no prerequisites for this course.

**Topics**

- Describe the functions of the Ovation
- Process Historian and related components
- Recognize the Ovation Process
- Historian Database Schema and understand the concept of a Relational Database Management System (RDBMS)
- Schedule, automate and manipulate reports
- Distribute reports using printers and various output files
- Create custom reports and ad-hoc queries using various 3rd party applications such as Crystal Reports and MS Excel

**COURSE OV248-WIN****CEUs : 2.1****EDS™****Overview**

This 3-day course is designed to give students a detailed understanding of EDS™. Upon completion of this course, the student will be able to configure an EDS server to collect point data from an existing Ovation system. An EDS client will be properly configured and the applications of the EDS station will be covered extensively. This course is designed for anyone who will be using or managing the EDS.

**Prerequisites**

There are no prerequisites for this course.

**Topics**

- Illustrate the functions of the EDS system and architecture
- Explain how an EDS server is loaded and configured
- Configure an EDS client to communicate with an existing EDS
- Manage the data storage of the EDS
- Demonstrate how to view and interpret error messages
- Build reports using the EDS Report Builder
- Build custom graphics using the EDS Graphics Builder

The Ovation expert control system, a key component of the proven PlantWeb™ digital architecture, **delivers higher levels of plant availability, reliability, and environmental compliance.**



**COURSE OV275-WIN****CEUs : 1.4****AMS Suite: Intelligent Device Manager****Overview**

This 2-day course will provide the student with the skills to fully utilize the special features of I/O related to HART and smart field devices attached to the Ovation™ system. Students will learn the basic components of an Ovation system. Items discussed will include physical attachment of field devices to the Ovation I/O modules, building of HART/smart data points in the system, analysis of the data available from the field device, and diagnosis of problems that may occur. This course is intended for technicians and administrators using an Ovation system that includes HART and smart field devices.

**Prerequisites**

Students should complete OV100-WIN prior to taking this course. OV270-WIN and either OV200-WIN-3.0.X or OV200-WIN-3.1.X are also recommended.

**Topics**

- Identify the configuration of components in an Ovation system using Hart/smart devices
- Attach HART/smart field devices to the Ovation I/O cards
- Build database points for the field devices
- Use AMS™ Suite to obtain data from the devices
- Diagnose common problems and configuration errors

**COURSE OV280-WIN****CEUs : 2.1****Ovation SCADA System****Overview**

This 3-day course will provide the student with the skills to take full advantage of their Ovation SCADA system. Students will learn the basic components of an Ovation SCADA system. Items discussed will include SCADA Servers, remote terminal units, scan blocks, lines, ports, configuration tool, protocol analyzers and more. Students will establish communications using available Allen-Bradley, MODBUS or DNP 3.0 protocols. This course is intended for technicians and administrators using the Ovation SCADA system.

**Prerequisites**

Students should complete OV100-WIN and OV270-WIN prior to taking this class. OV200-WIN is also recommended, but not required.

**Topics**

- Identify the purpose and components in an Ovation SCADA system
- Identify the licensing requirements of an Ovation SCADA system
- Use the configuration tool to access and modify the system
- Analyze the communication protocols used with an Ovation SCADA system
- Utilize the protocol analyzer to interpret signal traffic between the SCADA Server and RTUs
- Interpret scan block data
- Create Ovation graphics to interface to the Ovation SCADA system

**Extensive training opportunities** are available for project managers, engineers, operators, technicians and system administrators.

**COURSE OV330-WIN****CEUs : 3.5****Ovation™ Advanced Control****Overview**

This 5-day course is intended for students who will implement their own control programs, or who will make significant modifications to existing programs. Using previous control building knowledge, the student will learn how to implement control design in an Ovation™ environment. This course is a continuation of the control topics discussed in OV200-WIN. The course will emphasize the proper selection, configuration and application of algorithms in the Ovation™ control system.

**Prerequisites**

Prior completion of OV200-WIN is strongly recommended. A working knowledge of control systems and control theory is suggested.

**Topics**

- Apply, tune and track all appropriate algorithms in open- and closed-loop configurations.
- Select, filter and compensate transmitter inputs.
- Implement complex sequential control.
- Appreciate important closed-loop control forms.
- Configure general math computations.
- Describe the interface of selected algorithms to input/output hardware.
- Use algorithms for timing, counting, accumulation and system-time applications.

