SPARTAN CONTROLS

Emerson Impact Partner

EMERSON

2021/2022

Technical Training Catalog

CANADA'S BEST MANAGED COMPANIES
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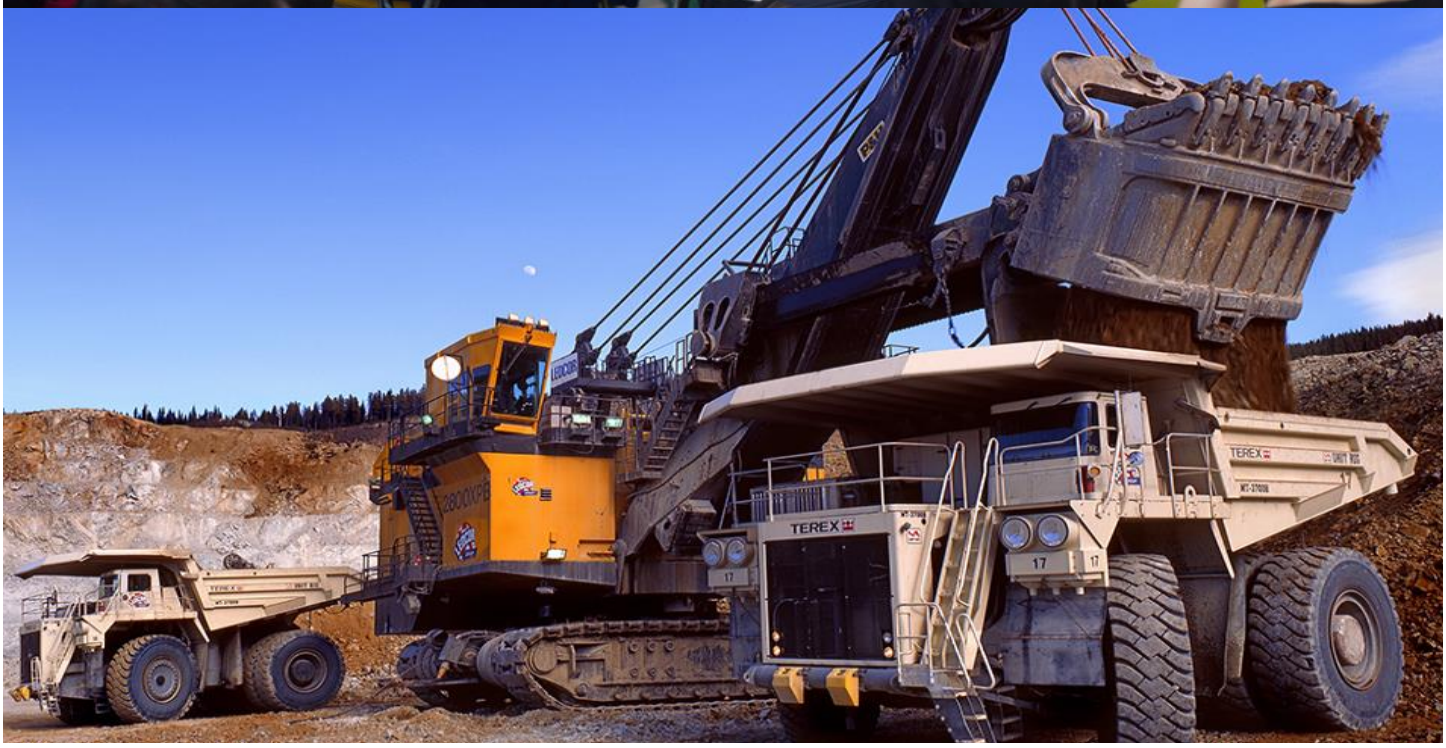
Information

Course Offerings

Job Grant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Inside Spartan Technical Training

Our Team

Our Emerson certified technical trainers are subject matter experts with years of onsite field experience. They understand the student's roles and bring relatable scenarios to the course material.

For customer specific training, some course material can be tailored and customized, upon request. Our team is here to help all students find success in their education journey.

Our Services

At our main Education facility in Edmonton, we have a classroom dedicated to DeltaV for students to work directly on the software. Our lab is ready for hands-on valve training, and our other classrooms have the ability to bring in demo equipment or have lecture style learning.

Adaptability to adjust to the virtual world was seamless with no adjustments to course material, and, in some cases, students are able to virtually work on our equipment to complete labs.

Technical Training Methods

Real Time Virtual Classes

Virtual training courses are live instructor led training allowing continuous interaction between instructor and students even though they may be in different geographic locations. Interactive tools such as text, audio, and video chat will be used in order to provide the students with real-time access to the instructor while the class is in session. All labs/workshops are performed by using a software to log into our computers and demo equipment making it feel like you are doing “hands-on” exercises.

Open Registration

Open registration are scheduled offerings with specified dates for which any person can register. These courses contain the standard material to satisfy the group as a whole and are offered in one of our certified training centers. The classes could be in the form of virtual or in person. A confirmation email will be sent by the coordinator once registration has been verified and approved.

Customer Specific

Spartan offers Customer-specific courses every year for a variety of industries. This is a great alternative to attending scheduled training if:

- several employees need to be trained at once
- training on specific topics or custom material is required

This training can be conducted at one of our Spartan offices, off site at a hotel or conference center, or on site.

Training Centers

Alberta Locations

Calgary

Corporate Head Office

305 - 27 Street SE

Calgary AB T2A 7V2

Edmonton

Education Head Office

8403 - 51 Avenue

Edmonton AB T6E 5L9

Fort McMurray

985 Memorial Drive

Fort McMurray AB T9H 0K4

Grande Prairie

11419 - 98 Avenue

Grande Prairie AB T8V 5S5

Whitecourt

Bay 2, 3505 - 38th Avenue

Whitecourt AB T7S 0A2

British Columbia Locations

Burnaby

7500 Winston Street

Burnaby BC V5A 4X5

Fort St. John

9603 - 112 Street

Fort St. John BC V1J 7C7

Prince George

24, 556 North Nechako Road

Prince George BC V2K 1A1

Saskatchewan Offices

Regina

475 Maxwell Crescent

Regina SK S4N 5X9

Saskatoon

3915 Burron Avenue

Saskatoon SK S7P 0E3

Midale

200 South Service Road

Highway 39

Midale SK S0C 1S0

Registration

Finding Our Course Listings

External Website—includes dates, pricing, registration button Click Here

Distribution Email Notification sent from the Technical Coordinator—includes dates, pricing, registration can be made through a reply to the email

Skynet *(internal Spartans only)* - includes dates, registration can be made through an email to the Technical Coordinator

Education Training Catalog—shows dates and course synopsis and information

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Payment

Company purchase order; a quote can be created and sent if needed to generate a PO

Credit card (American Express, Visa, Master Card)

All invoicing, regardless of payment method, will be done the week of the course once attendance is confirmed*

**Some exceptions may be granted*

General Information

Qualifications for Enrollment

Educational Services will provide training, individuals who are not competitors of Emerson Automation Solutions or Spartan Controls in the field to which the training pertains. Certain courses have prerequisites and must be followed. The Technical Coordinator will confirm and contact you if a prerequisite has not been met, registration will be pending.

Course Scheduling, Locations, and Pricing

Delivery method, location for in person training, course length, dates for each session, classroom capacity limits, and prices are listed on the Spartan Controls website**. All prices are listed in Canadian dollars**. For the most up to date information, visit our website at www.spartancontrols.com/education.

Tuition Payment

Methods of payment include: company purchase order, VISA, MasterCard or American Express. All tuition is subject to change without notice. Tuition prices are per student and taxes are extra. Transportation, personal expenses, and most meals are the responsibility of the student.

Continuing Education Units

Continuing Education Units (CEUs) are awarded for successful completion of most courses, with a minimum of 80% attendance rate.

Course Material

All materials presented are copyrighted. Audio and video recordings are prohibited and no material, or portion of any course may be reproduced in any manner without prior written approval. All necessary documentation and literature are included in the course tuition. The training materials were developed by Emerson Educational Services or Spartan Controls exclusive use.

General Information *cont'd*

Cancellations and Transfers

Spartan Cancellation:

A course offering may be cancelled with little notice. We apologize for the inconvenience and notification will be given to each student via email. In the event of a cancellation, Spartan's liability is limited to the tuition cost, not travel or accommodation expenses.

Student Cancellation:

If a student must cancel enrollment, we require a notification as soon as possible. At the discretion of the Education team, you may be subject to a 50% tuition charge. Full tuition is charged for failure to attend (no show). Substitutions are permitted until the first day of class.

Travel Details

Students are responsible for arranging their own accommodations. If you intend to buy airline tickets with penalty clauses, please call us to check the course status before booking. Out of town students should make the necessary arrangements to ensure they arrive early enough for an 8 am Mountain start time.

Waitlist

If you register for a course that is already full you may be asked if you would like to be included on a waitlist. Waitlists hold no guarantees and your registration is not automatically transferred to the next session; you must register again for any upcoming sessions.

Courses

All dates and prices are subject to change. For updated information visit our website at www.spartancontrols.com. All courses start at 8 am Mountain time and end times are approximate. All courses are first come, first serve. When inquiring about a course or requesting a course this does not guarantee a seat in the class.

Our team of experts are here to assist you to learn successful strategies to help you develop and grow.

Course #S900
Fundamentals of Control

Length: 0.5 Days

Synopsis:
This half day course is an introduction for anyone in the process industry interested in the fundamentals of process instrumentation.

Objectives:
Upon completion of this course the attendee should understand the operation of regulators, measurement instrumentation, control valves, actuators, control accessories, and controllers as well as a basic understanding of the HART and Fieldbus protocols.

Who Should Attend?
This course is intended to introduce those in the process field to components of the typical feedback control loop, their application, and operation.

Topics:
The following will be discussed in terms of design, selection and application:

- Regulators
- Measurement instrumentation
- Control valves and actuators
- PID controllers
- Control accessories
- Advanced control (HART & Fieldbus)

Prerequisites: None

Course #MSMT
Introduction to Measurement

Length: 0.5 Days

Synopsis:
If you are new to engineering or specifying instrumentation, then we invite you to join Spartan's specialists for an overview of measurement.

Objectives:
We offer three seminars – for measurement, control valves, and regulators – which focus on theory, technology, and application with respect to the topics mentioned below.

Topics:

- Pressure measurement theory
- Pressure transmitter selection
- Flow fundamentals
- dP flow theory
- Velocity flowmeter technology & application
- Coriolis flowmeter theory & installation
- Flow best practices
- Level and temperature fundamentals & technology
- Liquid and gas analysis
- Instrumentation installation requirements
- Instrumentation specification
- Instrumentation diagnostics

Prerequisites: None

Course #VLVS
Introduction to Control Valve Selection

Length: 1 Day

Synopsis:
If you are new to engineering or specifying instrumentation, then we invite you to join Spartan's specialists for an overview of control valve selection.

Objectives:
We offer three seminars – for measurement, control valves, and regulators – which focus on theory, technology, and application with respect to the topics mentioned below.

Topics:

- Globe valve and actuator design overview
- Rotary valve and actuator design overview
- Control valve positioners
- Instrumentation diagnostics
- Aero and hydrodynamic control valve noise
- Flashing and cavitation
- Liquid and gas sizing
- Fundamentals of automated on/off valves

Prerequisites: None

Course #REGS
Introduction to Regulators

Length: 0.5 Days

Synopsis:
If you are new to engineering or specifying instrumentation, then we invite you to join Spartan's specialists for an overview of regulators.

