

The power behind **your mission**



2023

CUSTOMER TRAINING CATALOG

Training options to meet your needs.



Course Details and Information

Institute

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ABOUT THE JOHNSON CONTROLS TRAINING INSTITUTE



Since 1947, the Johnson Controls Training Institute has been helping people succeed at creating and managing quality building environments. The Training Institute partners with engineering schools, technical colleges, and experts in the building environments industry. This allows us to provide high-quality learning experiences that reflect both the current state of the industry today and the direction its heading in the future.

Our curriculum has been developed by professional instructors who are experienced in the building environments industry. Their extensive real-world experience and ability to share their knowledge in a structured format assures you an enlightening and productive educational experience.

- Learn from Certified Instructors* with years of industry experience
- Experiment in our labs, using specially designed equipment simulators
- Find the learning opportunities
- Expand your knowledge in industry topics such as:
 - Building Automation Systems
 - Energy Management
 - Heating, Ventilating, and Air Conditioning Systems
 - Preventative Maintenance
 - Automated Building Controls

Because your goal is to apply what you've learned, our state-of-the-art facilities include fully equipped labs for hands-on exercises. Portable equipment simulators enable the Training Institute to bring many of its courses to your location, yet still enable you to practice what you've learned without jeopardizing building operations.

Our comprehensive and cost-effective programs are designed for anyone who needs a working knowledge of environmental systems, including:

- Building Owners
- Building Managers
- Engineers
- Operators
- Maintenance Technicians
- Property Managers

**Johnson Controls Training Institute instructors are certified on the technical and application objectives of each course, while referencing the core instructor competencies summarized by the International Board of Standards for Training, Performance, and Instruction (IBSTPI) Instructor Competencies – The Standards (Volume 1) ©2003, all rights reserved.*

TRAINING OPTIONS TO MEET YOUR NEEDS



Our learning opportunities are designed to provide you with the knowledge and skills necessary to effectively and efficiently operate your building's systems. By using your newly acquired abilities, you can maximize the potential of your building systems and increase your return on investment. To help you take advantage of the benefits of our training, we offer several ways to approach our courses. You can select from our:

Training Institute Courses (Scheduled)

Regularly scheduled courses with both a classroom and lab component are conducted at our eleven Johnson Controls Training Institute locations. During class you will be using an iPad® to take notes and highlight the material. When class ends you will take your notes and course material with you on a USB Drive. The descriptions of the regularly scheduled courses begin on page 12. Refer to the Class Schedule available at www.johnsoncontrols.com/institute for the dates, locations, and prices of these courses. Note: No audio/visual recording equipment is allowed.



Instructor-Led Virtual Learning Courses

Learn in the convenience of your own home, office, or work location using Johnson Controls instructor-led virtual learning courses. Our instructor-led virtual learning courses can be used as preparation for a course, to refresh skills, or to provide an effective learning alternative if attendance at a typical classroom course is impractical. The list of instructor-led virtual learning courses are on page 39.

Courses Offered By Request Only

Some of our courses target a more specific audience and therefore, have lower demand. To continue to satisfy the needs of those who still occasionally need these courses, selected courses are only conducted upon request. These courses can be conducted at your site or at one of our eleven Training Institute locations. For this reason, these courses are not included on the schedule. To inquiry about scheduling a course, contact the Learning Institute at 414-524-4286 or cg-customer.registrar@jci.com.

Schedule of Classes

The 2023 schedule of classes is available at www.johnsoncontrols.com/institute. The schedule is subject to change.

Onsite Learning Programs

Johnson Controls Training Institute can help you make the most of your investment in learning by bringing our instructors and classes to you or to the location of your choice. More and more companies are realizing the value of bringing training Onsite. Our onsite Courses can be the most efficient and cost-effective way to train as few as five employees.

Onsite Courses offer a number of advantages:

- Smaller class size allows for more individualized attention
- Economical as one instructor travels instead of eight or more students
- Consistency among employees who learn together as a group

To ensure the success of an onsite Course, you provide:

- A minimum of five students
- A suitable room for training

Johnson Controls Training Institute will provide:

- Specially designed portable equipment simulators and computers
- USB jump drives with course and reference material for all student

ENROLLMENT INFORMATION



ONLINE ENROLLMENT

To browse our catalog and enroll for our courses, please visit our website:

www.jcittraininginstitute.com

For more information, call or fax:
414-524-4286 or 800-524-8540
877-403-6625 (fax)

cg-customer.registrar@jci.com

Payment:

Payment can be made using Visa®, MasterCard® or American Express®.

All necessary course materials are included in the tuition listed in each course description.

Substitutions and Cancellations

Circumstances may occur that could prevent you or your employee from attending a course for which you are enrolled. For this reason, we allow you to substitute another employee in their place at no additional fee. If no substitute student is available and you must cancel your enrollment, a refund will be issued by visiting www.jcittraininginstitute.com at least 10 business days prior to the start of the course. If, however, you must cancel within 10 business days of the start of the course, you will be liable for the entire course fee.

Johnson Controls reserves the right to cancel classes and assumes no liability for expenses. All registrants will be notified at least ten days before the start of class should a course be canceled.

Guarantee

We stand behind our courses with the following guarantee:

If, by the midpoint of the course, you are not satisfied with the course you are taking, Johnson Controls Training Institute will refund your tuition fee in full, or give you credit toward another course or packaged training program.

TRAINING INSTITUTE LOCATIONS & HOTELS



Students must call the hotels directly to make reservations. The Johnson Controls Training Institute rate must be requested. Reservations made through a travel agency are not eligible for the discounted rate.



BOSTON MASSACHUSETTS

39 Salem Street, Lynnfield, MA 01940
Located approximately 12 miles from
Boston's Logan International Airport.
Airport Code: BOS

Suggested Hotels

Four Points by Sheraton Wakefield Boston Hotel & Conference Center

1 Audubon Road, Wakefield, MA 01880
781-245-9300

Hampton Inn

59 Newberry Street (Route 1)
Peabody, Ma 01960
978-536-2020

SpringHill Suites by Marriott

43 Newberry Street (Route 1)
Peabody, Ma 01960
978-535-5000



DALLAS TEXAS

3021 West Bend Drive, Irving, TX 75063
Located 6 minutes from the Dallas
Fort Worth International Airport.
Airport Code: DFW

Suggested Hotels

Element

3550 W. IH 635, Irving, TX 75063
972-929-9800

Staybridge Suites - DFW Airport North

2220 Market Place Blvd, Irving TX 75063
972-401-4700

Hyatt House Dallas/Las Colinas

5901 N MacArthur Blvd, Irving TX 75039
972-831-0909

Hilton Garden Inn Las Colinas

7516 Las Colinas Blvd, Irving TX 75063
972-444-8434

TRAINING INSTITUTE LOCATIONS & HOTELS



Students must call the hotels directly to make reservations. The Johnson Controls Training Institute rate must be requested. Reservations made through a travel agency are not eligible for the discounted rate.



HOUSTON TEXAS

4111 Greenshadow Drive, Pasadena, TX. 77536
Located approximately 12 miles from the
Houston/Hobby Airport and 28 miles from
George Bush Intercontinental Airport.
Airport Code: IAH and HOU

Suggested Hotels

Hampton Inn & Suites Houston/Pasadena

4741 E Sam Houston Parkway South
Pasadena TX 77505
281-998-3300

Holiday Inn Express & Suites Deer Park

201 W X Street
Deer Park, TX 77536
281-479-9888

Comfort Suites Deer Park Pasadena

1501 Center Street
Deer Park, TX 77536
281-930-8888



LOUISVILLE KENTUCKY

9410 Bunsen Parkway, Suite 100,
Louisville, KY 40220
Located approximately 10 miles from
Louisville International Airport.
Airport Code: SDF

Suggested Hotels

Holiday Inn Louisville East – Hurstbourne

1325 South Hurstbourne Parkway
Louisville, KY 40220
502-426-2600

Hyatt Place – East

701 South Hurstbourne Parkway
Louisville, KY 40222
502-426-0119

TRAINING INSTITUTE LOCATIONS & HOTELS



Students must call the hotels directly to make reservations. The Johnson Controls Training Institute rate must be requested. Reservations made through a travel agency are not eligible for the discounted rate.



MILWAUKEE WISCONSIN

514 N. Jefferson Street, Milwaukee, WI 53202
Located in downtown Milwaukee,
approximately 10 miles from
General Mitchell International Airport.
Airport Code: MKE

Suggested Hotels

Courtyard Marriott

300 West Michigan Street, Milwaukee, WI 53203
414-291-4122 / 888-811-8139

Hilton Garden Inn Milwaukee Downtown

611 N Broadway, Milwaukee, WI 53202
414-271-6611

Hilton – Milwaukee City Center

509 West Wisconsin Avenue, Milwaukee, WI 53203
414-271-7250 / 800-445-8667

Hotel InterContinental

139 East Kilbourn Avenue, Milwaukee, WI 53202
414-276-8686

Pfister Hotel

424 East Wisconsin Avenue, Milwaukee, WI 53202
414-273-8222 / 800-558-8222

Residence Inn Marriott

648 N. Plankinton Avenue, Milwaukee, WI 53203
414-224-7890



KANSAS CITY KANSAS

9850 Legler Road, Lenexa KS 66219
Located about 34 miles south of the
Kansas City International Airport.
Airport Code: MCI

Suggested Hotels

SpringHill Suites by Marriott Kansas City Lenexa/City Center

17190 West 87th Street, Lenexa, KS 66219
(913) 225-9955

Hyatt Place Kansas City/ Lenexa City Center

8741 Ryckert St, Lenexa, KS 66219
(913) 742-7777

Embassy Suites by Hilton Kansas City Olathe

10401 S. Ridgeview Rd, Olathe, KS 66061
(913) 353-9280

Holiday Inn Express & Suites Olathe West, an IHG Hotel

10360 S. Ridgeview Road, Olathe, KS 66061
(913) 541-9999

Four Points by Sheraton Kansas City Olathe

10574 S. Ridgeview Rd., Olathe, KS 66061
(913) 438-6666

TRAINING INSTITUTE LOCATIONS & HOTELS



Students must call the hotels directly to make reservations. The Johnson Controls Training Institute rate must be requested. Reservations made through a travel agency are not eligible for the discounted rate.