**COURSE OV230-WIN****CEUs : 3.5****Ovation System Administration****Overview**

This 5-day course will provide students with an understanding of Ovation™ system licensing, security, configuration, backup and recovery. Students will learn how to navigate the Ovation™ file system as well as basic administration skills. Students will also explore Ovation workstation hardware. This course is intended for Ovation™ system administrators and those wishing to complete the Ovation Certification Program.

**Prerequisites**

Students must have a good understanding of Ovation system architecture. Experience working in a Windows environment is helpful but not necessary. Prior completion of the OV100-WIN, OV200-WIN and OV210-WIN, courses, is highly recommended but not required.

**Topics**

- Navigate and understand the Ovation™ engineering tools Developer Studio for Windows)
- Understand licensing of the Ovation™ system
- Implement process control and user security in the Ovation™ system (2.3 and lower)
- Apply system configuration changes to the Ovation™ system
- Add new and modify existing drops to the Ovation™ system
- Navigate and understand the Ovation file systems, structure, sharing and security
- Backup the Ovation database and required files to various media
- Load an Ovation™ system
- Recover the Ovation database and required files from backup
- Understand upgrading and maintaining the Ovation™ hardware.



**COURSE OV245-WIN****CEUs : 3.5****Ovation Process Historian****Overview**

This 5-day course will teach students to configure and retrieve historical data using the Ovation Process Historian. The course covers data collection, data storage and data retrieval. Students will learn how to configure Ovation points and the Ovation system for collection. This course is intended for people who will configure, access and maintain the Ovation Process Historian and the Report Scanner/ Report Generator drops of the Ovation system.

**Prerequisites**

Students must have a good understanding of the Ovation system architecture and how database point records are built and maintained in the Ovation Windows-based system. It is recommended that students attend an OV100- WIN course prior to attending this course.

**Topics**

- Describe the functions of the Ovation
- Process Historian and related components
- Configure scanners and points for collection
- Recognize the Ovation Process
- Historian database scheme and understand the concept of a relational database management system (RDBMS)
- Understand the Ovation Process Historian architecture and hardware
- Install and configure the Ovation Process Historian report manager
- Schedule, automate and manipulate reports
- Distribute reports using various techniques such as email, web publishing, printers and various output files
- Create custom reports and ad-hoc queries using various third-party applications such as Crystal Reports, MS Excel, MS Access and SQL
- Create historical trends and build global trend groups
- Create historical point, alarm, SOE, op-Event, ASCII and common reviews
- Analyze the Ovation Process Historian with the diagnostic tools available

**COURSE OV270-WIN****CEUs : 1.4****Ovation with HART and Smart Devices****Overview**

This 2-day course will provide the student with the skills to fully utilize the special features of I/O related to HART and smart field devices attached to their Ovation system. Students will learn the basic components of an Ovation system. Items discussed will include physical attachment of field devices to the Ovation I/O modules, building of HART/smart data points in the system, analysis of the data available from the field device and diagnosis of problems that may occur. This course is intended for technicians and administrators using an Ovation system that includes HART and smart field devices.

**Prerequisites**

Students should complete OV100-WIN prior to taking this course. OV200-WIN and OV210- WIN are also recommended.

**Topics**

- Identify the configuration of components in an Ovation™ system using HART/smart devices
- Attach HART/smart field devices to the Ovation I/O cards
- Build Database points for the field devices.
- Use AMS™ Suite to obtain data from the devices
- Diagnose common problems and configuration errors.

**COURSE OV300-WIN****CEUs : 3.5****Ovation Troubleshooting****Overview**

This 5-day course provide students with the skills and methods to troubleshoot and repair faults in the data acquisition and control functions of the Ovation system. Students will be required to isolate faults anywhere in the signal path from the field terminations to the I/O modules, through the controller, across the network and into the graphic display. Students will evaluate single- and multiple-problem scenarios. These courses are intended for anyone who may be called to troubleshoot any part of the data acquisition, control or display areas of the Ovation system.