Objectives:
We offer three seminars – for measurement, control valves, and regulators – which focus on theory, technology, and application with respect to the topics mentioned below.

Topics:
- Fundamentals of direct operated and pilot operated regulators
- Regulator application on to various process media
- Regulator sizing and selection
- Methods of overpressure protection and the associated benefits
- Overview of available resources including Fisher Regulator website
- Best practices and troubleshooting tips

Prerequisites: None

Course #OPMS
Introduction to Overpressure Management Systems

Length: 0.5 Days

Synopsis:
If you are new to engineering or specifying instrumentation, then we invite you to join Spartan's specialists for an overview of overpressure management systems.

Objectives:
We offer three seminars – for measurement, control valves, and regulators – which focus on theory, technology, and application with respect to the topics mentioned below.

Topics:
- Rupture disks
- Steam and hot water relief valves
- Safety relief valves
- Tank vents & flame arresters

Prerequisites: None

Course #VFDs
Introduction to Variable Frequency Drives

Length: 0.5 Days

Synopsis:
Variable Frequency Drives (VFDs) are applied to pumps, fans, and other rotating equipment for Energy Savings and improved Process Control. Several factors must be considered and addressed to realize the expected benefits, maximize uptime, and ensure life-cycle efficiency & reliability.

Topics:
- Basic Concepts of VFD Motor Control Methods
- Power & Motor Reliability
- Process Equipment Protection Features
- Pump & Fan Application Study
- Constant Torque Application Study
- Common Fault Conditions & Avoidance by Design and Protection

Prerequisites: None

Course #S009
Process Control Boot Camp

Length: 4 Days

Synopsis:
In collaboration with Dave Shook & Associates, Spartan Controls is pleased to offer a four-day Process Control Boot Camp integrating both a classroom and hands-on lab learning experience.
Our Boot Camp will provide hands-on opportunities for our Customers to put learning into practice and develop useful skills that can increase the productivity of individuals who are both on the tools or managing a group of professionals.
Learn how to troubleshoot a control loop, decide the control objective, or tune controllers for different types of process or control objectives. Gain a better understanding of how to solve real world automation challenges and how to tell if a problem is caused by tuning, hardware, disturbances, or process interactions.
Our hands-on learning experience will allow students to develop critical thinking skills and to work more effectively in the multi-disciplined environment of a real plant.

Topics:
- Control engineering concepts and terminology
- Introduction to control systems
- The fallibility of instrumentation
- Flow and level controller tuning
- Temperature control design and tuning
- Control of processes with time delay, IMC (Lambda) tuning
- Statistical Process Control
- Nonlinear control
- Multi-loop control
- Alarm management
- Control project management
- Controller performance measurement and loop troubleshooting

Prerequisites: None

Course #B100
Fundamentals of Bettis PressureGuard System

Length: 1 Day

Synopsis:
This 1 day course uses classroom and hands-on sessions to introduce the Fundamentals of the Bettis PressureGuard self contained hydraulic emergency shutdown systems.

Objectives:
Upon completion, the student should understand the basic principles of operation, maintenance, and troubleshooting of the Bettis PressureGuard System.

Who Should Attend?
This seminar is designed for technicians, mechanics, operators, and others who are responsible for the installation, maintenance, and efficient operation of Bettis PressureGuard Systems.

Topics:
- PressureGuard hydraulic module
- Pressurematic pilots
- ISO test valve
- UM bonnets
- Bettis linear actuators
- Bettis rotary actuators

Prerequisites: None

Course #B400
Fundamentals of Bettis Gas/ Hydraulic System

Length: 1 Day

Synopsis:
This 1 day course uses classroom and hands-on sessions to introduce the Fundamentals of the Bettis Gas/Hydraulic emergency shutdown systems.

Objectives:
Upon completion, the student should understand the basic principles of operation, maintenance and troubleshooting of the Bettis Gas/Hydraulic System.

Who Should Attend?
This seminar is designed for technicians, mechanics, operators, and others who are responsible for the installation, maintenance, and efficient operation of Bettis Gas/Hydraulic Systems.

Topics:
- Gas/Hydraulic module rotary
- Gas/Hydraulic module linear
- Control manifold components
- Control manifold operation and service
- Trouble shooting leaks/seal failures
- Hand pumps operation & service
- Soft parts installation/repair
- Tank levels
- Limit switch adjustment
- Understanding control schematics
- Upgrade components
- Pressurematic pilots
- ISO test valves

Prerequisites: None

Course #B-EHO-1
Bettis EHO Electro-Hydraulic Operator Actuator Product Training

Length: 1 Day

Synopsis:
This 1-day course provides an introduction and overall working knowledge of the Bettis EHO Electro-Hydraulic Operator. This program provides the fundamentals of the product features, electrical and hydraulic operation and component overview. Each student will learn how to identify and troubleshoot the electronics as well as mechanical components. Students will learn how to interconnect various control configurations and they will learn the basic skills required to provide on-site operation, maintenance and servicing.

Objectives:
- Identify the basic components and assembly of a Bettis EHO by function, configuration and operation of the Standard and Smart models
- Learn Bettis EHO wiring diagrams and hydraulic diagram interpretation skills. These skills are required to operate and maintain the Electro-Hydraulic operator.
- Configure the Bettis Smart EHO with local controls with the local display module
- Develop the skills required to provide on-site operation, maintenance and servicing

Who Should Attend?
This course is designed for technicians, mechanics, operators and others who are responsible for the installation, maintenance and efficient operation of Bettis EHO actuators.

Cont'd on next page….

Course #B-EHO-1
Bettis EHO Electro-Hydraulic Operator Actuator Product Training cont'd

Topics:

- Bettis EHO Introduction
- Component Overview - Standard vs Smart
- Basic Operation
- Model code and training
- Review of document package provided with each operator (w/d, hydraulic schematic, general arrangement drawing and BOM)
    - Setup and commissioning
- Customizing Smart EHO settings
    - Recommended maintenance

Prerequisite: None

Course #S-EIM-1
EIM Series 2000 Actuator Maintenance

Length: 1 Day

Synopsis:
This 1 day course provides an overall working knowledge of the EIM Series 2000 electric actuator. This program provides the fundamentals of electrical operation through the use of a M2CP modular control package. Each student will learn how to identify and troubleshoot the electrical as well as mechanical components. Students will learn how to differentiate actuator control problems from valve problems and they will learn the basic skills required to provide on-site operation, maintenance, and servicing for series 2000 model actuators.

Who Should Attend?
This course is designed for technicians, mechanics, operators, and others who are responsible for the installation, maintenance, and efficient operation of EIM electric actuators.

Objectives:

- Gain a general knowledge of the functions of actuators and valves as well as an understanding of the operation of the Series 2000 electric actuator
- Identify and locate the components that make up a M2CP package and housing group
- Learn basic wiring diagram interpretation skills
- The wiring diagram interpretation skills are required to operate and maintain the control package with its wide variety of control options
- Set travel limits and torque switches
- Develop the skills required to provide on-site operation, maintenance and servicing for Series 2000 model actuators

Course #S-EIM-1
EIM Series 2000 Actuator Maintenance cont'd

Topics:

- Functions of actuators
- General valve operation
- Actuator/valve physical configurations
- Basic series 2000 actuator operation
- EIM product basics-M2CP control
- Model number codes and selection
- Wiring diagram and data sheet interpretation
- Setting travel limits and torque
- Recommended maintenance

Prerequisites: None

Course #S-EIM-2
EIM Series TEC2000 Actuator Maintenance

Length: 1 Day

Synopsis:
This 1 day course provides an overall working knowledge of the EIM Series TEC2000 (Total Electronic Control) electric actuator. This program provides the fundamentals of electrical operation, construction, assembly, hardware, software, and hands-on configuration through the use of a RDM (Remote Display Module). Each student will learn how to identify and troubleshoot the electronic as well as mechanical components. Students will learn how to interconnect various control configurations for the TEC2000 units and they will learn the basic skills required to provide on-site operation, maintenance, and servicing for Series TEC2000 actuators.

Who Should Attend?
This course is designed for technicians, mechanics, operators, and others who are responsible for the installation, maintenance, and efficient operation of EIM electric actuators.

Objectives:
- Identify the basic components and assemblies of a TEC2000 non-intrusive actuator by function, configuration and operation
- Identify and locate the components that make up a TEC2000 package
- Learn TEC2000 wiring diagram interpretation skills—these skills are required to operate and maintain the control package with its wide variety of control options
- Configure the TEC2000 unit with local controls, RDM (Remote Display Module) and a laptop computer using factory supplied software
- Develop the skills required to provide on-site operation, maintenance and servicing for Series TEC2000 model actuators

Course #S-EIM-2
EIM Series TEC2000 Actuator Maintenance cont'd

Topics:
- TEC2000 actuators overview
- Actuator mechanics
- TEC2000 control package
- EIM product basics
- Model number codes and selection
- Wiring diagram and data sheet interpretation
- Setting travel and torque limits
- Configuration and software tools
- Recommended maintenance

Prerequisites: None

Courses R225
MSAPR Engine Emissions Testing Workshop I

Length: 2 Days

Synopsis:
This 2-day workshop will enable students to plan, perform or supervise engine emissions testing in compliance with the Canadian Multi-Sector Air Pollutants Regulations. Designed for fleet managers, compliance engineers, mechanics and environmental technicians alike, this workshop provides classroom instruction on emissions sources and engine operation, as well as hands-on calibration and emissions checks with a portable emissions analyzer on a live engine.

Objectives:
Following this workshop, students will be able to: identify the compounds that must be measured under MSAPR Part 2, describe the effects of engine operation and after treatments on each compound, perform the steps to complete a valid emissions check, and evaluate which performance test methods are most suitable for their applications.

Prerequisites: None

Courses R425, R435, R445
REMVue Level I Master Technician Program

Synopsis:
This 4.5 day program is divided between 3 separate courses—Course #R425, #R435, and #R445. This in-depth program provides attendees with the knowledge to achieve master level proficiency with all aspects of the REMVue® – 500 control system and all related products.

Objectives:
Upon completion of the 3 modules of the Level I Master Technician program, a successful student will be able to:

- Display competent screen navigation
- Display an understanding of all REMVue settings and be able to configure them appropriate to the application
- Understand all controller, HMI, and I/O
- Understand REMVue panel drawings
- Successfully upload and download with all REMVue software
- Complete program changes
- Add any I/O (DIs, DOs, AIs, AOs, and TCs)
- Add a PID Loop
- Display troubleshooting skills on all of the above topics

Prerequisites: None

Course #R425
Module 1

Length: 1 Day

Synopsis:
This 1 day course is designed for maintenance and operations personnel requiring the understanding of the functionality, hardware, and maintenance requirements of a REMVue® 500 controller and the basic skills necessary to configure, calibrate and support it.

Topics:

- Operating philosophy
- Tiering and terminology
- HMI screen navigation
- Controller, HMI, and I/O modules
- Configuration of setpoints, transmitter ranges, timers, and parameters

Prerequisites: None

Course #R435
Module 2

Length: 1 Day

Synopsis:
This 1 day course is designed for technical personnel requiring advanced understanding of the hardware, software tools (REMVue® 500 IO Toolkit) and maintenance requirements of a REMVue® 500 controller and the skills necessary to configure, calibrate and support it.