PHOENIX ARIZONA

Gateway Community College,
108 N. 40th Street, Phoenix, AZ 85034
Located about one mile north of the
Phoenix Sky Harbor International Airport.
Airport Code: PHX

Suggested Hotels

Crowne Plaza Phoenix

4300 East Washington Street
Phoenix, AZ 85034
602-273-7778

Hampton Inn

601 North 44th Street, Phoenix, AZ 85008
602-267-0606

Hilton Garden Inn

3838 East Van Buren Street
Phoenix, AZ 85008
602-306-2323



SOUTHERN CALIFORNIA

5770 Warland Drive, Cypress, CA 90630
Located approximately 9 miles from the
Long Beach Airport, 20 miles from the
John Wayne Airport, and 30 miles from the
Los Angeles International Airport.
Airport Code: SNA & LAX

Suggested Hotels

Ayres Hotel

12850 Seal Beach Boulevard, Seal Beach, CA 90740
800-653-3230

Courtyard Marriott

5865 Katella Avenue, Cypress, CA 90630
714-827-1010

Hyatt House

5905 Corporate Avenue, Cypress, CA 90630
714-828-4000

Marriott Residence Inn

4931 Katella Avenue, Los Alamitos, CA 90720
714-484-5700

TRAINING INSTITUTE LOCATIONS & HOTELS



Students must call the hotels directly to make reservations. The Johnson Controls Training Institute rate must be requested. Reservations made through a travel agency are not eligible for the discounted rate.



TAMPA FLORIDA

3802 Sugar Palm Dr, Tampa FL 33619
Located 12 miles from the
Tampa International Airport.
Airport Code: TPA

Suggested Hotels

Hilton Garden Inn Tampa East/Brandon
10309 Highland Manor Drive, Tampa, FL 33610
813-626-6700

Residence Inn Tampa Sabal Park/Brandon
9719 Princess Palm Avenue, Tampa, FL 33619
813-627-8855

Staybridge Suites Tampa East Brandon
3624 North Falkenburg, Tampa, FL 33619
813-227-4004

Fairfield by Marriott
6720 Lakeview Center Drive, Tampa, FL 33619
(813) 626-3000

Holiday Inn Express & Suites
8610 Elm Fair Blvd, Tampa, FL 33610
(813) 490-1000



NEW FREEDOM PA

5000 Renaissance Drive, New Freedom, PA 17349
Located 52 miles from the Baltimore
Washington International Airport and
47 miles from the Harrisburg
International Airport.
Airport Code: BWI & MDT

Suggested Hotels

Home2 Suites by Hilton York
212 Pauline Drive, York, PA 17402
717-747-0360

Shrewsbury Hampton by Hilton
1000 Far Hills Drive, New Freedom, PA 17349
717-235-9898

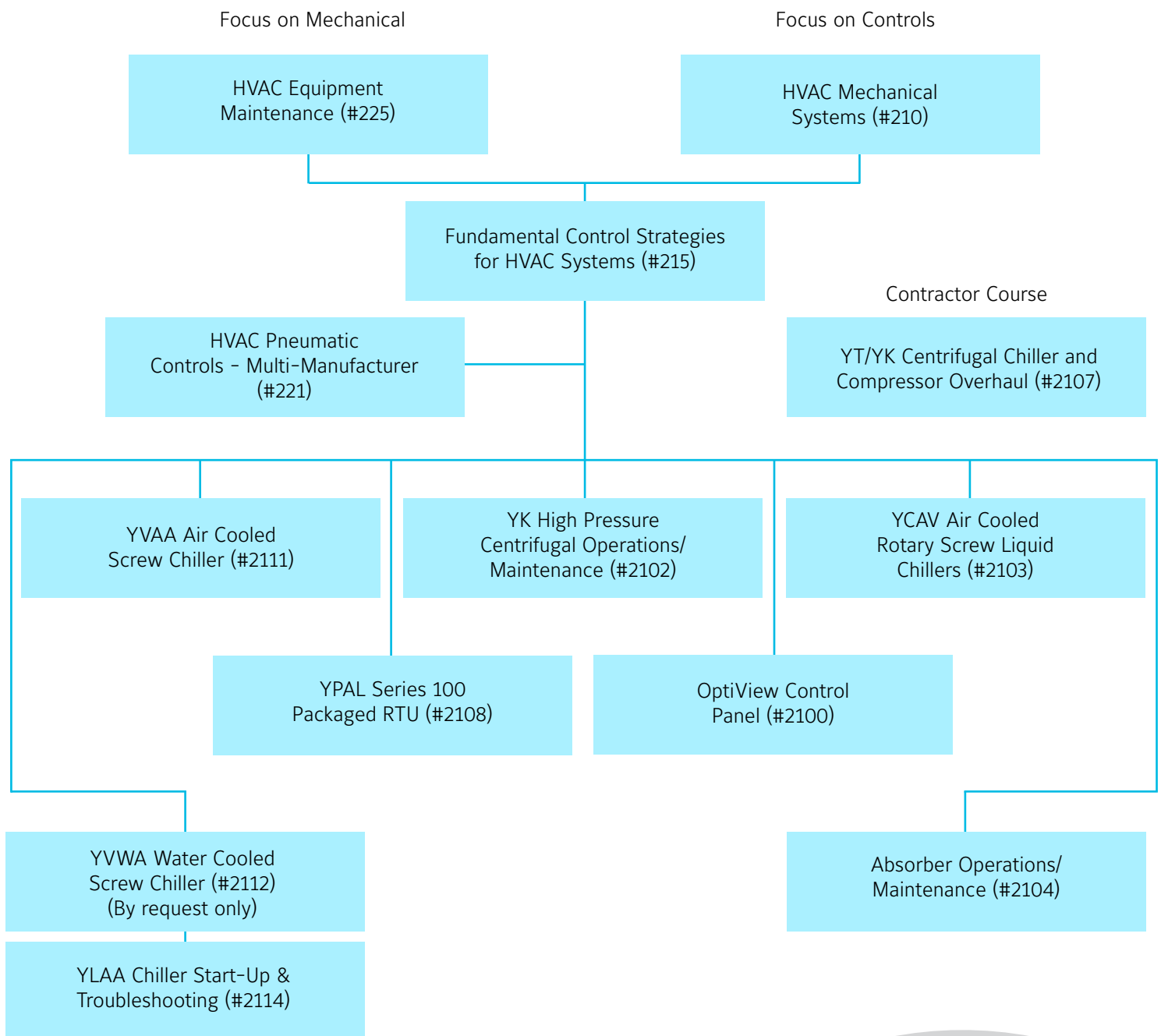
Holiday Inn Express & Suites York
140 Leader Heights Road, York PA 17403
717-741-1000

Hampton Inn & Suites Hilton York South
2159 South Queen Street, York PA 17402
717-741-0900

TYPICAL SEQUENCE OF HVAC INDUSTRY COURSES



Click on each tab to learn more.



HVAC INDUSTRY COURSES



HVAC Mechanical Systems Course #210, 3.0 CEU

The fundamentals of HVAC mechanical equipment operation are taught in this survey, hands-on course. Designed for personnel responsible for the selection, design, installation, calibration or maintenance of HVAC mechanical equipment. It emphasizes hands-on activities with boilers, chillers, air handlers and other operating equipment from a variety of manufacturers. Students will gain a comprehensive understanding of operating principles and the proper use of test instruments to verify equipment performance.

Course Topics

- HVAC System Types and Piping Systems
- Psychrometrics
- Air Handlers, Types and Characteristics
- Fans and Fan Characteristics
- Dampers and Damper Actuators
- Valves and Valve Actuators
- Facility Management Systems
- Controls and Components
- Boilers and Boiler-Related Equipment
- Heat Exchangers and Pumps
- Refrigeration Fundamentals
- Reciprocating Chillers and Accessories
- Centrifugal Chillers
- General Troubleshooting
- Hands on Lab
- Final Review

Course Duration	Course Fee
Monday–Friday Class ends at 11:30 a.m. on Friday	\$3300.00 per student



ENROLL NOW

HVAC INDUSTRY COURSES



Fundamental Control Strategies for HVAC Systems Course #215, 3.0 CEU

This introductory course is designed for anyone who operates, maintains or troubleshoots HVAC control systems. Students will analyze a number of HVAC Systems and their associated controls, including central plant, air and water distribution and terminal systems. The strategies learned can be applied to any controls system type or manufacturer.