**Prerequisites**

Students must have a basic understanding of the Ovation system architecture, database point records, system controls, and process diagrams. It is strongly recommended that students attend the OV100- WIN and OV200- WIN courses prior to attending this course. The OV210-WIN and OV230-WIN courses also provide useful skills that support this course.

**Topics**

- Identify and resolve selected hardware, system administration and software problems
- Troubleshoot the system using documentation and available tools to analyze system faults or problem conditions
- Interpret system error messages.
- Recognize and resolve problems with the system administration tool.
- Using a systematic approach to fault analysis, isolate and correct selected network, port and printer faults.

**COURSE OV310-WIN****CEUs : 2.8****Advanced Ovation Graphics****Overview**

This 4-day course will give students the ability to use application programs and advanced programming techniques, including the use of memory segments combined with pointer manipulation to enhance advanced graphic programming skills. These courses are intended for anyone who will build specialized process diagram displays for the Ovation™ system.

**Prerequisites**

Students must have a good understanding of the Ovation™ system architecture, database point records and how basic graphics are built and maintained in the Ovation™ system. It is strongly recommended that students attend the OV100 WIN and OV210-WIN courses prior to attending this course. It would also be helpful to have taken the OV200-WIN course if the student wants to improve skills pertaining to graphic interfaces with plant controls.

**Topics**

- Define the different memory segments available in the graphics subsystem
- Build several graphics utilizing pointers and memory segments
- Interpret application programs
- Use the trigger section of the graphics code for efficiency
- Use graphic commands only available in a text editor
- Troubleshoot graphics using available tools

**COURSE OV270-WIN****CEUs : 3.5****Ovation with HART and Smart Devices****Overview**

This 5-day introductory networking course will provide students with an understanding of general networking concepts, as well as Ovation™-specific network configurations for Fast Ethernet systems. Students will learn the basic networking skills required for general network administration and troubleshooting. Students will also be provided with hands-on knowledge of switch and router configuration for use in Ovation™ systems. This course is intended for Ovation™ network administrators, Ovation™ system administrators and those wishing to Complete the Ovation™ Certification Program.

**Prerequisites**

Prior completion of the OV230-WIN course is recommended but not required.

**Topics**

- Explore basic networking concepts including the OSI reference model, MAC addressing, TCP/IP, IP addressing, multicast addressing and local area networks
- Implement an Ovation specific network addressing scheme and network topology
- Define and explore basic network commands
- Define network devices and media and their relation to the OSI reference model
- Configure Cisco 2600 series routers, Cisco3550 series switches and Cisco 2950 switches series for use in an Ovation network (where applicable)
- Configure and implement SNMP for Ovation
- Troubleshoot inter-networked systems with network tools and software
- Configure and apply third-party networking software

**COURSE OV360-WIN****CEUs : 3.5****Ovation Security for 2.4 Systems or Later****Overview**

This 5-day course will guide students in the proper planning and installation of security for Ovation™ 2.4 and higher level systems. Students will discuss and come to understand Ovation external and internal security concerns, and learn to apply appropriate safeguards. Students will install and configure Ovation compatible Windows Server 2003 Domain Controllers, Windows XP service packs and Windows security patches. The student will configure Ovation security using the Ovation Security Manager and have a basic understanding of Windows group policy objects.

**Prerequisites**

This course is designed for students who will administer Ovation™ 2.4-level or higher systems.

It is recommended that students attend OV230-WIN and have a basic understanding of Ovation™ system configuration and security concepts prior to attending this course. No prior knowledge of Windows-based security is required.

**Topics**

- Identify and explain Ovation-specific internal and external security threats
- Plan and implement Ovation 2.4 software installation including Windows 2003 Server, Windows service packs and Windows security patches
- Describe the function of the Ovation Security Manager.
- Create and manage user accounts, computer accounts, and Ovation roles and group policies
- Create and manage Ovation point security groups
- Manage and understand domain policies
- Create and manage Ovation domain administrators
- Design and implement a specific Ovation security configuration Explore the Windows group policy objects