Topics:
- Drawing review - mechanical & electrical sections
- Sixnet I/O Toolkit operations – upload/download, advanced download.
- Troubleshooting common problems
- RTI configuration utility – read/write parameters
- HMI basic exercises

Prerequisites: Course #R425

Course #R445
Module 3

Length: 2.5 Days

Synopsis:
This 2.5 day course is designed for technical programming personnel requiring the understanding of the software tools and structure of the REMVue®– 500 control system.

Topics:
- Sixnet I/O Toolkit – REMVue toolkit configuration
- GP-Pro Ex – HMI configuration
- ISaGRAF – program overview
- Exercises – multi-platform programming labs involving all REMVue electronic hardware and software tools

Prerequisites: Course #R435

Courses R525, R535, R545
REMVue Level II Master Technician Program

Synopsis:
This 5 day program is divided between 3 separate courses—Course #R525, #R535, and #R545. This in-depth program provides attendees with the knowledge to achieve master level proficiency with all aspects of the REMVue® – 500 AFR and MPI Ignition System.

Objectives:
- Upon completion of the 3 modules of the Level II Master Technician program, a successful student will be able to:
- Understand REMVue AFR theory
- Display competent AFR screen navigation
- Display an understanding of all REMVue AFR settings and be able to configure them appropriate to the application
- Understand all AFR hardware and end devices
- Understand ignition theory
- Understand ignition system components
- Understand ignition system configuration
- Display configuration and troubleshooting skills on all of the above topics

Prerequisites: None

Course #R525
Module 1

Length: 1 Day

Synopsis:
This 1 day course is designed for maintenance and operations personnel requiring the background understanding of combustion theory, considerations used for REMVue® 500 AFR application and basic control methods.

Topics:
- AFR Theory
- Combustion and Emissions
- Waukesha GSI
- White Engines
- Caterpillar Engines

Prerequisites: Course #R435

Course #R535
Module 2

Length: 2 Days

Synopsis:
This 2 day course is designed for maintenance and operations personnel requiring the understanding of the functionality, hardware, and maintenance requirements of a REMVue® 500 AFR system and the basic skills necessary to configure, calibrate, tune and support the system.

Topics:
- AFR screen navigation and settings
- Installation, setup and troubleshooting of AFR end devices including:
- Air valve with actuator (Kinetrol & EL-O-Matic)
- Fuel valve with DVC positioner (2000 & 6200)
- Micromotion
- Air manifold pressure transmitter
- Air manifold temperature thermocouple
- ECOM exhaust analyzer
- AFR tuning

Prerequisites: Course #R525

Course #R545
Module 3

Length: 2 Days

Synopsis:
This 2 day course is designed for maintenance and operations personnel requiring the understanding of the functionality, hardware, and maintenance requirements of a MPI ignition system and the basic skills necessary to configure, calibrate and support it.

Topics:
- Ignition fundamentals
- Ignition troubleshooting
- Flywheel installation and theory
- Cam and crank disk
- MPI ignition system configuration
- Operations; programming; diagnostics; startup; installation preparation; and troubleshooting

Prerequisites: Course #R535

Course #1400
Valve Technician I

Length: 4.5 Days

Synopsis:
This 4.5 day course explains how valves and actuators function and how they are installed and calibrated. It emphasizes installation, troubleshooting, parts replacement, and calibration of control valves, actuators, positioners, and digital valve controllers.

Who Should Attend?
This introductory course is for valve mechanics, maintenance personnel, instrument technicians, and others who are responsible for maintaining control valves, actuators, and control valve instrumentation.

Objectives:
Students who complete this course will be able to:

- Correctly perform installation procedures
- Perform basic troubleshooting
- Properly apply and calibrate positioners and FIELDVUE digital valve controllers
- Change valve trim, gaskets, and packing

Topics:

- Control valve terminology
- Globe valves
- Packing
- Actuators, positioners, and digital valve controller
- Bench set
- Seat leak testing
- Ball valves
- Butterfly valves
- Eccentric disc valves
- Valve characteristics

Prerequisites: Experience in instrument calibration and control valve maintenance, installation, and operation would be helpful

Course #1450
Valve Technician II

Length: 4 Days

Synopsis:
This 4 day course discusses a basic approach to troubleshooting and correcting many common control valve problems. Fisher Specification Manager Software is introduced to give the student a better feel for the sizing and selection process of the valve and actuator. Problems such as cavitation, flashing, and aerodynamic noises are also discussed, as well as common solutions to these problems using different control valve trims and materials. Instrumentation topics are expanded from course 1400 to include troubleshooting and advanced calibration for split ranging, non-compatible signals, or using additional instruments such as a volume booster and trip valves. Loop performance due to stick-slip, high friction, and improper loop tuning are also discussed, along with the use of process simulation software to look at the basic approach to loop tuning and troubleshooting.

Who Should Attend?
Students are typically experienced valve mechanics and maintenance personnel, instrument technicians, and others who will benefit from a broadened perspective of control valve performance and maintenance issues.

Topics:

- Control loop basics
- Major loop basics
- Control loop performance
- Influences on loop performance
- Valve sizing & selection
- Valve troubleshooting
- Actuator sizing & selection
- Actuator troubleshooting
- Instrument selection
- Instrument troubleshooting
- Controller tuning
- Severe service considerations

Prerequisites: Course #1400

Course #1451
Valve Maintenance with DVC Calibration

Length: 4.5 Days

Synopsis:
The first two days of this 4.5 day course will cover sliding stem and rotary valves and actuators. Topics will include valve and actuator setup, maintenance, repair, and troubleshooting. The balance will be focused on the installation and calibration of the DVC6000 series using the 475 handheld communicator.

Objectives:
Students spend 50% of their time in hands-on workshops. Students who complete this course will be able to:

- Correctly perform installation procedures
- Perform basic troubleshooting
- Change valve trim, gaskets and packing
- Install/mount a DVC onto a sliding stem actuator/valve and rotary actuator/valve
- Configure and calibrate FIELDVUE® Instruments with the HART Model 475 communicator

Topics:

- Control valve terminology
- Globe valves/packing
- Actuators
- Bench set
- Ball valves/butterfly valves/eccentric disc valves
- Valve characteristics
- Control valve noise and cavitation
- Digital Valve Controller theory of operation
- HART communication signal
- FIELDVUE instrument installation
- HART Model 475 handheld communicator
- Instrument configuration and calibration
- Instrument troubleshooting
- Control loop wiring practices

Prerequisites: Experience in instrument calibration and in control valve maintenance, installation, and operation would be helpful.

Course #1700
Fisher Control Valve Instrument Maintenance and Calibration

Length: 3 Days

Synopsis:
This 3-day course and hands-on workshop covers the principles of operation, calibration and installation procedures for electronic and pneumatic instruments. The class will discuss maintenance procedures for Fisher sliding stem and rotary actuator assemblies. Hands-on workshop exercises and lectures to discuss the operation and calibration of many Fisher instruments such as I/P transducers, pneumatic positioners, electro-pneumatic positioners, and Fisher FIELDVUE™ digital valve controllers will be covered.

Objectives:
- Calibrate a variety of pneumatic and electronic instruments
- Correctly perform installation procedures
- Perform basic troubleshooting, basic controller tuning, positioner and FIELDVUE™ digital valve controller application

Topics:
- Actuators and Bench Set
- Current to Pneumatic (I/P) Transducers
- Instrument Terminology
- Pneumatic and Electro-Pneumatic Positioners
- FIELDVUE™ Digital Valve Controller

Prerequisites: Some experience in electronic and pneumatic instrument maintenance and calibration would be helpful.

Course #1720
Fisher Pneumatic Pressure Controller Maintenance and Calibration

Length: 0.5 Days

Synopsis:
This 4 hour remote virtual classroom course event that will explain the technical operation and maintenance of pneumatic pressure controllers and explain the basics of the proportional, integral, and derivative response.

Who Should Attend?
This course offers a technical perspective of the working of Fisher pneumatic pressure controllers. The course is especially useful to anyone with responsibilities to repair, maintain, calibrate, and tune pressure controllers.

Objectives:
Maintenance of common components such as bourdon tubes and bellows elements will be discussed along with the proper procedures for calibrating various Fisher controllers.
- Fisher™ C1 Pressure Controller
- Fisher™ 4150/4160 Pressure Controller
- Fisher™ type 4195 Pressure Controller

Topics:
- PID Actions
- Operational overview
- Zero and Span Calibration
- Changing control action
- Bourdon Tube Replacement C1/4150/4160
- Linkage adjustment 4195
- Flapper Leveling 4195

Prerequisites:
None, however some experience and familiarity to process control and general valve operation is recommended.

Course # 1730
Fisher Pneumatic Level Controller - Maintenance and Calibration

Length: 0.5 Days

Synopsis:
This 4 hour remote virtual classroom course event that will explain the technical operation and maintenance of pneumatic level controllers and transmitters.

Who Should Attend?
This course offers a technical perspective of Fisher pneumatic level controller and transmitter operation. The course is especially useful to anyone with responsibilities to repair, maintain, calibrate, and tune level controllers and transmitters.

Objectives:
A detailed overview of displacer based level methods for applications including single fluid level, interface, and density will be covered. Basics of proportional, integral, and derivative actions are discussed as well as the proper procedures for mounting, calibrating and configuring the devices.
- Fisher™ 249 Displacer Sensors
- Fisher™ 2500
- Fisher™ 2502

Topics:
- Common level measurement methods
- Displacer basics
- Torque tube construction
- Displacer mounting
- Fisher 249 displacer sensor maintenance
- Mounting and calibrating Fisher™ 2500
- Mounting and Calibrating Fisher™ 2502

Prerequisites:
None, however some experience and familiarity to process control and general valve operation is recommended.

Course #1751
Fundamentals of HART based FIELDVUE Digital Valve Controllers

Length: 2 Days

Synopsis:
This 2 day lecture/lab style course provides the skills necessary to install and mount a FIELDVUE digital valve controller onto sliding stem actuator/valve and rotary actuator/valve assemblies and configure and calibrate FIELDVUE instruments with the field communicator.

Who Should Attend?
This course is for technicians, engineers and others responsible for installing, calibrating and basic troubleshooting FIELDVUE instruments using the 475 Handheld Communicator.

Topics:
- FIELDVUE digital valve controller theory of operation
- FIELDVUE instrument installation
- Field communicator for instrument configuration, calibration, and troubleshooting
- ValveLink mobile overview

Prerequisites: Control valve experience and/or course 1400, 1300, 1710, or 1451

Course #1752
ValveLink Software for Configuration and Calibration of FIELDVUE Digital Valve Controllers

Length: 2.5 Days

Synopsis:
This 2.5 day lecture/lab style course provides hands-on experience working with FIELDVUE digital valve controllers, and ValveLink software. Students will be able to execute ValveLink calibration and diagnostic routines and create an instrument database. The primary focus of this course is to provide a comprehensive experience in managing digital valve controllers using the ValveLink software.

Who Should Attend?
This course is for technicians, engineers and others responsible for installation, calibration, and diagnostics for FIELDVUE digital valve controllers and ValveLink software.