Course Duration

**Monday–Friday
Class ends at
11:30 a.m. on Friday**

Course Fee

**\$3300.00
per student**

Course Topics

- HVAC Environment, Systems and Controls
- Psychrometrics, Air Properties and HVAC Processes
- Control System Fundamentals
- Sensor Types and Applications
- Controls System Configurations
- Feedforward and Feedback Control Loops
- Reset Control Strategies
- Controlled Devices: Valves, Dampers, and Actuators
- Hot/Chilled Water Distribution Systems
- Control Strategies for Water Distribution Systems
- Hot/Chilled Water Terminal Systems
- Control Strategies for Water Terminal Systems
- Air Distribution Systems
- Control Strategies for Air Distribution Systems
- 100% OA System Control Strategies
- Mixed Air System Control Strategies
- Variable Air Volume Control Strategies
- VAV Terminal Unit Control Strategies
- Introduction to Facility Management Systems
- Hands on Lab
- Final Review



ENROLL NOW

HVAC INDUSTRY COURSES



HVAC Pneumatic Controls – Multi Manufacturer Course #221, 2.0 CEU

This course provides a comprehensive overview of maintenance requirements, calibration procedures and troubleshooting techniques. Hands-on lab exercises emphasize calibrating and troubleshooting using pneumatic controls from a variety of manufacturers.

Recommended Prerequisite:

Fundamental Control Strategies for HVAC Systems (#215) or HVAC Mechanical Systems (#210) or equivalent experience

Course Topics

- Pneumatic Air Supply and Distribution Systems
- Room Control – Thermostats and Humidistats
- Relation of Controller and Controlled Device
- Single Setpoint Room Controllers, Thermostats and Humidistats
- Dual Setpoint Room Controllers
- Pneumatic Controlled Devices: Valves, Dampers, Actuators, Pilot, Positioners
- Auxiliary Devices
- Pneumatic Transmitters (Remote Sensing)
- Single Input Receiver Controllers
- Dual Input Receiver Controllers

Course Duration

Tuesday-Thursday
Class ends at
3:30 p.m. on Thursday

Course Fee

\$2640
per student



ENROLL NOW

HVAC INDUSTRY COURSES



HVAC Equipment Maintenance Course #225, 2.0 CEU

This introductory course provides an overview of the maintenance tasks and techniques that are typically required on HVAC equipment. Individuals new to HVAC maintenance, managing a maintenance function or desiring a refresher will benefit. Students will learn how to perform proper maintenance, safety procedures and basic troubleshooting techniques.

Course Topics

- Overview of HVAC
- Electrical Systems
- OSHA Lockout/Tagout Training
- Refrigeration Maintenance & Troubleshooting
- Centrifugal Systems Overview
- Pump Maintenance
- Cooling Towers
- Air Handling Systems
- Boilers
- Air Compressor Maintenance
- Hands on Lab
- Final Review

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$2640 per student



ENROLL NOW

HVAC INDUSTRY COURSES



OptiView Control Panel Course #2100, 1.3 CEU

This two-day course for service personnel covers the OptiView graphic micro-processor control center. Basic navigation, panel architecture, operation and service of the OptiView Control Centers are covered in this course. Labs include hands-on training using OptiView Control Panel simulators.

Course Duration

Tuesday-Wednesday
Class ends at
3:30 p.m. on Wednesday

Course Fee

\$1980
per student

Course Topics

- OptiView Basics
- OptiView Architecture: Component Identification, Location and Functionality
- OptiView Operation: Screen Navigation, Program Download, Codes, Configuration Setup, System Commissioning Checklist
- System Calibration, Service Setpoints and Reset Procedures
- Electro-Mechanical Starter Board
- Solid State Starter Board
- Variable Speed Drive Board
- High Speed Thrust Bearing Limit Switch
- Proximity Probe, Refrigerant Level Control
- Sale Order Data, Custom User ID and Password, Record Setpoint Changes
- High Condenser Pressure Warning Threshold
- Smart Freeze Protection
- Diagnostics and Troubleshooting
- Advanced Diagnostics, Trend Screen Setup
- Hands on Lab



ENROLL NOW

HVAC INDUSTRY COURSES



YK High Pressure Centrifugal Operations/Maintenance Course #2102, 2.0 CEU

Students will learn about the internal workings of the YK high-pressure centrifugal single-stage compressor, oil return system, OptiView Control Center and other components and subsystems. A comprehensive review of the preventive maintenance schedule and system capacity checkout procedure is also covered.

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$2640 per student

Course Topics

- Centrifugal Compressor Theory of Operation
- YK Chiller Design and Component Functionality
- YK Seasonal Start-up
- OptiView Basics: Application, Terminology
- OptiView Architecture: Component Identification, Component Location
- OptiView Operation: Screen Navigation, Interpretation, and Modification
- Maintenance
- Troubleshooting
- Warranty
- OptiView Simulator Hands on Lab
- Evaluating Chiller Performance



**VIRTUAL COURSES
AVAILABLE**

ENROLL NOW

HVAC INDUSTRY COURSES



YCAV Air Cooled Rotary Screw Liquid Chillers* Course #2103, 2.0 CEU

This three-day course teaches service personnel about the YCAV Chiller features, including the screw compressor, system ancillary components, unit operation and maintenance. *Dress code: For safety, closed-toe, leather shoes and long pants are required.

Course Duration

Tuesday-Thursday
Class ends at
3:30 p.m. on Thursday

Course Fee

\$2640
per student

Course Topics

- Screw Chiller Basics
- Basic Electronics
- VSD Basics
- VSD and Control Panel Architecture
- Operation and Sequencing
- Latitude Simulator Exercises
- Information and Safety, Handling and Storage
- VSD Operation and Faults
- Maintenance
- Unit Troubleshooting
- Hands on Lab



**VIRTUAL COURSES
AVAILABLE**

ENROLL NOW

HVAC INDUSTRY COURSES



Absorber Operations/Maintenance Course #2104, 2.0 CEU

This course teaches operators and technicians about the operation and controls associated with the YORK® lithium bromide absorption chillers. Absorption theory including P/T relationships and solution chemistry are also covered. The operation and operating procedures for both Isoflow (single stage) and Paraflow systems (two stage) are reviewed with an emphasis on preventive maintenance procedures.

Course Duration

**Tuesday-Thursday
Class ends at
3:30 p.m. on Thursday**

Course Fee

**\$2640
per student**

Course Topics

- Basic Refrigeration Principles
- Units of Measure, Types of Heat
- Absorption Principles
- Solution Chemistry
- YIA Components and Cycle
- Water Circuits
- YPC Components and Cycle
- YPC Purge System
- Operating Information, Setpoints & Warnings
- System and Safety Cycling Shutdowns
- Operation and Maintenance
- Crystallization
- Unit Operation and Operational Limitations
- Refrigerant Contamination
- Heating/Cooling Changeover
- Preventive Maintenance
- Schedules
- Hands on Lab



**VIRTUAL COURSES
AVAILABLE**

ENROLL NOW

HVAC INDUSTRY COURSES



YT/YK Centrifugal Chiller and Compressor Overhaul* Course #2107, 3.3 CEU

Service personnel will become familiar with the operation and maintenance of centrifugal systems. Students will review R-11, R-123, R-22 and R-134a single stage centrifugal chillers. They will also learn the internal workings of the compressor, oil return system, lube circuit, purge and heat exchangers. The OptiView Control Center plus preventive maintenance and system checkout procedures are also addressed along with a hands-on teardown and rebuild of a YK centrifugal compressor. *Dress code: For safety, closed-toe, leather shoes and long pants are required.

Course Duration

**Monday-Friday
Class ends at
3:30 p.m. on Friday**

Course Fee

**\$3720
per student**

Course Topics

- Refrigeration Theory
- Centrifugal Compressor Theory of Operation
- YT/YK Chiller Design and Component Functionality
- YT/YK Maintenance
- Seasonal Start-up
- Unit Troubleshooting
- Compressor Teardown/Reassembly
- OptiView Basics
- OptiView Operation
- OptiView Start-up and Troubleshooting
- High Speed Thrust Switch
- Proximity Probe
- Refrigerant Level Control
- Oil Pump Variable Speed Drive
- Hands on OptiView Labs



ENROLL NOW

HVAC INDUSTRY COURSES



YPAL Series 100 Packaged RTU Course #2108, 1.3 CEU

Students will learn the theory of operation of the Constant Volume and Variable Volume Eco2 Rooftop Unit. Component functions, subsystems are also discussed, along with an introduction to the FlexSys Systems. The students will become familiar with the unit's wiring and communication cards, and the programming and sequence operation.

Recommended Prerequisite:

Entry to Mid- level Technician

Course Duration

Tuesday-Thursday
Class ends at
3:30 p.m. on Thursday

Course Fee

\$2640
per student

Course Topics

- Safety Review
- Eco2 System Overview
- Constant Volume/Variable Volume Systems
- Eco2 Physical Data
- Unit Wiring
- Introduction to FlexSys System
- BAS Communication
- IPU Architecture
- Unit Configuration and Start-up
- Programming and Sequence of Operation



ENROLL NOW

HVAC INDUSTRY COURSES



YVAA Air Cooled Screw Chiller* Course #2111, 2.0 CEU

This three-day course teaches experienced service technicians about the YVAA Chiller. The course will include features of this unit and the differences in installation, operation and maintenance from the YCAV. *Dress code: For safety, closed-toe, leather shoes and long pants are required.

Recommended Prerequisites:

- Working knowledge of the YCAV/YCIV Chiller
- Working knowledge of VSDs
- Understanding of basic electronics

Course Topics

- Chiller layout and components
- Safety, handling
- Installation
- Operation/Maintenance
- VSD
- Simulation Exercises

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$2640 per student



VIRTUAL COURSES
AVAILABLE

ENROLL NOW

HVAC INDUSTRY COURSES



YLAA Chiller Start-up & Troubleshoot, Course #2114, 2.0 CEU

Students will learn the techniques, strategies and skills required to operate, repair, start-up and maintain York® YLAA chiller and YLPA heat pump chillers using multiple scroll compressors in each system. The techniques acquired in this course may be applied to other York® small tonnage chillers and condensing units such as YCAL, YLUA and YCUL models.