## Ovation Certification Program

### Overview

This is a 5-day blend of (core) course subjects. The course comes complete with a vigorous examination designed to test and measure the student's proficiency in areas related to database building, control implementation, graphic linkage of process points and control algorithms and troubleshooting on a system wide basis. Earning Ovation Certification acknowledges the competency of the individual while working within the Ovation product lines and enhances their abilities in addressing, assessing and repairing problematic situations within the Ovation system. During the 5-day course of (core) subject's instruction, attending students may elect to complete the examination during mid-week subject reviews. The attending students have two chances of achieving certification during this 5-day offering. Failure to achieve the desired results will result in the student having to retest via web-access at a later period-of-time. A 100-point online exam is administered in which students are required to achieve a score of 80% or greater to successfully gain certification. Ovation certification is valid for three years and is applicable to the current software revision only.

### Prerequisites

Students must have a strong background and understanding of the Ovation system and demonstrated proficiency in programming, configuring and troubleshooting said system. Before enrolling in the Ovation Certification program, students are required to have attended and completed the full course-length offerings of the following courses: OV100, OV200, OV210, OV300.

### Topics

- Building, saving and implementing the Oracle database
- Constructing control sheets using both Boolean and Analog logic
- Loading and configuring the Ovation controller
- Designing graphics with control implementation
- Troubleshooting procedures as related to I/O and Controller modules



**COURSE OV215-WIN****CEUs : 7.0****Ovation™ Software Project****Overview**

This 10-day course is designed for those who have a need or desire for a good, general, overall understanding of Ovation® system software and software utilities. This course contains and connects software topic segments from five different Ovation one week courses: OV100-WIN, OV200-WIN-3.0.X, OV210-WIN, OV230-WIN and OV300-WIN. The topics covered include Ovation application functions; the Developer Studio architecture; point building; creating and modifying control sheets; creating and modifying graphics; backing-up MMIs including a domain controller; and adding points for collection to an Ovation Process Historian. This course is not intended to replace the five one-week courses directed toward personnel who have a singular need for the detailed knowledge provided in the one-week courses. The course does not involve implementing any I/O modules. A sequel course, OV216-WIN, specifically focuses on I/O applications and is scheduled to follow OV215-WIN.

**Prerequisites**

There are no prerequisites for this course.

**Topics**

- Identify the major components of an Ovation system
- Understand basic Ovation terminology
- Demonstrate basic Ovation operator functions
- Understand data movement in an Ovation system
- Understand the hierarchy and basic right click functions within the Ovation Developer Studio
- Use the Ovation Developer Studio to modify and create points
- Monitor control that has been implemented in an Ovation system
- Interpret and tune implemented control using the available tools
- Build and modify control schemes using the Developer Studio
- Interpret and modify tracking schemes to meet specific control requirements
- Recognize the relationship between control schemes and graphic diagrams
- Implement given control requirements using the Developer Studio
- Evaluate and determine the proper operation of a control scheme using the tools and methods provided

**COURSE OV235****CEUs : 3.5****Ovation™ SIS Implementation****Overview**

This 5-day course is designed to provide an overall understanding of the Ovation Safety System. This course is intended for people who work with the Ovation SIS systems.

**Prerequisites**

Students must be knowledgeable in Ovation™ point record field content and Ovation™ control algorithm structures. It is suggested that students attend the OV100-WIN course prior to taking this course. If the student is going to be heavily involved in creating control interfaces, it is also suggested that the OV200-WIN course be taken.

**Topics**

- Recognize the terminology used with an Ovation™ SIS
- Describe the functions of the Ovation™ SIS network and its components
- Describe the general architecture of an Ovation™ SIS
- Monitor Ovation™ SIS using the data acquisition tools
- Configure an Ovation™ SIS network and SIS Controller

**COURSE OV295-WIN****CEUs : 2.1****Ovation Third-Party I/O Interfaces****Overview**

This 3-day teaches the students how to create specialized I/O links to non-Ovation™ field devices using both serial link modules and the Ovation™ Ethernet highway. The course covers configuring and loading link controller modules, creating third party points, memory mapping, adding third party drivers to controllers and the Ovation™ addressing requirements.

**Prerequisites**

There are no prerequisites for this course.