Topics:
- Introduction to ValveLink software
- ValveLink tag and database management
- Configuration with ValveLink
- Calibration with ValveLink
- ValveLink advanced and performance tier diagnostics
- Troubleshooting
- Introduction to diagnostic data interpretation

Prerequisites: Control valve experience and/or course 1400, 1300, 1710, or 1451

Course #1759
ValveLink Software for Diagnostics of FIELDVUE - Digital Valve Controller

Length: 2.5 Days

Synopsis:
This 2.5 day course practical exercises and discussions to teach the student to interpret and analyze diagnostic data obtained using FIELDVUE digital valve controllers and ValveLink software. Students will perform diagnostic tests on a variety of valve/actuator combinations and use the data to determine bench set, dynamic error band, seat load, spring rate, and other pertinent parameters. Students will also perform comparison tests on valves/actuators containing assembly or operating flaws and use the data for troubleshooting purposes.

Who Should Attend?
This course is for technicians, engineers, and others responsible for installing and calibrating control valve related instruments.

Topics:
- Pneumatic control valve terminology
- Features of the digital valve controller and ValveLink software
- ValveLink diagnostic tests
- Data interpretation
- Troubleshooting techniques
- Comparison testing techniques
- Performance diagnostics

Prerequisites: Course #1752

Course #S100
Valve Sizing & Selection

Length: 1 Day

Synopsis:
This 1 day course uses lectures and examples to explain the correct procedure for sizing and selecting control valves using Fisher Specification Manager Software.

Who Should Attend?
This seminar is designed for engineers, technicians, and others who are responsible for the sizing and selection of control valves.

Objectives:

- Select the proper style and size of control valve for a given application
- Perform control valve sizing
- Select the proper trim size for an application

Topics:

- Control valve selection
- Actuators overview
- Liquid sizing
- Flashing
- Cavitation
- Liquid sizing examples
- Gas sizing
- Noise discussion
- Noise examples
- Gas sizing examples

Prerequisites: None

Course #1200
ROC & FloBoss Engineering I

Length: 4 Days

Synopsis:
This 4 day course provides an overall working knowledge of the ROC 300 series as well as the FloBoss 100, 400, and 500 series products. Students are presented with a comprehensive view of the hardware and software in the ROC family and then are taught how to configure a working unit. The FloBoss 107 will be used as the standard configuration platform for the workshops.

Who Should Attend?
This course is for engineers, technicians, and others involved in system configuration, operation, and maintenance of ROC products.

Objectives:
Upon complete will be able to effectively configure, operate, and maintain the ROC products.

Topics:
- Overview of ROC & FloBoss hardware
- Overview of ROCLINK 800 software
- Configuring ROC products
- Basic communication
- Operating the ROC products
- Maintaining and troubleshooting ROC products
- FST guidelines
- FST structure
- Processor loading considerations
- Application overview
- Discussing and explaining typical oil & gas process applications
- Calibration of A/I and A/O modules
- AGA configuration and overview
- PID control
- PID structure
- Application and use of ROC PID control

Prerequisites: Working knowledge of PCs, the windows XP operating system, and a basic understanding of process control.

Course #S340
Bristol ControlWave Gas Measurement Application Tool

Length: 3 Days

Synopsis:
This 3 day course covers the integration of Bristol Multi-Variable Sensors and the Standard Directive 17 Flow Computer application for gas measurement using the ControlWave micro.

Who Should Attend?
This course is designed for Bristol integrators, field maintenance technicians, and end-users.

Objectives:
- Configure, calibrate, and integrate Bristol Multi-Variable transmitter products
- Build a D17 gas metering application using the Bristol Canadian EFM function block library

Topics:
- Overview of Bristol RTU and measurement hardware
- Connect, configure, and calibrate a Bristol 3808 MVT
- Introduction to TechView and WebBSI
- Flash configuration in LocalView and TechView
- Intro to OpenBSI utilities (ataView, downloader, comms stats etc.)
- Hardware troubleshooting
- Connection to analog MVTs using FSK-RS232 modem (TIU/CTIU)
- Field and network firmware upgrades
- Introduction to ControlWave Designer IEC 61131-3 programming environment
- Build a gas measurement program using the Canadian EFM function block library (AGA3 and XMTR 3-in-1 interface)
- Configure a modbus RTU master/ slave communications program
- I/O configurator
- System variable wizard overview
- Building and transferring download files
- Logic debugging and troubleshooting

Prerequisites: None

Course #S440
Advanced Programming using Bristol ControlWave Designer

Length: 4 Days

Synopsis:
This 4.5 day course is an advanced IEC-61131 programming session using Bristol ControlWave Designer software. It focuses on building a standard gas wellhead measurement and automation application using a blend of IEC programming languages such as function block diagram, structured text and ladder logic.

Who Should Attend?
This course is designed for system integrators or end-users looking for an advanced programming experience.

Objectives:
Build an AGA3 (orifice plate) gas metering application with flow control valve and shutdown key automation including a Modbus TCP SCADA interface

Topics:
- Review of ControlWave Designer IEC 61131-3 programming environment
- Build a gas measurement program using the Bristol ACCOL3 function block library (AGA3, AGA8, MVT Interface) with a mix of structured text and function block diagram
- Program shutdown key automation with ladder logic
- Create a user defined function block with logic for automating a flow control valve using function block diagram
- Define and program historical data archives for trending and meter report data
- Configure a modbus TCP slave communications program for a SCADA host interface

Prerequisites: Course #S340

Course #2031
Basic Vibration Analysis

Length: 4.5 Days

Synopsis:
This 4 day course (the 0.5 is for the exam that will be held on the final day) 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 AMS technologies for demonstration purposes. The class shows the students how to use the vibration analyzer in conjunction with Emerson Machinery Health Management supported software to analyze basic vibration defects. This course complies with Category I Vibration Analyst per ISO standard 18436-2: Vibration condition monitoring and diagnostics.

Topics:
- Principles of vibration
- Data acquisition and signal processing
- Condition monitoring and 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

Prerequisites: Fundamentals of Vibration or 6 months of experience

Course #2032
Intermediate Vibration Analysis

Length: 4.5 Days

Synopsis:
In this 4 day course (the 0.5 is for the exam that will be held on the final day), category II vibration analysts are taught to be able to select appropriate vibration measurement techniques; set up instruments for basic resolution of amplitude, frequency, and time; 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. The course also features the use of the AMS 2130 Machinery Analyzer in conjunction with advanced machinery analysis techniques. Discussions on case histories on machinery faults are one of the focal points of this course. This course complies with Category II Vibration Analyst per ISO Standard 18436-2: Vibration condition monitoring and diagnostics.

Topics:
- Equipment testing & diagnostics
- Reference standards
- Reporting & documentation
- Fault severity determination
- Analyzer averaging techniques
- 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

Prerequisites: Course #2031 and 18 months of field experience are recommended.

Course #2035
PeakVue™ Mystery and Autocorrelation

Length: 3 Days

Synopsis:
This 3-day course provides insight into advanced functionality of Emerson's unique PeakVue™ technology and autocorrelation.

Objectives:
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.

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.

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

Course #2068
Introduction to AMS Machinery Manager

Length: 4 Days

Synopsis:
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. An AMS 2130 Analyzer will be used to load routes and collect data on lab machinery for basic vibration analysis using export and diagnostic plotting.

Topics:
- Equipment configuration using RBMwizard®
- Machine duplication
- Route creation
- Basic diagnostic plot options
- Introduction to reporting techniques
- Problem reporting

Prerequisites: Computer experience and Basic Vibration are recommended.

Course #2074
Intermediate AMS Suite

Length: 4 Days

Synopsis:
This 4-day course teaches some of the more advanced machinery analysis techniques available in AMS Suite Machinery Health Manager Software. This course focuses more on analysis and reporting with the use of Vibration Analysis module, Reporting module, Exception Analysis, PeakVue™ technology and full version of RBMview.

Objectives:
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, AMS Online Machinery Health Monitor and Oilview modules are covered in other course offerings and are not part of this course.

Topics:
- PeakVue™
- Vibration Analysis module
- Reporting Module
- Exception Analysis
- Nspectr
- BMview

Prerequisites: Intro to AMS Machinery Health Manager (course #2068), Basic Vibration Analysis course or 6 months vibration analysis experience are recommended

Course #2076
AMS 2140 Fundamentals

Length: 2 Days

Synopsis:
This two-day hands-on course covers the basic operation of the AMS 2140 Machinery Health Analyzer. Students collect data on lab machines. Course materials are designed for personnel with experience in the field of vibration data collection and analysis, but little or no experience with AMS analyzers.

Topics:
- Analyzer/computer communication
- Predefined route data collection
- Job data collection and setup
- Manual mode measurements
- Introduction to AMS 2140 Analysis Experts functions

Prerequisites: Understanding of vibration analysis and basic vibration collection principles

Course #2094
AMS 2140 Advanced Functions

Length: 3 Days

Synopsis:
This 3 day course is intended for personnel with single-channel vibration analysis experience and little or no multi-channel experience.

Who Should Attend?
This course is intended for personnel with single-channel vibration analysis experience and little or no multi-channel experience.

Objectives:
This class covers advanced signal processing using Emerson's patented PeakVue™ technology for slow-speed analysis, coherence and cross-channel phase, operating deflection shapes (ODS), modal analysis, and other advanced techniques.

Topics:
- PeakVue™
- Resonance detection
- Dual channel 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 time waveform capture and analysis
- AMS 2140 Analysis Experts

Prerequisites: Single-channel vibration analysis experience required.

Note: If you are attending both Course #2076 and #2094, a 15% discount will be applied to tuition.

Course #S230
MLT/MLA Level I - Machinery Lubrication

Length: 3 Days

Synopsis:
Spartan, in collaboration with Des-Case, is proud to host a three-day course covering both the ICML Machinery Lubrication Technician and Machinery Lubricant Analysis Level I Body of Knowledge. This practical machinery lubrication course is designed to educate attendees on a variety of topics in the field of machinery lubrication, including lubricant application, contamination control and oil analysis. The focus of the class is to create awareness of the important issues in lubrication and offer practical, effective solutions to the challenges facing today's maintenance professionals.

Objectives:
In this course attendees will learn:
- How lubrication impacts machine reliability
- How lubricants work
- Common lubricant failure modes
- Lubricating oil application methods
- Grease application methods
- Lubrication considerations
- Lubricant contamination control
- Storage and handling for new lubricants
- Used oil analysis
- Oil sampling methods
- Essential equipment modifications for lubrication best practice

Topics:
- Lubricant types and selection
- Precision application of oils and greases
- Best practices for contamination control
- Optimum storage strategies for lubricants
- Basics of oil analysis and oil sampling

Course #S230
MLT/MLA Level I - Machinery Lubrication cont'd

Upon completion of the three-day MLT/MLA Level I course, a successful student will be able to:
- Understand how lubrication impacts machine reliability
- Understand how lubricants work
- Understand the most common lubricant failure modes and how to prevent them
- Choose the most appropriate oil application methods
- Properly apply grease
- Understand how contaminants impact lubrication and how to control particles and moisture
- Understand best practices for lubricant storage and handling
- Understand the basics of oil analysis
- Take a proper oil sample
- Understand how to modify equipment to achieve lubrication best practice

Prerequisites: None

Course #2375
Wireless Self Organizing Network

Length: 2 Days

Synopsis:
This 2 day course explains how self-organizing wireless networks function and how they are installed, setup, configured, and integrated. It emphasizes planning, proper installation, and startup, configuration, maintenance, and integration. The course uses lectures and labs to maximize the hands on experience and teach the students.