Course Duration

Tuesday-Thursday
Class ends at
3:30 p.m. on Thursday

Course Fee

\$2640
per student

Course Topics

- Safety
- Literature
- Theory
- Components
- Operations
- Wiring Diagrams
- Installation
- Startup
- Maintenance
- Evaluating Performance
- Warranty



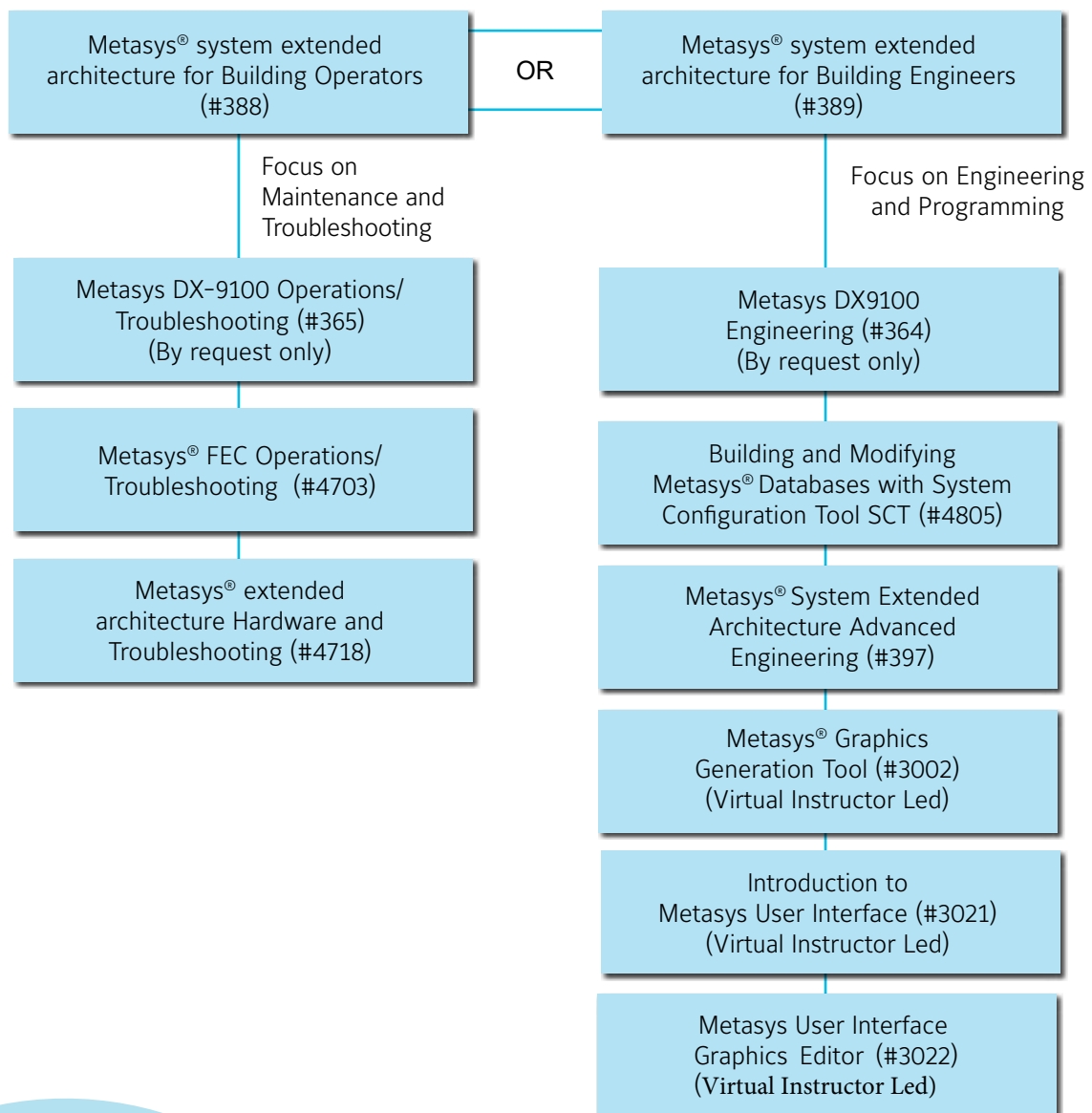
**VIRTUAL COURSES
AVAILABLE**

ENROLL NOW

TYPICAL SEQUENCE OF COURSES FOR METASYS® SYSTEMS



Click on each tab to learn more.



TYPICAL SEQUENCE OF COURSES FOR FACILITY EXPLORER®



Click on each tab to learn more.

Focus on Maintenance
and Troubleshooting

Focus on Engineering
and Programming

Metasys DX-9100 Operations/
Troubleshooting (#365)
(By request only)

Facility Explorer MSTP Field
Controller Engineering (#4714)

Optimizing Strategies for CCT
Programming with Facility Explorer
Systems' (#3028)

Facility Explorer Supervisory Controllers
Engineering/N4 Certification (#4720)

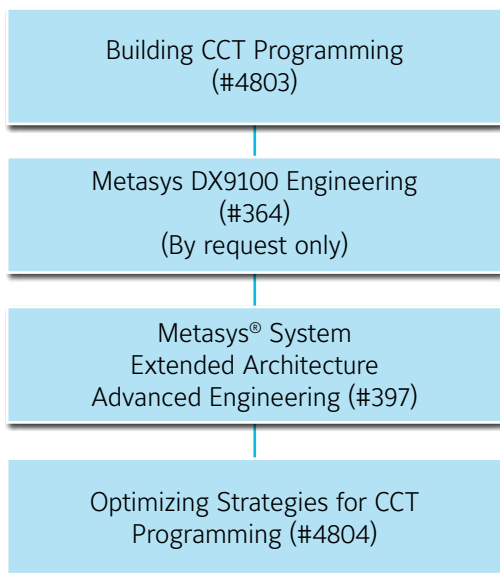
Metasys DX9100 Engineering
(#364)
(By request only)

TYPICAL SEQUENCE OF COURSES FOR METASYS® VALIDATED ENVIRONMENTS

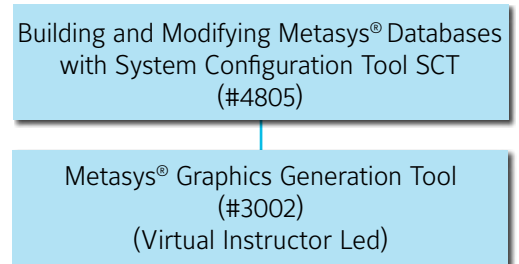


Click on each tab to learn more.

Engineers



Designers





Metasys® System Extended Architecture for Building Operators Course #388, 2.0 CEU

This three-day course teaches building personnel how to make the most effective and efficient use of the features of a Metasys® system extended architecture building management system. This course is for building personnel who have Site Management Portal (SMP™ installations of Metasys® system extended architecture).

Course Duration

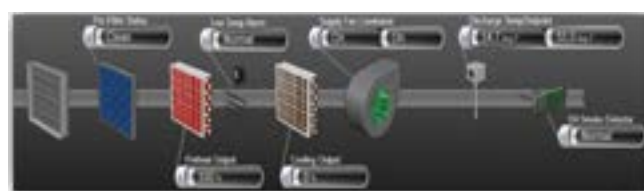
Monday-Wednesday
Class ends at
3:30 p.m. on Wednesday

Course Fee

\$2640
per student

Course Topics

- Metasys® System Extended Architecture Overview
- Help File System
- Basic Navigation of the System with the User Interface
- Commanding Objects
- Scheduling
- Setting Up Alarms
- Responding to Alarms
- Trending
- Totalization
- Graphics
- Hands on Lab
- Final Review



**VIRTUAL COURSES
AVAILABLE**

ENROLL NOW



Metasys® System Extended Architecture for Building Engineers Course #389, 3.0 CEU

This course teaches building personnel how to make the most effective and efficient use of the features of a Metasys® system extended architecture building management system. This course contains additional topics not covered in the Metasys® system extended architecture for Building Operators course.

Course Duration

**Monday-Friday
Class ends at
11:30 a.m. on Friday**

Course Fee

**\$3300
per student**

Course Topics

- Metasys® System Extended Architecture Overview
- Help File System
- Basic Navigation of the System with the User Interface
- Commanding Objects
- Scheduling
- Setting Up Alarms
- Responding to Alarms
- Trending
- Totalization
- Graphics
- Setting Up Passwords
- User Views
- Audit Trails
- Sending Reports to Printers, Pagers, Emails, etc.
- Adding Inputs and Outputs to a Controller
- Reviewing Control Strategies
- Backing Up the Data
- Hands on Lab
- Final Review

Status	Item	Value	Description
	ZN-T	75.7 deg F	Zone Temperature
	OCC-SCHEDULE	Occupied	Occupied Command
	SF-C	On	Supply Fan Command
	SF-S	On	Supply Fan Status
	DA-T	53.3 deg F	Discharge Air Temperature
	DAT-SP	55.0 deg F	Discharge Air Temperature Setpoint
	CLG-O	0 %	Cooling Valve Output
	PH-O	100 %	Preheat Valve Output
	FILT-S	Clean	Filter Status
	DA-SD	Normal	Discharge Air Smoke Alarm
	LT-A	Normal	Low Temperature Alarm

ENROLL NOW



Metasys® System Extended Architecture Advanced Engineering Course #397, 2.0 CEU

Experienced personnel will learn how to write advanced programs for facility-wide or specific mechanical control applications using the System Configuration Tool (SCT). Students will build, modify and troubleshoot routines they create.