**Topics**

- Understand the Architecture and the functionality of the Ovation™ Fast Switched
- Ethernet Highway, and the need to protect it from external sources
- Define MAC and IP addressing, and Ethernet protocols
- Understand how Ethernet switches work
- Understand the Ovation™ IP addressing requirements
- Understand the various options for connecting Third Party I/O to the Ovation™ Highway
- Understand the Modbus register concept
- Understand the Modbus commands available in Ovation™ releases
- Be Aware of the difference in Modbus Drivers based on Ovation™ Releases
- Be Able to install Ovation™ Modbus drivers
- Be Able to build Ovation™ Point records for communication to Modbus
- Verify successful communications between Ovation™ and a PC Modbus simulation
- Interpret Ovation™ Controller Modbus error codes
- Recognize Fundamental AB Data Files
- Be Able to install Ovation™ Allen-Bradley Drivers
- Be Able to build Ovation™ Point records to communicate to an AB SLC500
- Verify successful communications between Ovation and the AB SLC500

**COURSE OV355-WIN****CEUs : 1.4****Ovation Wireless with Wireless HART****Overview**

This 2-day course reviews the major components in an Ovation wireless system (wireless transmitters, gateways and the components of the SmartPack™). The student is taught how to utilize the available configuration tools to set up an Ovation wireless interface and add transmitters to an existing network.

**Prerequisites**

There are no prerequisites for this course.

**Topics**

- Understand Wireless HART® communications and Terminology
- Identify the Wireless HART® configuration components
- Attach Wireless HART® field devices and Gateway to the Ovation DCS
- Build Database points for the field devices
- Identify Wireless HART® Applications
- Commission a Wireless HART® Device

**COURSE OV365-WIN****CEUs : 3.5****Ovation Security Center****Overview**

This 5-day course consists of a suite of security packages and services that has the ability to enhance and manage the cyber security of Ovation expert control systems without disrupting the controlled process. The OSC is a key component in achieving NERC CIP compliance by offering services such as: Patch Management, Event Management, and Malware Prevention. The course will examine how to configure and maintain the components of an OSC system on Ovation levels 2.4 and newer on Window's OS and Ovation levels 1.7 and newer on Solaris OS.

**Prerequisites**

There are no prerequisites for this course.



**COURSE OV216-WIN****CEUs : 3.5****Ovation Hardware Project****Overview**

This 5-day course was developed for personnel whose primary interest and/ or assignment is maintaining Ovation® hardware. Selected topics from the OV100-WIN, OV200-WIN, OV300-WIN and OV320-WIN courses are incorporated and expanded to cover hardware features of the controllers, the power supplies, the most commonly applied I/O modules, the Cisco switches and the Dell MMIs. Hardware information contained within node and module records are explained, and the criteria for adding and changing modules assigned to a branch and slot positions are defined. Hands-on exercises include building control sheets and linking inputs and outputs to selected modules. Also, included will be the application and activation of remote I/O, relay modules, serial link modules and third-party I/O as well as an exercise requiring a complete reload of a software server in order to understand how to recover from a hard drive failure.

**Prerequisites**

Students must have attended either OV215-WIN or both OV100-WIN and either OV200-WIN-3.0.X or OV200-WIN-3.1.X prior to attending this course.

**Topics**

- Utilize documentation to analyze faults
- Interpret Ovation system error messages
- Demonstrate remote I/O
- Understand recovery of hard drive failures on MMI(s)  
Configure Cisco switches and routers
- Monitor various LEDs of the system
- Build various RM records
- Recognize system administration tool problems and apply a solution
- Implement closed loop control
- Evaluate and determine operation of power supplies
- Implement given control requirements using the Developer Studio
- Evaluate and determine the proper operation of a control scheme using the tools and methods provided

**COURSE OV370-WIN****CEUs : 3.5****Ovation Turbine Control System****Overview**

This 5-day course provides expert knowledge of the Ovation turbine control system (TCS). Turbine simulators will be used to demonstrate turbine operation, graphics and control logic. Turbine over speed protection and trip functions will be closely examined. The course includes calibration and troubleshooting exercises on the speed detector and valve positioner modules. Students will also learn how to tune the turbine control feedback loops and turbine valve curves using methods developed by Emerson.