Who Should Attend?
This 2 day course is intended for technicians, engineers, and other plant personnel who need to know how to design, install, setup, configure, maintain, and troubleshoot wireless self-organizing networks and their components.

Objectives:
Students who complete this course will:

- correctly install and setup the 1420 wireless gateway
- properly install and configure wireless transmitters
- properly integrate host interfaces to the wireless gateway

Topics:

- How self-organizing networks function
- Self-organizing Networks best practices
- Network components
- 1420 installation and setup
- Network parameters
- 648 and 3051S wireless transmitters installation, configuration, maintenance, and calibration
- Using AMS Device Manager with the 1420 wireless gateway
- Configuring wireless devices with AMS Device Manager
- Operation of AMS Wireless SNAP-ON
- Modbus serial integration
- Modbus TCP integration
- OPC integration

Prerequisites: Some experience in Networks & Host Integration would be helpful.

Course #4210
Operation & Maintenance of Gas Chromatographs

Length: 3 Days

Synopsis:
This 3 day course is appropriate for those who have either worked with a chromatograph for at least six months or completed the 'Introduction to Gas Chromatographs' course. It prepares participants to operate and repair a gas chromatograph.

Objectives:
Students who complete this course will be able to effectively operate and repair a gas chromatograph.

Topics:

- Hands-on learning that explains the chromatograph, how it operates, and what it does to analyze natural gas
- Carrier and calibration gas systems
- Chromatograph hardware
- Installation and operation of MON2000 software
- Identifying problems, setting timed events, preparing samples, and implementing preventative maintenance procedures
- Troubleshooting
- Share parts & service tools

Prerequisites: Introduction to Gas Chromatographs course or equivalent knowledge.

Course #S210
Micro Motion Mass Flowmeter

Length: 2 Days

Synopsis:
This 2 day course uses classroom lectures and hands on workshops to explain how to correctly commission, maintain, and apply Micro Motion mass flowmeters.

Who Should Attend?
This course is designed for people who will be responsible for maintenance, selection and application of Micro Motion mass flowmeters.

Objectives:

- Understand the theory of operation of a mass flowmeter
- Select and size a Mass Flowmeter for a suitable application
- Correctly plan and install the meter
- Correctly configure the meter for a proposed application
- Perform basic troubleshooting

Topics:

- Theory of operation
- Product overview
- Configuration
- Sizing and installation
- Proving and meter verification
- Net oil measurement
- Applications

Prerequisites: None

Course #S216
TruckVue Truck Unload

Length: 1 Day

Synopsis:
This 1 day course uses lectures and workshops to provide an overview of the Spartan Controls industrial computer based touch screen Truck Unloading system. This course is intended to cover the current TruckVue Server 2010-2012 systems and will not provide details on predecessor or ROC based offerings.

Who Should Attend?
This course is designed for people who will be responsible for maintenance, selection and application of Micro Motion mass flowmeters.

Objectives:
- Provide an understanding of the application and how the measurement instrumentation interacts with the system
- Familiarize site personnel with the configuration and maintenance menus
- Troubleshoot problematic unloads and hardware

Topics:
- Identify system components
- Understand the principles of operation of the system measurement instrumentation
- Understand the principles of operation of the primary software
- Troubleshoot panel hardware operation issues
- Familiarize oneself with the user set-up screens, software capabilities and configuration

Prerequisites: None

Course #S245S
Phase Dynamics

Length: 1 Day

Synopsis:
This 1 day course uses classroom lectures and workshops to teach how to correctly commission, maintain, and apply Phase Dynamics. The course will cover: principle of operation, watercut 101, best practices, installation, configuration, operation, and troubleshooting.

Who Should Attend?
This course is designed for people who will be responsible for maintenance, selection and application of Micro Motion mass flowmeters.

Objectives:
- Understand the theory of operation of a mass flowmeter
- Select and size a Mass Flowmeter for a suitable application
- Correctly plan and install the meter
- Correctly configure the meter for a proposed application
- Perform basic troubleshooting

Topics:
- Theory of operation
- Transmitter and sensor types
- Applications
- Best practices
- Installation
- Sampling techniques
- Troubleshooting
- Configuration

Prerequisites: None

Course# S270 Daniel Training

Length: 2 Days

Synopsis:
This 2-day course prepares students to install, operate, and maintain Daniel multi-path ultrasonic flow meters.

Objectives:
In addition to classroom instruction, the training course includes hands-on experience using the flow meter, simulator and diagnostic software.

Topics:
- Basics of Sound Waves
- How Ultrasonic Flow Meters Work and Their Advantages over other Meters
- The Performance Characteristics of Transit Time Utrasonic Flow Meters
- System Components and Mark III Electronics, including the Central Processing Unit (CPU) Board and the Option Board
- Meter Mechanics
- Removal and Installation of Transducer Assemblies
- Volumetric and Mass Ultrasonic Gas Flow Measurement
- Meter Installation Considerations
- Inform the Instructor if Working on Liquid Meter

Prerequisites: None

Course #7009
DeltaV Implementation I

Length: 4.5 Days

Synopsis:
During the 4.5 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.

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

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

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

Prerequisites: Microsoft Windows experience. Prospective attendees lacking process control experience should first attend Control Loop Foundation, Course 9025. Prospective attendees new to DeltaV should first attend PlantWeb/DeltaV Introduction, Course 7101, or DeltaV Hardware & Troubleshooting, Course 7018.

Course #7012
DeltaV Operator Interface for Continuous Controls

*****ON DEMAND** Please contact Spartan Education if interested***

Length: 2 Days

Synopsis:
This 2 day course uses lectures and hands-on workshops to provide an in-depth overview on operating the DeltaV System.

Who Should Attend?
This course is for operators, supervisors and managers responsible for the operation of continuous processes using DeltaV system.

Objectives
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

Prerequisites: None

Course #7017
DeltaV Implementation II

Length: 4.5 Days

Synopsis:
During the 4.5 day course, the student will be able to identify function block structures, interpret function block status values, design error masking, define nodes, configure class-based control modules using the Command-Driven algorithm.

Who Should Attend?
This course is for process control engineers responsible for designing, implementing and testing configuration using the DeltaV system.

Objectives:
This course includes access to a virtual DeltaV system to practice and review course workshops complete with brief recorded demonstrations available after course completion.
- Configuration of Equipment Modules for Supervisory Control
- Custom Faceplates and Dynamos

Topics:
- Function Block Structures & Status Values
- Analog Control Palette Blocks PID Bias/Gain, Deadtime, Ratio, Signal Characterizer, Splitter
- HART Inputs and Outputs
- HART Device Alarms
- AMS Intelligent Device Manager
- Unit Alarms
- DeltaV Tune with InSight
- Device Control Options
- Class Based Control Modules

Prerequisites: Course 7009, DeltaV Implementation I or 7409, Using DeltaV Live Operator Interface Implementation I

Course #7018
DeltaV Hardware & Troubleshooting

Length: 4 Days

Synopsis:
This 4 day course focuses on the hardware components that make up the DeltaV system: M-series controllers and I/O, S-series controllers and I/O (including CHARMs), and DeltaV smart switches. This course provides an overview of the DeltaV Control Network, M- and S-series hardware, and software applications.

Who Should Attend?
This course is recommended for instrumentation and maintenance technicians, managers, and configuration engineers who need to know about DeltaV hardware.

Objectives:
Using a combination of lectures and workshops, you will learn how to use operator and diagnostic tools to identify and locate hardware-related fault conditions. Workshops pro-vide the opportunity to disassemble and reassemble the M- and S-series hardware and return the system to an operating state.

Topics:
- DeltaV Overview
- Operator Alarms
- DeltaV Diagnostics
- DeltaV Smart Switches
- DeltaV I/O Cards and Carriers
- Controllers and Power Supplies
- Electronic Marshalling (CHARMs)
- HART I/O
- Redundant I/O

Prerequisites: Windows Experience

Course #7020
AMS Device Manager

Length: 3 Days

Synopsis:
Completing 3 days of AMS Device Manager hands-on instructor assisted training modules and exercises provides the quickest route to your productive use of this predictive maintenance application.

Who Should Attend?
This course is intended for technicians and engineers who need to configure and use AMS Device Manager.

Topics:
- Viewing and Modifying Devices
- Creating a Plant Database Hierarchy and Adding Devices
- Using the Field Communicator with AMS Device Manager
- Using the AMS Device Manager Browser Functions
- Audit Trail
- Calibrating Device - Calibration Assistant
- Configuring and Monitoring System Alerts
- Installing an AMS Device Manager Server Plus Standalone
- Starting AMS Device Manager for the First Time
- Network Communication Interface Setup
- AMS Device Manager Database Management
- Installing a Distributed System
- Installing Device Types from Media
- MV Engineering Assistant SNAP-ON Application
- QuickCheck™ SNAP-ON Application
- AMS Device Manager OPC Server and the Matrikon OPC Explorer
- AMS Device Manager Web Services
- AlertTrack™ SNAP-ON Application
- Wireless SNAP-ON Application Audience

Prerequisites: None

Course #7025
DeltaV Advanced Graphics

Length: 4.5 Days

Synopsis:
This 4.5 day course is for process control engineers responsible for configuring advanced functionality in the DeltaV user interface.

Who Should Attend?
This course is for process control engineers responsible for configuring advanced functionality in the DeltaV user interface.

Objective:
This course expands on graphic topics covered in both the DeltaV Implementation, course 7009 and DeltaV Implementation II, course 7017.

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
- Theme Dynamos

Prerequisites: Course 7009 DeltaV Implementation I

Course #7026
DeltaV Cybersecurity

Length: 4.5 Days

Synopsis:
The 4.5 day DeltaV Cybersecurity course focuses on the DeltaV Security Manual and the practical implementation of the guidance provided within.

Who Should Attend?
DeltaV System Administrators or IT personnel responsible for implementing DeltaV security.

Objectives:
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.

Topics:

DeltaV Deployment Guidelines & 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 & 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

Course #7026
DeltaV Cybersecurity cont'd

Topics cont'd:

Active Directory Design & User Account Management
- Define Active Directory implementation guidelines
- Create customized DeltaV users and groups
- Audit user privileges
- Configure password policies through Group Policy Objects
- Configure smart card login for Windows and DeltaV
- Create View-Only user account

Device Hardening & Event Logging
- Define device internal and interface protection rules
- Deploy DeltaV Endpoint protection and Application Whitelisting (McAfee)
- Configure daily antivirus scans
- Manage whitelist inventory, adding applications to whitelist
- 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 SIEM dashboard to show system events

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

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

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

Course #7027
DeltaV Systems Administration for Windows 7 and Server 2008

Length: 4.5 Day

Synopsis:
This 4.5 day course is designed for control system administrators, process control engineers and IT specialist responsible for managing, installing, and commissioning a DeltaV system.

Who Should Attend?
This course is designed for control system administrators, process control engineers and IT specialist responsible for managing, installing, and commissioning a DeltaV system.