Recommended Prerequisite:

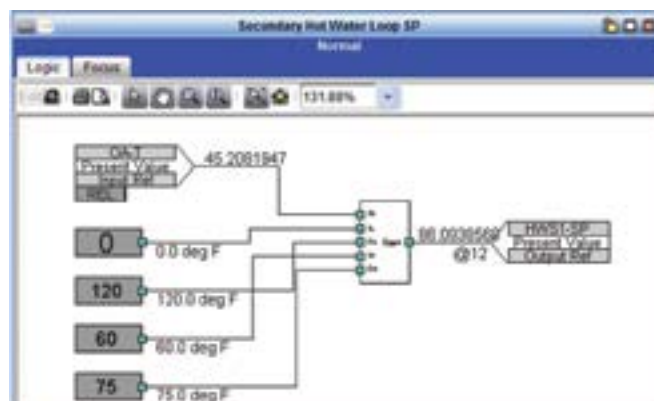
Student must have background in operating and/or engineering the Metasys® system extended architecture. Metasys® system extended architecture Engineering and Setup (#391) or Metasys® system extended architecture for Building Engineers (#389).

For End Users and/or Metasys® Authorized Building Controls Specialists/Contractors only.

Course Topics

- Review Metasys® system extended architecture
- Control Objects
(Interlocks, Multiple Commands, LCT, etc.)
- Reset Strategies
- Sequencing Equipment
- Rotation of Equipment
- Operating Equipment per Load Needs
- Lead Lag Strategies
- Creating Calculations Including Tonnage, Highest Daily, Temperature, etc.
- Student Directed Topics and Activities
- Hands on Lab
- Final Review

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$2640 per student



ENROLL NOW



Metasys® FEC Operations/Troubleshooting Course #4703, 2.0 CEU

Designed as a beginners course for people working with Field Equipment Controllers (FECs), this course shows students how to connect to FECs and how to download and test existing control programs. It also covers calibration of input sensors and setup and verification of inputs and outputs. This course is designed for building personnel who want to better understand field controller operation, commissioning and troubleshooting.

Recommended Prerequisite:

Fundamental Control Strategies for HVAC Systems (#215) or equivalent experience.

Course Duration

Tuesday-Thursday
Class ends at
3:30 p.m. on Thursday

Course Fee

\$2640
per student

Course Topics

- Introduction to Controllers
- CCT User Interface
- Mobile Access Portal
- Transferring Files
- Data Flow and Connections
- IO Commissioning
- Peer-to-Peer
- PRAC+ and PID
- Commissioning Programs
- Simulating Programs
- Hands-on Labs
- Final Review



ENROLL NOW



Building CCT Programming Course #4803

In this intermediary programming class, students learn standard Johnson Controls programming strategies to write and test programs for Metasys Gen 4 BACnet field devices using the Controller Configuration Tool (CCT.) Once configured, this program will be prepared for a file transfer to a field controller and commissioned to verify proper operations. This course is designed for experienced personnel who want to become proficient in writing and revising programs for Johnson Controls BACnet field devices. Although not a prerequisite, students should be familiar with the topics found in course #4802 or #4703 FEC Operations/Troubleshoot.

Recommended Prerequisite:

Fundamental Control Strategies for HVAC Systems (#215) or equivalent experience.

For End Users and/or Metasys® Authorized Building Controls Specialists/Contractors only.

Course Topics

- CCT User Interface
- Basic Application Creation
- Setting Preferences
- Peer-to-Peer
- Sideloops
- State Tables
- Data Flow and Connections
- Adding Modules
- PRAC+ and PID
- Hands-on Labs
- Final Review
- Final Review

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$2640 per student



**VIRTUAL COURSES
AVAILABLE**

ENROLL NOW



Optimizing Strategies for CCT Programming Course #4804

In this advanced, three-day programming course, students will learn how to customize standard Controller Application Files (CAF's). Students will learn multiple optimization strategies and their appropriate implementation. The course is designed for experienced building personnel who want to expand their knowledge of HVAC Control Systems and Johnson Controls BACnet field controllers.

Recommended Prerequisites:

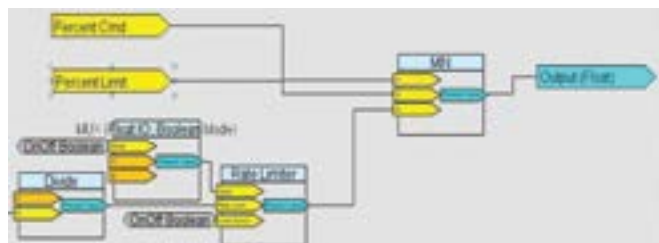
Anyone wishing to enroll in this class it is recommended to have attended Building CCT Programming (#4803 or #3803) or FEC Systems Engineering #4707 and experience using the CCT software.

For End Users and/or Metasys® Authorized Building Controls Specialists/Contractors only.

Course Topics

- Managing Perspectives
- Module Discovery and Analysis
- Logic and Expression Blocks
- Modifying a Standard Program
- PID and PRAC+
- Hybrid Activity Modules
- State Tables
- Command Hierarchy
- Sequencer and Multi-State Controllers

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$2640 per student



**VIRTUAL COURSES
AVAILABLE**

ENROLL NOW



Building and Modifying Metasys® Databases with System Configuration Tool (SCT) Course #4805, 2.3 CEU

Students learn how to build and program supervisory level controllers. Students will be able to build a complete Metasys® system including Metasys® User Interface for both new and existing sites.

Recommended Prerequisite:

Due to the material covered in this class, anyone wanting to enroll in this class recommended to have attended courses #389 and either #4707, #3707, #4803 or #3803 as well as #3021

For End Users and/or Metasys® Authorized Building Controls Specialists/Contractors only.

Course Topics

- Network Communications
- Network Design Process and Migration Decisions
- SCT and SCT Pro Overview
- Building an Archive Database
- Design Process for Metasys® UI Site
- Using Rapid Archive Creator (RAC) Wizard
- Modifying Equipment Definitions
- Creating Spaces Using Tailored Summary Viewer
- Configuring VAV Boxes, Air Handling Units and Central Plants
- Use UI Offline to Check your Work
- Demand Limiting/Load Rolling
- Programming Features
- Logic Connector Tool (LCT)
- Associating Graphics

Course Duration	Course Fee
Tuesday-Friday Class ends at 12:00 p.m. on Friday	\$2970 per student



ENROLL NOW



Metasys® System Extended Architecture Hardware & Troubleshooting Course #4718, 3.0 CEU

This hands-on course provides experienced Metasys® users with valuable diagnostic and troubleshooting skills on system hardware. Discussions and exercises cover the full range of Metasys® Network products, with an emphasis on communication solutions and other commonly experienced problems.

Recommended Prerequisite:

Due to the material covered in the class, anyone wanting to enroll in this class is required to have had attended courses #389 and #4803/#3803 or 4707 FEC Systems Engineering.

For End Users and/or Metasys® Authorized Building Controls Specialists/Contractors only.

Course Topics

- Metasys® extended architecture Review
- Network Architecture
 - Ethernet Level Connections (BACnet® over IP)
 - Controller Trunk Level Connections (BACnet®/MSTP, N2, and LON)
 - SA Bus Review
- Network Automation Engines, Network Integration
- Engines and Network Controller Engines Including:
 - NAE common hardware platform
 - NAE Diagnostics, how to run them & evaluate them
- Introduction to the SCT Tool
- Short Review FEC Controller Family; FECs, VMAs and IOM Modules, and TEC Controllers
- Calibrating Sensors and Actuators and Applying Metering Devices
- Downloading Controllers
- Metasys® System Extended Architecture Database overview and organization best practices
- ADS/ADX Servers – their role and features in Metasys® and best practices for backup of data files

Course Duration

**Monday-Friday
Class ends at
11:30 a.m. on Friday**

Course Fee

**\$3300
per student**



ENROLL NOW



Facility Explorer MSTP Field Controller Engineering Course #4714, 3.0 CEU

Participants will receive an overview of the Facility Explorer MSTP field controller system, create programs from standard tree systems using the Programmable Controller and Commissioning tool, then connect to Bluetooth® and Zigbee® connections and download code into the controllers after setting up the hardware and software to communicate properly.

For End Users and/or Facility Explorer® Authorized Building Controls Specialists/Contractors only.

Course Duration

**Monday-Friday
Class ends at
11:30 a.m. on Friday**

Course Fee

**\$3300
per student**

Course Topics

- Intro To The Facility Explorer MSTP Field Controllers System
- Application Creation
- Peer-to-Peer
- Mobile Access Portal
- Transferring Files
- IO Commissioning
- Commissioning Programs
- Zigbee® Wireless Communications
- Logic Blocks
- PRAC+ and PID
- Sequencers
- Hands on Labs



**VIRTUAL COURSES
AVAILABLE**

ENROLL NOW



Facility Explorer (FX) Supervisory Controllers Engineering/N4 Certification Course #4720, 3.4 CEU

Basic instruction on design, engineer and program projects using FXWorkbench Pro running on Niagara 4. Testing for Niagara 4 Technical Certification Program (TCP) taken at end of the course.

Recommended Prerequisites:

Students must have a strong knowledge of Johnson Controls field controllers. A familiarization of building automation systems (BAS) would also be beneficial.

For End Users and/or Facility Explorer® Authorized Building Controls Specialists/Contractors only.