**Prerequisites**

Students must have a good understanding of the Ovation system architecture. It is recommended that students attend the OV100-WIN, OV200- WIN and OV210-WIN courses prior to attending this course

**Topics**

- Understand major Ovation operator functions as they apply to turbine control, including the process graphic, alarm, trend and point information systems
- Identify basic functions of turbine control logic drawings
- Recognize how the turbine control logic connects to the turbine control graphics
- Identify the fail-safe design components: (1) power, (2) controller, (3) relay module
- Understand the turbine first out trip logic and sequence of event (SOE) alarm reporting
- Configure and test a speed detector module
- Configure and calibrate a valve positioner or servo driver module. Identify logic sheets that require field tuning. Discuss field proven tuning examples
- Retrieve historical trend data for valve curve tuning
- Import data into an Excel spreadsheet, calculate and plot new valve curves

**COURSE OV380-WIN****CEUs : 3.5****Ovation™ Boiler Control****Overview**

This 5-day course is designed for customers who maintain or troubleshoot control strategies within the Ovation™ DCS system related to boiler control. This course is intended for students who will implement their own control programs, or who will make significant modifications to existing programs. Using previous control building knowledge, the student will learn how to implement design pertinent to boiler controls in an Ovation™ environment. This course is a continuation of the control topics discussed in more basic control classes. The course will emphasize the proper selection, configuration and application of algorithms in a typical Ovation™ boiler control system.

**Prerequisites**

Prior completion of OV200-WIN and OV330- WIN is strongly recommended. A working knowledge of control systems and control theory is required.

**Topics**

- Recognize the terminology used with an Ovation SIS
- Describe the functions of the Ovation SIS network and its components
- Describe the general architecture of an Ovation SIS
- Monitor Ovation SIS using the data acquisition tools
- Configure an Ovation SIS network and SIS Controller

**COURSE OV420-WIN****CEUs : 3.5****Ovation™ (Admin) Certification****Overview**

This 5-day course is offered as a stand-alone web-based exam or implemented with a pre-testing review at the Training Center, the OV420-WIN measures the student's proficiency in areas that address the overall Ovation system configuration while maintaining the integrity of the system software. It assesses the students understanding of networking concepts and that of switch and router configurations. Achieving Admin Certification acknowledges the competency of the individual in maintaining the integrity of the Ovation system concerning user access and capabilities. A multi-point examination is administered and participants are required to achieve a grade score of 80% or greater to successfully gain certification.

**Prerequisites**

Students should have achieved Ovation (Base) Certification through the OV400WIN program. Students are required to attend the OV230-WIN, OV320-WIN and OV245-WIN courses.

**Topics**

Upon successful completion of this course, the student will receive Ovation (Admin) Certification. This accreditation affirms that the student is competent in all areas of the Ovation System and possesses the abilities and understanding to engineer and supervise the system integrity, communications and user capabilities.



## IACET AUTHORIZED PROVIDER

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## QUALIFICATIONS FOR ENROLLMENT

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Educational Services agrees to accept for training, individuals who are not competitors of Emerson Automation Solutions in the field to which the training pertains. Educational Services will provide reasonable accommodations to students who have a physical or mental impairment that substantially limits one or more major life activities, as long as the accommodation does not put undue hardship on the company.



## COURSE SCHEDULING, LOCATIONS & PRICING

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Course schedule and locations including length, dates of each session and price are listed on the Educational Services MyTraining website. All prices are in U.S. Dollars. For the most up to date information call or visit our website at: [www.emerson.com/mytraining](http://www.emerson.com/mytraining)



## **CANCELLATIONS & TRANSFERS**

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If your plans or budgets change you may cancel/transfer your reservations up to 14 calendar-days prior to start of the course without incurring a cancellation charge. Limited enrollment makes it necessary to charge 50% of the full tuition for cancellations/transfers received during the 14-days prior to the start of the course, and full tuition for failure to attend without canceling. Substitutions are accepted until the first-days of class.



## **ARRIVAL & DEPARTURE TIME**

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Students should plan to arrive the-days prior to the course starting-days, as class typically begins at 8 a.m. If traveling by air, please allow sufficient time to travel to the airport and check-in when scheduling return transportation.



## **COURSE MATERIALS**

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