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

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

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

Course #7028
DeltaV Virtualization Administration

Length: 3 Days

Overview
This 3-day DeltaV Virtualization course focuses on the various software that is used in the management of a DeltaV Virtualization environment.

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

Objectives:
Students will engage in workshops that will reinforce the material discussed to successfully run and maintain a Virtualized DeltaV system.

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

Course #7028
DeltaV Virtualization Administration cont'd

Topics cont'd:
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

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

Course #7029
DeltaV Virtualization

Length: 4.5 Days

Synopsis:
This 4.5 day course focuses on the installation, configuration and system administration of a virtualized DeltaV distributed control system.

Objectives:
Using a combination of lectures and workshops students will learn skill sets that enable them to properly plan, implement and maintain a robust DeltaV Virtual Studio (DVS) system intended for online (production) use. A key objective of this course is to prepare students for all aspects of owning a DVS system with special emphasis on providing highly available, reliable and secure access for end users of the DVS system.

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

Topics:
- Virtualization Primer — Basics of How Virtualization Works
- Overview of DeltaV Virtualization Solutions
- Planning a DeltaV Virtual Studio System
- Installing and Configuring a VRTX Chassis and Blade Servers
- Creating DeltaV Virtual Machines including a ProfessionalPlus Node
- Configuring a WYSE or a Pepperl+Fuchs Thin Client and Redundant Thin Client Networks
- Create a Highly Available Failover Cluster
- Patching and Hardening of Cluster Nodes
- Cluster Health Monitoring and Troubleshooting
- Disaster Recovery and Replication
- Upgrading and Capacity Expansion

Prerequisites: Course 7027, DeltaV Systems Administration for Windows 10/Server 2016

Course #7032
Fieldbus Systems & Devices

Length: 4 Days

Synopsis:
This 4-day lecture/lab course provides maximum hands-on experience working with FOUNDATION™ fieldbus instruments such as: the FIELDVUE® Digital Valve Controller, Rosemount Pressure and Temperature Transmitters.

Objectives:
The student will use the DeltaV control system to commission fieldbus devices, assign FOUNDATION™ fieldbus function blocks to field devices, troubleshoot using diagnostics and AMS Device Manager to manipulate device parameters.

Who Should Attend?
This course is for individuals responsible for designing and configuring FOUNDATION™ Fieldbus segments. As well as analyzing the fieldbus macro cycle, troubleshooting Fieldbus segments/devices and modifying FOUNDATION™ Fieldbus parameters.

Topics:
- FOUNDATION™ fieldbus Overview
- Macro Cycle Execution
- Fieldbus Function Blocks
- Control Anywhere
- Fieldbus Wiring and Installation
- Segment Checkout Procedures
- Commissioning and Configuring Devices
- Control Strategy Configuration
- Configuring an Operator Display

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

Course #7039
AMS Device Manager with DeltaV

Length: 4 Days

Synopsis:
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.

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

Who should attend?
The target audience usually does the 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 and assistance with instrumentation on plant turnarounds, startups, and for project work
- Improves process availability and reduces operations and maintenance costs

Topics:
- DeltaV and PlantWeb Overview
- Smart Commissioning
- AMS Device Manager Overview
- Foundation fieldbus Overview
- ValveLink SNAP-ON Introduction
- ValveLink DVC Setup
- HART Overview
- PROCONEX QuickCheck SNAP-ON
- PROFIBUS Overview
- Wireless SNAP-ON Introduction

Course #7039
AMS Device Manager with DeltaV cont'd

Topics cont'd:
- 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 Assistant

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

Course #7305
DeltaV SIS Implementation

Length: 4.5 Days

Synopsis:
This 4.5 day course is a hands-on instructor led course. The course covers complete DeltaV SIS Implementation including hardware and software architecture.

Objectives:
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.

Who Should Attend?
This course is for personnel who design, implement, commission and service DeltaV SIS.

Topics:
- DeltaV SIS Overview
- DeltaV SIS SLS 1508 Hardware Architecture
- DeltaV SIS with Electronic Marshalling Hardware Architecture
- DeltaV Safety Instrumented Functions
- Rosemount SIS Instruments
- AMS Device Manager relating to DeltaV SIS
- Fisher SIS Digital Valve Controllers
- SISNet Repeaters
- DeltaV SIS Security
- DeltaV Version Control
- Local Safety Network Bridges

Prerequisites: Course 7009 or 7409 is a requirement. Recommend IEC 61511 knowledge.

Course #7409
Using DeltaV Live Operator Interface - Implementation I

Length: 4.5 Days

Synopsis:
During the 4.5 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.

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

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

Topics:
- System Overview
- DeltaV Explorer
- DeltaV Diagnostics
- Control Modules
- Control Studio
- Motor Control with Interlocking and 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)

Prerequisites: Microsoft Windows experience

Course #7412
DeltaV Live Operator Training for Continuous Operation

Length: 2 Days

Synopsis:
This 2-day course uses lectures and hands-on workshops to provide an in-depth overview of operating a continuous process using DeltaV Live .

Objectives:
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

Who Should Attend?
This course is for operators, supervisors and managers responsible for the operation of continuous processes using DeltaV system.

Topics:
- System Overview
- Accessing DeltaV Live, Displays, Faceplates and Trends
- Operating Discrete and Analog Control Module Operation
- Accessing Alarm Displays/Alarm Handling
- Operating Motor Control Modules
- Operating Regulatory/Cascade Control Modules
- Accessing Real-time/Historical Trend Data
- Unit Alarms
- Operating Equipment Modules

Prerequisites: None

Course #7425
DeltaV Advanced Graphics with LIVE

Length: 4.5 Days

Synopsis:
This 4.5 day course is for process control engineers responsible for configuring graphics in the DeltaV Live operator interface.

Objectives:
This course teaches basic options through advanced configuration topics.

Who Should Attend?
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.

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

Prerequisites: 7009, 7409, or 7025

Course #S009
Practical Process Control

Length: 4 Days

Synopsis:
Spartan Controls' Practical Process Control course is the designed to provide a fundamental understanding of the tools available to solve process control problems and how to apply them appropriately for robust efficient control.

Objectives:
Including both classroom and hands-on lab-based exercises, this course gives students the ability to put their learning to practice with industry-based examples. Learn how to model a process and tune a loop using a calculated approach to achieve the desired process response based on your control objective. This course will also provide you with the ability to diagnose a poorly performing loop to determine if the cause is related to instrumentation, tuning or other process interactions.

Topics:
- Control systems engineering terminology
- Instrumentation limitations and its effect on control loop performance
- Process Modelling
- Lambda (IMC) Tuning
- Tuning Self-Regulating Loops (Basic Flow or Temperature)
- Tuning Integrating Loops (Tank Level)
- Advanced Regulatory Control Topics (Cascade, Gain Scheduling and other tools)
- What is Advanced Process Control and when do I need it?
- How to deal with interacting and oscillating loops
- Alarm management
- Justifying Control Enhancement Projects
- Control Loop Troubleshooting

Prerequisites: 7009

Course #S720
Loop Tuning

Synopsis:
This course is on fundamentals of control loop tuning. In this course, you will learn practical loop tuning methods through hands-on lab exercises developed in DeltaV.

Objectives:
- Understanding of fundamentals of control loop tuning and its importance
- Ability to identify unhealthy loops
- Familiarity with Lambda tuning method on different types of control loops
- Awareness of advanced control strategies

Topics:
- Introduction
- How to Model a Process for Control?
- What is a PID controller?
- Lambda Tuning Method
- Signal Filtering and Its Impact on Control
- Valve Characteristics and Its Impact on Control
- Cascade Control
- Advanced Topics

Prerequisites: None

Course #S7203
DeltaV Advanced Controls

Length: 4.5 Days

Synopsis:
This 5 day course is designed for system engineers who will be using DeltaV Advanced Control features. This is a condensed course with selected content from Courses 7201 and 7202. The principal technology that is utilized in each product will be discussed, and 50% of the course will be hands-on workshops. Students will log into DeltaV systems to apply the advanced control features to customized simulated process applications. The course will feature approximately 1 day on DeltaV Insight, and 3.5 days on DeltaV PredictPro (MPCPro).

Topics:

DeltaV InSight
- Embedded Process Learning
- Intelligent Process Monitoring
- Adaptive Tuning and Control
- Advanced Control Diagnostics
- Customized Performance Reporting

DeltaV PredictPro (MPC)
- Model Predictive Control Background and Theory
- MPCPro Controller Setup
- MPCPro Model Analysis and Controller Generation
- Large Process Application of MPCPro
- Real-time Optimization with MPCPro
- MPCPro Control and Optimization Strategy Design and Development
- MPCPro Simulation

Prerequisites: Course #7009

Course #S110
Overpressure Protection

Length: 1 Day

Synopsis:
This 1 day course uses lectures and examples to explain the correct procedure for sizing and selecting safety relief valves

Who Should Attend?
This seminar is designed for engineers, technicians, and others who are responsible for the sizing and selection of safety relief valves.

Objectives:
On completion, the student should have an understanding of:

- The applicable ASME, API and ANSI specifications which govern safety relief valves
- Safety relief valve design and operation
- Different types of overpressure protection and their uses

Topics:

- ASME, API and ANSI specification review
- Valve design
- Sizing requirement overview
- Gas/vapor sizing
- Liquid sizing
- Fire sizing

Prerequisites: None

Course #S140
Safety Relief Valve Maintenance

Length: 2 Days

Synopsis:
This 2 day course uses lectures and examples to explain the correct procedure for valve maintenance.

Who Should Attend?
This seminar is designed for technicians and others who are responsible for the maintenance of Crosby valves.

Topics

- Valve nomenclature and definitions
- ASME code requirements
- Pressure-level relationship
- Valve maintenance
- Valve disassembly and inspection
- Test bench technique; air, steam and water
- Adjustments for blowdown
- Ring locations effects
- Bench teardown of valves
- Parts inspection & critical dimension measurement
- Remachining of nozzles
- Maintenance problems and remedies
- Discussion on "do's" and "don't's"
- Quiz on safety and safety relief valves
- Cold differential testing
- Pilot valve testing

Prerequisites: None

Provincial

Alberta

BRITISH COLUMBIA

Saskatchewan

Job Grants

Overview
The Canada-Alberta Job Grant is a training program where an employer applies on behalf of their employee(s) for eligible training costs. Employers decide who gets training and what type of training may be needed for their employees.

Funding provided by the Government of Canada through the Canada Job Grant

What's new
The Canada-Alberta Job Grant program is accepting online applications through Labour's Workforce Grants Portal.

Applying online offers many benefits to employers:
- Applications can be submitted faster because employers no longer have to mail in the applications and documents.
- Employers can see their application status at any time.
- All documentation for the grant application exists in one secure place the employer can access.

Employers who originally submitted an application on paper will be required to finish the grant process on paper with a Training Completion form. Please refer to the Receiving payment after applying on paper section of this website for more details: https://www.alberta.ca/canada-alberta-job-grant.aspx.

Funding
Eligible employers are required to contribute a minimum of one-third of the total training costs for existing employees. Government contributes two-thirds of the cost to a maximum of $10,000 per trainee per fiscal year. If hiring and training an unemployed Albertan, up to 100% of training costs could be covered, up to $15,000 per trainee.

Individual employers will have a cap of $300,000 for the amount of grant funding they can receive per fiscal year. This ensures that funding is available for as many Alberta employers as possible.