Course Duration

**Monday-Friday
Testing will end at
5:00 p.m. on Friday**

Course Fee

**\$4620
per student**

Course Topics

- Course Introduction and System Overview
- Supervisory Controller User Interface Overview
- FXWorkbench Pro Overview
- Creating a Station
- Adding N2 and BACNet® Controllers and Points
- Extension Manager and Extensions
- Control Logic
- Tagging Objects
- Scheduling
- Defining Users and Roles
- Customizing Access Permissions
- Setting up Email Notification of Alarms
- Graphics
- Controller Summary
- Hierarchy Services
- Commissioning and Backing up a Station
- Auto discovering BACNet® points
- Using Standard Graphics for Other Devices
- Enterprise Connectivity
- Technical Certification Program (TCP) Examination

**VIRTUAL COURSES
AVAILABLE**

ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Metasys® Graphics Generation Tool Course #3002

This course teaches students how to create and modify the custom graphics used to both monitor and actively change building parameters and settings in a Metasys® automation system. It is a three-day online internet course which combines active instructor facilitation with student practice sessions with the facilitator available for questions. This course is for individuals interested in creating and editing Graphics+Metasys® graphic files using Graphics Generation Tool (GGT) software.

Recommended Prerequisites:

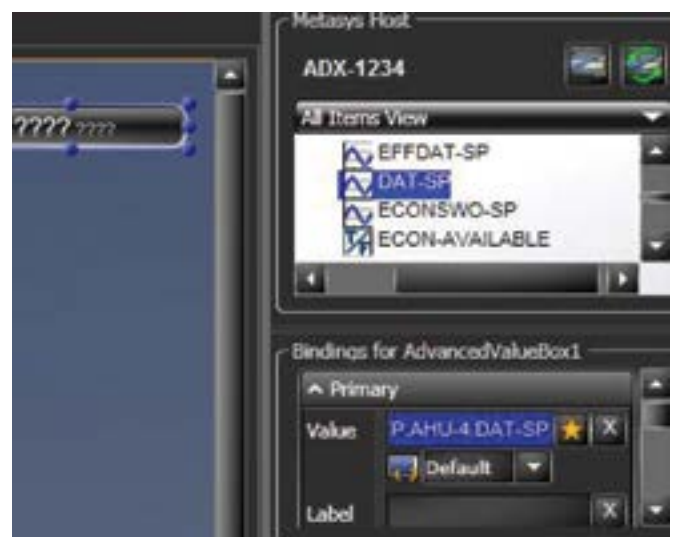
Anyone wishing to enroll in this class it is recommended to have attended Metasys® system extended architecture for Building Engineers (#389) OR Metasys® system extended architecture Engineering and Setup (#391).

For End Users and/or Authorized Building Controls Specialists/Contractors only.

Course Topics

- Provide an overview of the Graphics + tool with its features and terminology
- Introduce the "Style Guide."
- Familiarize the student with how to commission graphics
- Familiarize the student with how to create new graphics using the Graphic Generation Tool
- Provide an opportunity for hands-on practice implementing key Graphics + tasks

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$1740 per student



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Introduction to Metasys® User Interface Course #3021

This course is designed for customers who need to learn how to perform daily tasks using the Metasys® User Interface. After completing this course, participants will be able to navigate through the Metasys® UI to find the information that is relevant to your building. You will be able to complete daily tasks using the interface by focusing on issues that are critical to your site and take action on potential problems, leveraging advanced reporting capabilities for building analysis.

Course Duration	Course Fee
One Day	\$930 per student

Course Topics

- Navigate the New User Interface
- Understand the differences of the Space Dashboard and Equipment Dashboard
- Selecting widgets
- Using the Alarm Manager
- Issuing commands
- Search for and report on Metasys® data using Advanced Search
- Understand how the User Interface may be customized at your site
- Finding additional resources



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



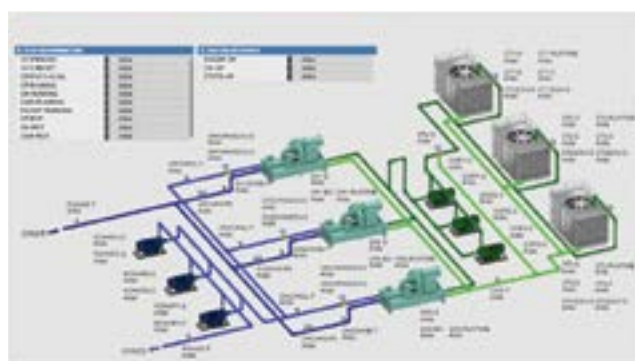
Metasys® User Interface Graphics Editor Course #3022

This course is designed for customers who have experience with the Metasys® User Interface, but want or need to learn how to create Metasys® UI Graphics. After completing this course, participants will be able to navigate the Metasys® Graphics Manager, import and export graphics and associate a graphics to a space, equipment definition, or piece of equipment and add custom behaviors to a graphic.

Course Duration	Course Fee
One Day	\$930 per student

Course Topics

- Access the Graphics Manager through the User Online/Offline
- Navigate the Graphics Manager
- Import and export graphics using the Offline User Interface
- Navigate through the Graphics Editor
- Create and edit the Master Layer for a site
- Create, edit, and associate a graphic to a space or piece of equipment
- Create and edit a floorplan
- Create and edit user defined graphics templates
- Add custom behaviors to graphics



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Programming & Engineering EasyIO Controllers with CPT Tools Course #3024, 1.3 CEU

EasyIO is a robust and flexible line of IP-based controllers. The participant will be able to identify various EasyIO controller types and uses for each. Additionally the participant will write programming logic, set up dashboards and graphics, as well as integrate various protocols. The Course will be delivered virtually over the period of 4 days in 4 hour increments, an AM or PM session. The total training will be 16 hours. When registering please note that you are registering for an AM or PM session, not both.

Course Duration

16 hours over 4 days
AM Session Starts
at 8:00 CST
PM Session Starts
at 1:00 CST

Course Fee

\$780
per student

Required Hardware

- Laptop computer running Windows 7 or higher operating system
- (3) Network patch cords
- (1) Network switch
- (1) FS Series Controller (Preferably the FS-20)
- (1) FW Series Controller (Preferably the FW-8)
- (1) 24 VAC Power Supply to power the controllers at the same time
- HTML-5 Compatible Web Browser (Chrome Preferred)
- CPT Tools (Supplied by Instructor)

Course Topics

- EasyIO Product Fundamentals
- Programming the FW-Series and FS-Series Controllers
- BACnet IP Server and BACnet Client
- Dashboards
- Backup / Restore Functions
- P2P Communications
- Apps Tool
- Graphics
- SQLite Database and Charts

EasyIO®



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Optimizing Strategies for CCT Programming with Facility Explorer Systems #3028

In this advanced, three-day programming course, students will learn how to customize standard FX BACnet controller programs. Students will learn multiple optimization strategies and their appropriate implementation. The course is designed for experienced building personnel who want to expand their knowledge of HVAC Control Systems and Johnson Controls BACnet field controllers.

Recommended Prerequisites:

4714 - FX MSTP Field Controller Engineering and experience using the CCT software prior to attending.

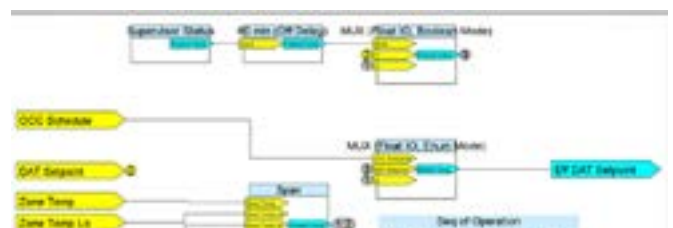
For End Users and/or FX Authorized Building Controls Specialists/Contractors Only.

Course Topics

- Managing Perspectives
- Module Discovery and Analysis
- Logic and Expression Blocks
- Modifying a Standard Program
- PID and PRAC+
- Hybrid Activity Modules
- State Tables
- Command Hierarchy
- Sequencer and Multi-State Controllers

Software Requirements: CCT 14.2 or later with all packages installed on your computer prior to attending the training.

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$1740 per student



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



YK High Pressure Centrifugal Operations/Maintenance Course #3102, 2.0 CEU

Students will learn about the internal workings of the YK high-pressure centrifugal single-stage compressor, oil return system, OptiView Control Center, and other components and subsystems. A comprehensive review of the preventive maintenance schedule and system capacity checkout procedure is also covered.

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$1740 per student

Course Topics

- Centrifugal compressor theory of operation
Controller Tool (PCT)
- YK chiller design and component functionality
- YK seasonal start-up
- OptiView basics: application, terminology
- OptiView architecture: component
identification, component location
- Maintenance
- OptiView operation: screen navigation,
interpretation, and modification
- Troubleshooting
- Warranty
- Evaluating chiller
- Simulator demonstration



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



YCAV Air Cooled Rotary Screw Liquid Chillers Course #3103, 2.0 CEU

This three-day course teaches service personnel about the YCAV Chiller features, including the screw compressor, system ancillary components, unit operation, and maintenance.

Course Duration

Tuesday-Thursday
Class ends at
3:30 p.m. on Thursday

Course Fee

\$1740
per student

Course Topics

- Navigating the new User Interface
- Screw chiller basics
- Basic electronics
- VSD basics
- VSD and control panel architecture
- Operation and sequencing
- Latitude simulator exercises
- Information and safety, handling and storage
- VSD operation and faults
- Maintenance
- Unit troubleshooting
- Simulator demonstration



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Absorber Operations/Maintenance Course #3104, 2.0 CEU

This course teaches operators and technicians about the operation and controls associated with YORK® lithium bromide absorption chillers. Absorption theory, including P/T relationships and solution chemistry, is also covered. The operation and operating procedures for both Isoflow (single stage) and Paraflow systems (two stage) are reviewed with an emphasis on preventive maintenance procedures.

Course Duration

Tuesday-Thursday
Class ends at
3:30 p.m. on Thursday

Course Fee

\$1740
per student

Course Topics

- Basic refrigeration principles
- Units of measure, types of heat
- Absorption principles
- Solution chemistry
- YIA components and cycle
- Water circuits
- YPC components and cycle
- YPC purge system
- Operating information, setpoints and warnings
- System and safety cycling shutdowns
- Operation and maintenance
- Crystallization
- Unit operation and operational limitations
- Refrigerant contamination
- Heating/cooling changeover
- Preventive maintenance
- Schedules



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



YVAA Air Cooled Screw Chiller Course #3111

This three-day course teaches experienced service technicians about the YVAA Chiller. The course will include features of this unit and the differences in installation, operation and maintenance from the YCAV.

Course Duration

Tuesday-Thursday
Class ends at
3:30 p.m. on Thursday

Course Fee

\$1740
per student

Course Topics

- Chiller layout and components
- Safety and handling
- Installation
- Operation/Maintenance
- VSD
- Simulation demonstration



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



YLAA Chiller Start-Up and Troubleshooting Course #3114, 2.0 CEU

Students will learn the techniques, strategies and skills required to operate, repair, start up and maintain the YORK® YLAA chiller and YLPA heat pump chillers using multiple scroll compressors in each system. The techniques acquired in this course may be applied to other YORK® small-tonnage chillers and condensing units such as YCAL, YLUA, and YCUL models.

Course Duration	Course Fee
Tuesday-Thursday Class ends at 3:30 p.m. on Thursday	\$1740 per student

Course Topics

- Safety
- Literature
- Theory
- Components
- Operations
- Wiring diagrams
- Installation
- Start-up
- Maintenance
- Evaluating performance
- Warranty



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Metasys® System Extended Architecture for Building Operators Course #3388, 2.0 CEU

This four-day course teaches building personnel how to make the most effective and efficient use of the features of a Metasys® extended architecture building management system. This course is for building personnel who have Site Management Portal (SMP™ installations of Metasys® system extended architecture).

Course Duration

**Tuesday-Friday
Class ends at
3:30 p.m. on Friday**

Course Fee

**\$1800
per student**

Course Topics

- Metasys® system extended architecture overview
- Help file system
- Basic navigation of the system with the User Interface
- Commanding objects
- Scheduling
- Setting up alarms
- Responding to alarms
- Trending
- Totalization
- Graphics
- Hands-on lab
- Final review



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Building CCT Programming Course #3803

In this intermediary programming class, students learn standard Johnson Controls programming strategies to write and test programs for Metasys Gen 4 BACnet field devices using the Controller Configuration Tool (CCT.) Once configured, this program will be prepared for a file transfer to a field controller and commissioned to verify proper operations. This course is designed for experienced personnel who want to become proficient in writing and revising programs for Johnson Controls BACnet field devices. Although not a prerequisite, students should be familiar with the topics found in course #4703/4802.

Recommended Prerequisites:

Fundamental Control Strategies for HVAC Systems (#215) or equivalent experience.

For End Users and/or Metasys Authorized Building Controls Specialists/Contractors only.

Course Topics

- CCT User Interface
- Basic Application Creation
- Setting Preferences
- Peer-to-Peer
- Sideloops
- State Tables
- Data Flow and Connections
- Adding Modules
- PRAC+ and PID
- Hands-on Labs
- Final Review

Students enrolling in the class will attend via distance learning and will be required to have the following available.

- PC with CCT installed (v14.2 or later), fully licensed and operational

Course Duration	Course Fee
Tuesday-Friday Class ends at 3:30 p.m. on Friday	\$1800 per student



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Optimizing Strategies for CCT Programming Course #3804

In this advanced, three-day programming course, students will learn how to customize standard Controller Application Files (CAF's). Students will learn multiple optimization strategies and their appropriate implementation. The course is designed for experienced building personnel who want to expand their knowledge of HVAC Control Systems and Johnson Controls BACnet field controllers.

Recommended Prerequisites:

Anyone wishing to enroll in this class it is recommended to have attended Building CCT Programming (#4803 or #3803) or FEC Systems Engineering #4707 and experience using the CCT software.

For End Users and/or Metasys® Authorized Building Controls Specialists/Contractors only.

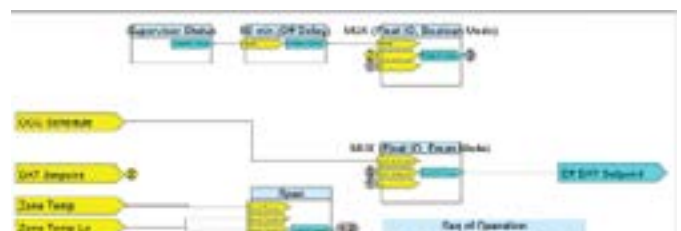
Course Topics

- Managing Perspectives
- Module Discovery and Analysis
- Logic and Expression Blocks
- Modifying a Standard Program
- PID and PRAC+
- Hybrid Activity Modules
- State Tables
- Command Hierarchy
- Sequencer and Multi-State Controllers

Students enrolling in the class will attend via distance learning (Zoom) and will be required to have the following available.

- PC with CCT installed (v14.2 or later) fully licensed and operational

Course Duration	Course Fee
Tuesday-Friday Class ends at 3:30 p.m. on Friday	\$1800 per student



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Facility Explorer® (FX) MSTP Field Controller Engineering Course #3714, 3.0 CEU

After completing this course, Participants will receive an overview of the Facility Explorer field controller system, create programs from standard tree systems using the Controller and Commissioning tool.

Software Requirements: CCT 14.2 or later with all packages installed on our computer prior to attending.

Course Duration

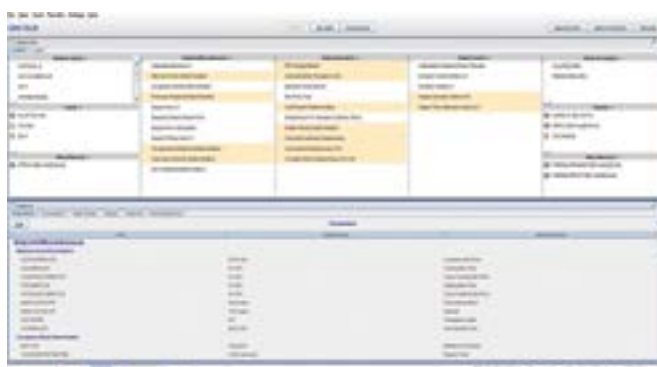
**Monday-Friday
Class ends at
11:30 a.m. on Friday**

Course Fee

**\$1920
per student**

Course Topics

- Intro To Facility Explorer Field Controllers System
- Application Creation
- Peer-to-Peer
- Mobile Access Portal
- Transferring Files
- IO Commissioning
- Commissioning Programs
- Zigbee (copyright) Wireless Communications
- Logic Blocks
- PRAC+ and PID
- Sequencers
- Hands on Labs



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Facility Explorer® (FX) Supervisory Controllers Engineering Certification Course #3720, 3.4 CEU

Basic instruction on design, engineering and programming projects using FXWorkbench Pro running on Niagara 4. This includes creating stations, adding various controller protocols and controllers, creating graphics, adding schedules, configuring users, using wiresheets, commissioning the FX80, and more. Testing for Niagara 4 Technical Certification Program (TCP) taken at end of the course.

Recommended Prerequisites:

Students must have a strong knowledge of Johnson Controls field controllers. A familiarization of building automation systems (BAS) would also be beneficial.

For End Users and/or Facility Explorer® Authorized Building Controls Specialists/Contractors only.

Course Topics

- Introduction to Facility Explorer
- Station Creation
- Defining JCI Controllers
- Equipment and Spaces
- Tag Dictionaries / Tagging
- Hierarchies
- Extensions
- Control Logic
- Permissions
- Graphics
- Commissioning an FX80
- Enterprising
- N4 TCP Exam

Course Duration	Course Fee
Monday-Friday Class ends at 5:00 p.m. on Friday	\$3300 per student



ENROLL NOW

INSTRUCTOR-LED VIRTUAL LEARNING COURSES



Building an FX Supervisory Network Controller (SNC) Course #3821, 2.0 CEU

This introductory course imparts foundational knowledge of database creation using the System Configuration Tool (SCT and SCT Pro). The student will learn about the FX Supervisory Plant Controller (SNC). The Rapid Archive Creator (RAC) is used to prepare and build a database framework, and students learn how to complete the database after RAC implementation. Students will prepare a SNC for database transfer. Using SCT and SCT Pro to transfer Controller Application Files (CAF) to Field Controllers is also covered.

Course Topics

- JCI FX Supervisory Plant Controller (SNC) hardware overview
- SCT and SCT Pro overview
- Archive Database Structure
- Using Rapid Archive Creator (RAC) to assist automated database building
- Preparing the SNC
- Using SCT/SCT Pro to transfer controller configuration file into the SNC
- Archiving databases from SNC and Field Controllers

Software Requirements

This is a virtual class so the student will be responsible for supplying equipment for the learning opportunity including:

- Personal Computer with the following software installed and licensed
 - CCT 14.0 (or later)
 - SCT 14.1 (or later)
 - FX Device Packages for SCT
 - FX Field Controller Packages
 - Johnson Controls SA Bus Device Packages
- 2515x-0 or 2515x-0H with 24 VAC power ready for operation

Course Duration	Course Fee
Tuesday-Friday Class ends at 3:30 p.m. on Friday	\$1740 per student



ENROLL NOW

**COURSES OFFERED
BY REQUEST ONLY**



COURSES OFFERED BY REQUEST ONLY



The following courses are only available at your request. They can usually be conducted at your site or at one of our Training Institute locations with a minimum of eight students.