The Canada-Alberta Job Grant is available for direct training costs only, including:
- tuition fees or instructional fees charged by the training provider
- mandatory student fees
- examination fees
- textbooks or software
- other required materials directly relevant to the training course and distinct from materials required to run the employer's business
- eligible travel cost for participant and trainers (outside of Edmonton and Calgary) when training is over 100km one way for small and medium-sized organizations

Employee wages cannot be reimbursed through the grant and Income Support is not available for workers who are in grant-funded training.

Eligibility
Eligible employers
The Canada-Alberta Job Grant is available to:
- private sector employers
- non-profit sector employers
- First Nations and Metis Settlements

- the Agriculture Financial Services Corporation (if in a community with a population of 100,000 or less)
- Alberta Treasury Branches (if in a community with a population of 100,000 or less)

To be eligible, Alberta employers must have current or potential employees who need training to fill current or future positions

Eligible trainees
Canada-Alberta Job Grant trainees must be one of the following:
- Canadian citizens
- Permanent residents
- protected people under the Immigration and Refugee Protection Act (Canada) who are entitled to work in Canada

All eligible trainees must live in Alberta.

Ineligible trainees
The following individuals are not eligible as Canada-Alberta Job grant trainees:
- company owners (includes shareholders of a corporation and any member of the employer's board or council)
- immediate family of the company owners
- Temporary Foreign Workers, or anyone temporarily working in Canada
- anyone self-employed

Training providers
Employers are responsible for finding appropriate training providers and programs.
Training providers must be third-party trainers separate and distinct from the employer. The employer may not act as the training provider and the training provider may not employ the individual it is training. Training must be a main business activity of the training provider.

Training
Requirements

Training must:
- total 21 instructional hours or longer per trainee per application
- start within 6 months after receiving Canada-Alberta Job Grant approval
- be completed within 52 weeks of the training course(s) start date
- result in some credential (record of completion, certification, grade, etc.)
- be incremental, meaning the training is in addition to the employer's regular operational training and would not have otherwise taken place without the grant
- this requirement does not apply where the trainee is an unemployed hire who requires training, upgrading or bridging before starting the job

A satisfactory course outline including training rates and course descriptions must be posted online, and remain stable. Training may be delivered on a full or part-time basis, and may be any combination of online, on-site or in a classroom setting.

Apprenticeship Technical Training programs and self-study models like instructional books or DVDs are not supported by the Canada-Alberta Job Grant.

Trainees receiving Employment Insurance (EI)
Employers must declare on the Canada-Alberta Job Grant Application if their trainee is receiving Employment Insurance (EI) benefits.

A trainee receiving EI benefits must notify their EI case worker of the training as soon as possible, to ensure they continue to receive their benefits.

How to apply
Canada-Alberta Job Grant applications must be submitted through the online portal.

Step 1: Read the Applicant Guide
Step 2: Complete the correct application for your trainee(s)

You only need to submit one application for all trainees taking the same training at the same time.

Check the Applicant Guide every time you apply to make sure you are up to date on the program requirements. If the application or supporting documents are incomplete your application will be rejected.

The application must be submitted at least 30 days before the start of training.

Receiving payment after applying online
Step 1: Read the Training Completion checklist
Step 2: Fill out the Training Completion

Check the applicant guide every time you apply to make sure you are up to date on the program requirements.

Employers may choose to receive two payment instalments by contacting the Canada-Alberta Job Grant team and requesting an interim reimbursement. This request can be made by contacting us.

If the employed trainee paid for the training costs, documentation must be included to show the employer has reimbursed the trainee for the full training amount paid to the training provider and any approved travel costs incurred by the trainee. Unemployed trainees are not permitted to fund their own training costs.

The Training Completion form must be submitted within 30 days of finishing training.

Providing payment information

The Government of Alberta's preferred method of payment is Electronic Funds Transfer (EFT). It is a faster and more secure way to ensure your company is reimbursed without error. If you wish to receive payment by way of an EFT, you must upload the Request for EFT – Direct Deposit form from the website along with a void cheque into Labour’s Workforce Grants Portal when submitting your Training Completion form.

Receiving payment after applying on paper
Note: Follow this process only if you submitted your original application with a paper form.

Step 1: Read the Completion form checklist
Step 2: Fill out the training completion form

Employers may choose to receive 2 payment instalments by contacting the Canada-Alberta Job Grant team and requesting an interim reimbursement. This request can be made by contacting the Canada-Alberta Job Grant processing centre.

If the employed trainee paid for the training costs, documentation must be included to show the employer has reimbursed the trainee for the full training amount paid to the training provider and any approved travel costs incurred by the trainee. Unemployed trainees are not permitted to fund their own training costs.

The completion form must be submitted within 30 days of finishing training.

Step 3: Mail the completion package
Mail the completed form along with receipts and payment verification to:

Canada-Alberta Job Grant
Ministry of Labour
PO Box 840 Edmonton Main
Edmonton, Alberta T5J 2L4

Couriered envelopes cannot be accepted.

Labour's Workforce Grants Portal
Labour's Workforce Grants Portal allows access where internet service is available to enable employers to:

Apply for the Canada-Alberta Job Grant (CAJG) Program
- Submit Application and Training Completion forms
- View application status
- Upload documents to application
- Update company information

Apply for Summer Temporary Employment Program (STEP)
- Submit Forms A, B and C
- View application status
- Upload documents to application
- Update company information

To access Labour's Workforce Grants Portal:

You must have a MyAlberta Digital ID for Business account
- MyAlberta Digital ID for Business is used for logging into Labour's Workforce Grants Portal. If you already have an account, please use that same username and password to access Labour's Workforce Grants Portal.
- First time users will need to create an account. You will be given this option when you try to access the portal. Please use the Creating a MyAlberta Digital ID for Business

For more detailed information visit https://www.alberta.ca/canada-alberta-job-grant.aspx

WHAT IS THE BC EMPLOYER TRAINING GRANT?
The B.C. Employer Training Grant (ETG) supports skills training to address provincial labour market needs. The program is delivered by the Province of British Columbia and is funded by the Government of Canada through the Workforce Development Agreement (WDA).

The Province strives to build a strong, sustainable, innovative economy with a focus on reducing poverty and inequality. We are working to create good-paying jobs for British Columbians while ensuring people from every background can reach their full potential.

Jobs continue to change and evolve. For example, some will become more complicated because of innovation and changes in technology. Many workers across the province will likely be affected by automation in some way. Some jobs will involve tasks that are not yet invented.

As a result, it will be key for those in the labour force to adapt to changing job requirements and to learn new skills and competencies. Employers need to play a critical role in providing opportunities for people to do this.

The goal of the ETG is to help British Columbians access the skills training they need to adapt to the changing requirements of jobs and the labour market while encouraging employer involvement in the training of their employees.

Employers are eligible to receive up to $300,000 per fiscal year (April 1 – March 31). Participants are not to pay for training or any training-related expenses. All costs are to be paid for in full by the employer. Receipts must verify this information.

Eligible employers:
All private and non-profit employers operating in B.C.
Self-employed (including contractors)
Unions
Indigenous governments

Additional criteria*:
- Employers must have a job for the participant at their company once training is completed
- Employers must submit their application on their own behalf, using their Business BCeID (third parties cannot apply on an employer's behalf)
- Employers must be in good standing with the Province

*Please refer to the Eligibility Criteria for a complete list of eligibility requirements.

There are four streams under which employers can apply.

Stream 1: Foundational Training Stream
This stream supports unemployed, underemployed and low-skilled British Columbians to gain the essential, transferable and certified skills to increase their job security and obtain good-paying jobs. Industry or sector certification, apprenticeship and trades training, early childhood education certification, and accredited essential skills training fall under this category.

Applications approved under this stream will receive 100 percent of eligible training costs, up to a maximum of $10,000 per participant. No contribution is required from the employer, but employers must have a job for the participant at their company once training is completed.

Stream 2: Technical Training Stream
This stream supports employers to train current or new employees in technical skills in response to automation and technological advancements, such as new software, technology or machinery; or training needed for the successful adoption of new technological systems, including new manufacturing, production and construction methods.

Applications approved under this stream will receive 80 percent of eligible training costs, up to a maximum of $10,000 per participant. The employer is required to contribute the remaining 20 percent and employers must have a job for the participant at their company once training is completed.

Stream 3: Workforce Training Stream
This stream is designed to support any training that aligns with an employer's business needs, including the development of management, business and soft skills.

Applications approved under this stream will receive 60 percent of eligible training costs, up to a maximum of $5,000 per participant. The employer is required to contribute the remaining 40 percent and employers must have a job for the participant at their company once training is completed.

Stream 4: Employment Transition Training Stream
This stream supports British Columbians from an impacted community that are unemployed, at risk of losing their job, or those who require training needed to secure different or better jobs. This includes owners/operators and contractors. An impacted community is one that has experienced a significant shift in labour needs due to events such as a natural disaster or the closure or curtailment of operations of a major employer.

The current focus of the Employment Transition Training Stream is to support British Columbians impacted by mill closures or curtailments in B.C.

Employers will receive 100 percent of eligible training costs and other supports (participant financial supports and training allowance while in training), up to a maximum of $20,000 per participant. No contribution is required from the employer, but training must align with business needs or opportunities and result in a job or self-employment for the participant.

Employment Transition Training Stream
The Employment Transition Training Stream supports British Columbians from an impacted community that are unemployed, at risk of losing their job or those who require training needed to secure different or better jobs. This includes owner/operators and contractors. An impacted community is one that has experienced a significant shift in labour needs due to events such as a natural disaster or the closure or curtailment of operations of a major employer.

The current focus of the Employment Transition Training Stream is to support British Columbians impacted by mill closures or curtailments in B.C.

To be eligible under the Employment Transition Training Stream, participants must live in an impacted community and be unemployed or current employees that will obtain a better or different job as a result of training. This includes individuals who are self-employed (including contractors).

Each participant will be required to complete a Participant Information Form (PIF) to confirm his or her employment status and skill level prior to training.

Funding amounts:
Under the Employment Transition Training Stream, employers may receive 100 percent of eligible costs, up to a maximum of $20,000 per participant for training, participant financial supports and training allowances.

Employers are eligible to apply for up to $300,000 per fiscal year (April 1 – March 31). Participants are not to pay for training or any training-related expenses. All costs are to be paid for in full by the employer, receipts must verify this information.

Eligible training:

- Essential skills (defined here) training must be delivered by a B.C. public post-secondary institution or a private training institution designated (and program approved) by the Private Training Institutions Branch (PTIB).
- Trades training must be certified by the Industry Training Authority (ITA). Visit the ITA website for a full list of certified trades as well as Designated Training Providers.
- Occupational Certifications must be granted by an organization with the authority to set standards required to practice an occupation. Example certificates include the Residential Care Worker Certificate and Early Childhood Education Certificate.
- Industry-recognized training results in credentials that are transferable and recognized by employers across an industry. Examples include health and safety training (e.g. WHMIS, first aid), hospitality training (e.g. FoodSafe Level 1, Serving it Right) and computer or software training (e.g. Microsoft, Cisco).
- Technical training needed to develop new skills required to operate machinery, equipment or use software, an application or program; or training needed for the successful adoption of new technological systems, including new manufacturing, production and construction methods.
- Business skills:
- Management skills such as strategic planning, leadership, recruiting and hiring
- Business improvement skills such as marketing, performance management, communication and sales
- Other soft skills such as project management, professional communication and cross-cultural competency

Training programs cannot be more than 52 weeks in duration; if a certificate program is longer than 52 weeks, applicants will need to apply for each course separately.