These courses are not included in the Learning Catalog schedule at the back of this publication. For more information about the content, availability and pricing of these courses, call the Training Institute Registrar at **800-524-8540** or **414-524-4286** or email at cg-customer.registrar@jci.com

Metasys® HVAC ASC Engineering Course #353, 3.0 CEU

This course covers programming and testing control strategies for Application Specific Controllers (ASCs). The course is designed for experienced building personnel who want to expand their knowledge of HVAC Control Systems and Johnson Controls ASC devices.

Metasys® DX-9100 Engineering Course #364, 3.0 CEU

Experienced DX-9100 users will learn how to create and modify the DX-9100 application programs using Windows-based GX-9100 software. This course is a follow-up to the Metasys® DX-9100 Operations/Troubleshooting course for students who want to develop their skills in programming and troubleshooting their DX-9100 system.

Metasys® DX-9100 Operations/Troubleshooting Course #365, 2.0 CEU

This introductory course teaches participants how to communicate and troubleshoot effectively using the DX-9100. This course is highly recommended for anyone involved in the day-to-day operation of a DX-9100 system.

COURSES OFFERED BY REQUEST ONLY



Metasys® HVAC ASC Operations/Troubleshooting Course #381, 3.0 CEU

Students will learn about the Application Specific Controllers (ASC) used at their facility. Extensive hands-on lab activities use HVACPRO software to work with AHU, UNT, VAV and VMA controllers for troubleshooting programs and field devices.

YVWA Water Cooled Screw Chiller* Course #2112, 2.0 CEU

This two-day course teaches experienced service technicians about the YVWA Chiller. The course will include features of this unit and the differences in installation, operation and maintenance from the YCAV.

*Dress code: For safety, closed-toe, leather shoes and long pants are required.

HOW TO ENROLL IN A COURSE



Enroll Online

Register and purchase trainings online with credit cards, all at one location.

www.jcittraininginstitute.com



Browse Our Courses & Schedule

Check classes that are open for enrollment and check the current status of a class.

www.johnsoncontrols.com/institute

JOHNSON CONTROLS TRAINING INSTITUTE: COURSE APPLICATION



We encourage you to register for classes online at: www.jcittraininginstitute.com.

This form should be used by those unable to register online, such as government agencies, and Johnson Controls branch offices. You can fill the form out then print this page and either email (cg-customer.registrar@jci.com) or fax (877-403-6625) it to the Johnson Controls Training Institute.

Student Information

Name of Applicant (Please Print)

Student E-mail Address (REQUIRED FOR CONFIRMATION / CANCELLATION NOTIFICATION)
Please provide a unique email address for each applicant.

Company/Organization Name

Company/ Organization Address (No P.O. Box)

City

State

Zip

Telephone Number () -

Course Registration Information

Course Name

Course #

Location

First Choice Date

Second Choice Date

Payment must be received 10 days prior to course start date.

Payment Method Selected:

Visa® or MasterCard® or American Express®
Exp. Date

Payment Policy

Please include check or credit card information with your application. To mail your application & payment, use Institute address (below). Thank you.

Tax Deduction

U.S. Treasury Regulation 1.162.5 permits an income tax deduction for educational expenses incurred to maintain or improve professional skills. Consult your tax advisor for details.

For Johnson Controls Branch Use Only

Installation Contract #

(Signature)

(Email address to send receipt)

Cancellation Policy

Refunds are issued only if you notify the Institute at 414-524-4286 or 800-524-8540 that you cannot attend, no less than ten business days prior to the start of the course. You are liable for the entire course fee if cancellation is received after this deadline; you may substitute another student, or enroll in another session. Johnson Controls reserves the right to cancel classes and assumes no liability for expenses, all registrants will be notified at least ten days before the start of class.



Mail form and payments to:
Johnson Controls
Training Institute/M45
507 East Michigan Street
Milwaukee, WI 53202



Telephone:
414-524-4286
800-524-8540



Fax:
877-403-6625



Internet:
www.johnsoncontrols.com/institute

2023 Class Schedule

These dates are subject to change. Please verify the dates and location and look for new course offerings at www.jcittraininginstitute.com

[illegible]

2023 Class Schedule

July - December (January - June on reverse side)

These dates are subject to change. Please verify the dates and location and look for new course offerings at www.jcittraininginstitute.com

Course Name	Course #	Page #	Start-End (Days)	Course Fee	July					August				September				October					November				December			
					3	10	17	24	31	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25
HVAC INDUSTRY COURSES																														
HVAC Mechanical Systems	210	12	M-F	\$3,300					MKE										PHX						PHX					
Fundamental Control Strategies for HVAC Systems	215	13	M-F	\$3,300		sc						PHX							KC					PHX		TAM				
HVAC Pneumatic Controls - Multi Manufacturer	221	14	Tu-Th	\$2,640																			MKE							
HVAC Equipment Maintenance	225	15	Tu-Th	\$2,640											MKE															
OptiView ™ Control Panel	2100	16	Tu-W	\$1,980					DAL				TAM								DAL				TAM					
YK High Pressure Centrifugal Operations/Maintenance	2102	17	Tu-Th	\$2,640							NF	KC						PHX					MKE							
YCAV Air Cooled Rotary Screw Liquid Chillers	2103	18	Tu-Th	\$2,640					PHX											DAL										
Absorber Operations/Maintenance	2104	19	Tu-Th	\$2,640											DAL															
YT/YK Centrifugal Chiller and Compressor Overhaul	2107	20	M-F	\$3,720			NF											NF						NF						
YPAL Series 100 Package RTU	2108	21	Tu-Th	\$2,640				MKE																						
VVAA Air Cooled Screw Chiller	2111	22	Tu-Th	\$2,640							DAL																			
YLAA Chiller Start-Up and Troubleshooting	2114	23	Tu-Th	\$2,640																	DAL									
Building Automation Systems Courses																														
Metasys® System Extended Architecture for Building Operators	388	27	M-W	\$2,640			DAL	TAM		MKE		HOU	NF			LOU		DAL		TAM		KC			BOS	KC				
Metasys® System Extended Architecture for Building Engineers	389	28	M-F	\$3,300			DAL	TAM		MKE		HOU	NF			LOU		DAL		TAM		KC			BOS	KC				
Metasys® System Extended Architecture Advanced Engineering	397	29	Tu-Th	\$2,640				MKE																						
Metasys® FEC Operations/Troubleshooting	4703	30	Tu-Th	\$2,640			TAM	KC		SC						HOU					DAL			KC		NF				
Facility Explorer® (FX) MSTP Field Controller Engineering	4714	35	M-F	\$3,300								MKE						NF												
Metasys® System Extended Architecture Hardware and Troubleshooting	4718	34	M-F	\$3,300																										
Facility Explorer® (FX) Supervisory Controllers Engineering Certification	4720	36	M-F	\$4,620																										
Building CCT Programming	4803	31	Tu-Th	\$2,640			LOU				KC	TAM						BOS		TAM				PHX						
Optimizing Strategies for CCT Programming	4804	32	Tu-Th	\$2,640			MKE									TAM														
Metasys® Database with System Configuration Tool (SCT)	4805	33	M-F	\$3,300																		MKE								
Virtual Instructor Led Training																														
HVAC INDUSTRY COURSES																														
YK High Pressure Centrifugal Operations/Maintenance	3102	43	Tu-Th	\$1,740		VL															VL									
YCAV Air Cooled Rotary Screw Liquid Chillers	3103	44	Tu-Th	\$1,740											VL															
Absorber Operations/Maintenance	3104	45	Tu-Th	\$1,740																					VL					
YVAA Air Cooled Screw Chiller	3111	46	Tu-Th	\$1,740																		VL								
YLAA Chiller Start-Up and Troubleshooting	3114	47	Tu-Th	\$1,740						VL														VL						
Building Automation Systems Courses																														
Metasys® Graphics Gerneation Tool	3002	38	Tu-Th	\$1,740											VL									VL						
Introduction to Metasys® User Interface	3021	39	W	\$930					VL												VL									
Metasys® User Interface Graphic Editor	3022	40	Th	\$930					VL												VL									
EasyIO CPT Tools and F-Series Training	3024	41	Tu-F	\$780													VL								VL	VL				
Optimizing Strategies for CCT Programming with Facility Explorer	3028	42	Tu-Th	\$1,740												VL														
Metasys® System Extended Architecture for Building Operators	3388	48	Tu-F	\$1,800								VL											VL							
Building CCT Programming	3803	49	Tu-F	\$1,800											VL											VL				
Optimizing Strategies for CCT Programming	3804	50	Tu-F	\$1,800		VL												VL						VL						
Facility Explorer® (FX) MSTP Field Controller Engineering	3714	51	M-F	\$1,920											VL									VL						
Facility Explorer® (FX) Supervisory Controllers Engineering Certification	3720	52	M-F	\$3,300																										
Building an FX Supervisory Network Controller (SNC)	3821	53	Tu-F	\$1,740															VL											
KEY for INSTITUTE LOCATIONS: BOS (Boston) DAL (Dallas) VL (Virtual Learning) HOU (Houston) MKE (Milwaukee) KC (Kansas City , KC) LOU (LOUISVILLE) PHX (Phoenix) SC (Southern California) TAM (Tampa) NF(New Freedom, PA)																														



2023 CUSTOMER TRAINING CATALOG

www.johnsoncontrols.com/institute

800-524-8540, 414-524-4286 or

email us at cg-customer.registrar@jci.com

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