Applications submitted to the wrong stream will be denied. Once submitted, applications cannot be moved from one stream to another.

Expected outcomes:

- A better or different job for an impacted worker;
- A job for an unemployed person; or
- Self-employment

Foundational Training Stream

This stream supports unemployed, underemployed and low-skilled British Columbians to gain essential, transferable and certified skills to obtain good-paying jobs and increase job security. Employers must have a job for the participant at their company once training is complete.

To be eligible under the Foundational Stream, participants must be:

Current employees of the applicant and:

- Low-skilled (high school education or less)
- Working in a low-skilled occupation (as defined by the National Occupation Classification and listed here)
- An apprentice or
- Unemployed, and will be hired by the applicant at the end of training

Each participant will be required to complete a Participant Information Form (PIF) to confirm his or her employment status and skill level prior to training.

Owners are not eligible as participants under the Foundational Training Stream.

Funding amounts:
Under the Foundational Stream, employers may receive 100 percent of eligible training costs, up to a maximum of $10,000 per participant. The immediate result of the training must be improved job-related skills leading to a job for an unemployed person, or a better job* for a current employee.

Employers are eligible to receive up to $300,000 per fiscal year (April 1 – March 31). Participants are not to pay for training or any training-related expenses. All costs are to be paid for in full by the employer. Receipts must verify this information.

Eligible training:
- Accredited Essential Skills Training: Training to develop foundational skills needed for work and learning (e.g. reading, writing, numeracy and basic computer skills). Accredited essential skills training is only eligible if delivered by a B.C. public post-secondary institution or a private training institution certified by the Private Training Institutions Branch (PTIB). The program must also be PTIB-certified.
- Trade Training Certified by the Industry Training Authority (ITA): Red Seal and Non-Red Seal training. Click here for a full list of the ITA-certified trades.
- Occupational Certification: Training provided by a recognized training institution. This training involves more than 10 hours of instructional time and results in occupation-recognized credentials such as Residential Care Worker Certificate, Tourism and Hospitality Certificate, Community Mental Health Worker Certificate and Early Childhood Education Certificate.
- Industry or Sector-Recognized Certification: Training provided by an industry or sector-recognized training provider or public post-secondary institution. This training involves less than 10 hours of instruction time and results in a recognized certification such as First Aid, WHMIS, Forestry Safety Certificate, Manufacturing Safety Certificate, H2S and CPR.

Training programs cannot be more than 52 weeks in duration; if a certificate program is longer than 52 weeks, applicants will need to apply for each course separately.

- Applications submitted to the wrong stream will be denied. Once submitted, applications cannot be moved from one stream to another.

Expected outcomes:
- Employers contribute to skills training of their current or new employees
- Improved job-related skills leading to a job for an unemployed person; or
- A better job* for a current employee

***A "better job" is defined as:**
- Increased job security (i.e. training will ensure the participant can maintain employment)
- Increased pay
- Promotion or advancement to another position
- Move from part-time to full-time employment
- Move from temporary/casual/seasonal employment to permanent employment; or
- Increased productivity in a current role

Technical Training Stream
This stream supports employers to train current or new employees in technical skills in response to automation and technological advancements, such as new software, technology or machinery; or training needed for the successful adoption of new technological systems, including new manufacturing, production and construction methods.

Funding amounts:
Under this stream, employers may receive 80 percent of eligible training costs, up to a maximum of $10,000 per participant. The employer is required to contribute the remaining 20 percent. The immediate result of the training must be improved job-related skills leading to a job for an unemployed person, or a better job* for a current employee.

Employers are eligible to receive up to $300,000 per fiscal year (April 1 – March 31). Participants are not to pay for training or any training-related expenses. All costs are to be paid for in full by the employer. Receipts must verify this information.

Eligible training:
- Training to operate a piece of machinery or equipment
- Training to use a particular software application or program
- Training needed for the successful adoption of new technological systems including new manufacturing, production or construction methods

Applications submitted to the wrong stream will be denied. Once submitted, applications cannot be moved from one stream to another.

Expected outcomes:
- Employers contribute to skills training of their current or new employees
- Participants have the needed skills to respond to technological changes in the workplace
- Participant has a job (where participant was unemployed prior to training) or better job* at the end of training

***A "better job" is defined as:**
- Increased job security (i.e. training will ensure the participant can maintain employment)
- Increased pay
- Promotion or advancement to another position
- Move from part-time to full-time employment
- Move from temporary/casual/seasonal employment to permanent employment; or
- Increased productivity in a current role

Workforce Training Stream
This stream is designed to support any training that aligns with an employer's business needs, including the development of management, business and soft skills.

Funding amounts:
Under this stream, employers may receive 60 percent of eligible training costs, up to a maximum of $5,000 per participant. The employer is required to contribute the remaining 40 percent. The immediate result of the training must be improved job-related skills leading to a job for an unemployed person, or a better job* for a current employee.

Employers are eligible to receive up to $300,000 per fiscal year (April 1 – March 31). Participants are not to pay for training or any training-related expenses. All costs are to be paid for in full by the employer. Receipts must verify this information.

Eligible training includes, but is not limited to:

- Management Skills: Developing skills in strategic planning, leading and motivating, allocating and controlling resources, evaluating, co-ordinating and organizing, recruiting and hiring, supervising and leadership.
- Business Skills: Developing skills to increase sales, marketing, social media marketing and communication, streamline processes and organizational structures, and change management.
- Soft Skills: Developing personal management skills required by the current labour market. Soft skills are personal skills and characteristics required by employers across different sectors and at different stages of an employee's career.

Applications submitted to the wrong stream will be denied. Once submitted, applications cannot be moved from one stream to another.

Expected outcomes:

- Employers contribute to skills training of their current or new employees
- Employers report increased workplace productivity
- Participant has a job (where participant was unemployed prior to training) or better job* at the end of training

***A "better job" is defined as:**

- Increased job security (i.e. training will ensure the participant can maintain employment)
- Improved pay
- Promotion or advancement to another position
- Move from part-time to full-time employment
- Move from temporary/casual/seasonal employment to permanent employment; or
- Increased productivity in a current role

How to Claim For Reimbursement

A completed reimbursement claim must be submitted within 30 days of the start of training; failure to submit within 30 days may result in the cancellation of the Agreement by the Ministry.

- All Participant Information Forms are due 5 days prior to training starting. Participants must complete and submit their own Participant Information Form through the online Skills Training Grants System.
- Before submitting a claim, ensure that training has started and that the training provider has been paid in FULL by the applicant (including any additional approved costs e.g. textbooks, travel, exams etc.). Participants are NOT to pay for training or any training related expenses.
- In cases where an exam is taken after training has completed, the applicant must submit a paid receipt for the exam at time of reimbursement for the training program.
- If applicants are overdue in submitting a reimbursement claim, the applicant will receive email reminders from the Province. The reimbursement claim must be submitted to avoid application cancellation by the Ministry.
- If an applicant is applying for a certification program made up of multiple courses with multiple start dates, the applicant must pay for all courses in full and submit paid receipts within 30 days of the start of the first training course.
- If an applicant is unable to pay for the training program in full, the applicant is required to submit a separate application for each course within the correct intake period. Paid receipts can then be submitted for each individual training program within the certification.

How to submit your reimbursement claim: if you applied using the Online Application system, start your online reimbursement claim here.

Receipts:
Receipts are considered valid when they show that the employer paid for the expenses in full and include:

- Training start date
- Name of the approved training provider or other approved supplier
- Name of the applicant
- Approved training program title
- Itemized expense amounts

At any time, the Province may request additional information such as the front and back of a cashed cheque, a credit card or bank statement, or any other information to verify that payment for training was processed.

NOTE: If a participant pays for any training related expenses, the employer needs to submit an Employer Reimbursement Verification Form signed by the participant certifying that the participant has been fully reimbursed by the employer.

Reimbursement claims will be processed once all of the documentation has been received.
For enquiries, please email ETG@gov.bc.ca

Travel:
Valid receipts are to be provided in order to claim for approved travel expenses, with the exception of meals and mileage where receipts are not required. Only receipts for approved travel will be accepted. Refer to Appendix C of the Eligibility Criteria for general details on eligible travel expenses and your Schedule A of the Agreement for specific details on your approved travel.

For detailed information please visit https://www.workbc.ca/Employer-Resources/BC-Employer-Training-Grant.aspx

The Canada-Saskatchewan Job Grant is now accepting applications from eligible employers, pending available funding.

The Canada-Saskatchewan Job Grant is an employer-driven program that:

- Helps businesses and non-profit organizations train new or existing employees for available jobs; and
- Provides more opportunities for unemployed and underemployed workers to receive training.

Through the program, the employer contributes one-third of the training cost, while the federal and provincial governments contribute the remaining two-thirds.

Benefits

Employers:

- Select the trainees and the training program.
- Receive reimbursement for two-thirds of eligible training costs.
- Employ the trainee at the end of training.

Employers can make multiple grant applications to a maximum of $100,000 per fiscal year, and up to $10,000 per individual trainee.

Eligibility

Employers

Private and not-for-profit sector employers are eligible.

Publicly funded organizations such as health regions, post-secondary training institutions, public libraries, municipalities and school divisions are not eligible under the program.

Self-Employed individuals are not eligible to participate as CSJG supported trainees.

Trainees

- Must be a Canadian citizen or permanent resident with a Social Insurance Number.
- Both existing and potential employees are eligible.
- Temporary Foreign Workers are not eligible.

Training costs

- Tuition fees or fees charged by the training provider;
- Mandatory student fees;
- Textbooks, software and other required materials;
- Learning material fees; and
- Examination fees.

Training taken prior to an approved contract is not eligible for funding.

Training

Training is flexible. Employers choose the training program and mode of delivery that will meet their needs within the following requirements:

- Must be delivered by a third party not affiliated with the employer applicant;
- Must be a minimum of 24 hours in length per trainee by the same training provider and completed within a 52 week period;
- Must result in a credential (record of completion, certificate, grade, etc.); and
- Must not replace an employer's existing investment in training.

Trainers
Third-party trainers could include:

- Post-secondary education institutions;
- Private vocational schools, trade unions; and
- Private industry trainers.

How to Apply
Interested employers must complete the Employer Application Form and obtain a Training Provider Quote. For more detailed information on how to apply, view the Canada-Saskatchewan Job Grant Applicant Guide.
Each application can only have one training provider quote attached to it. Only fully completed applications will be accepted for assessment. Applications will be accepted, assessed and approved based on available funding.
Please note that a completed application is not a guarantee of funding. Training requests must be approved and a contract negotiated between the employer and the Government of Saskatchewan to be eligible for program funding.

Apply
Forward the completed application form to your nearest Canada-Saskatchewan Job Grant (CSJG) office . Ministry of Immigration and Career Training staff will contact you within three business days to confirm receipt of the application.

For more detailed information visit https://www.saskatchewan.ca/business/hire-train-and-manage-employees/apply-for-the-canada-saskatchewan-job-grant

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