

The power behind **your mission**

A large graphic consisting of a white outline of a house on the left and a thick green line forming a path that starts from the top of the house, goes up, then down, then up, and finally down to the bottom of the house, resembling a course map.

# Partner Course Map

## About the Johnson Controls Partner Learning Portal

The Johnson Controls Partner Learning Portal has been developed to help people succeed at creating and managing quality building environments. We, at Johnson Controls, understand that every individual has a different learning need. This learning platform has been developed for your own learning curve. Our mission is 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 Partner Learning Portal 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

# 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:

## **e-learning Courses**

To help you learn in our own space and time, we have developed and deployed several e-learning modules, videos and job-aids in the learning platform. These are organized and cataloged for your learning needs. Visit <https://jci-academy.com> and select **Catalog** to browse through the learning content.

## **Product Knowledge Webinars**

We conduct regular product knowledge webinar sessions where several product experts talk about new product launches and product features. These sessions are held to enhance your Johnson Controls product knowledge and are free of cost. You will receive e-mail updates from Johnson Controls regarding such webinar sessions.

## **Instructor-Led Classroom Learning Courses (Scheduled)**

Regularly scheduled courses with both a classroom and lab component are conducted at our Johnson Controls training 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. Refer to the class schedules available at <https://jci-academy.com> for the dates, locations, and prices of these courses. Note: No audio/visual recording equipment is allowed.

## **Instructor-Led Distance Learning Courses and Learning Packages**

Learn in the convenience of your own home, office, or work location using Johnson Controls instructor-led distance learning courses or learning packages. Learning packages include self-study workbooks offering flexible, effective, cost-efficient opportunities to build knowledge and skills. Our instructor-led distance learning courses and learning packages 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. Refer to <https://jci-academy.com> for the list of instructor-led distance learning courses.

## **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 training locations. For this reason, these courses are not scheduled. To inquire about scheduling a course, contact [BTS-EMEA-PartnerLearning@jci.com](mailto:BTS-EMEA-PartnerLearning@jci.com).

## **Onsite Learning Programs**

Johnson Controls training 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 six employees.

# Enrollment Information

To achieve the most effective training, carefully evaluate the course content and objectives to match your learning requirements. Class size is limited and is offered on a first-register, first-attend basis.

To browse our catalog and enroll for courses, please visit <https://jci-academy.com> Payment information is available on the PLP.

Confirmation of enrollment along with training location information will be sent to the learner within five working days after receipt of your payment (if applicable). Upon receipt of your confirmation, check it carefully and contact us via e-mail if you find any discrepancies. If you do not receive an enrollment confirmation letter within two weeks prior to the start of class, contact us to make sure that we have received your application. For information on training locations and recommended hotels refer [Training Locations & Hotel Information](#).

All flight & hotel booking are suggested to be done after you have received a class confirmation e-mail from Johnson Controls 2 weeks prior to class date.

## **Substitution & Cancellation**

Johnson Controls reserves the right to cancel classes and assumes no liability for expenses. All registrants will be notified (via e-mail and phone) at least 15 days before the start of class should a course be canceled. Full amount of the course will be refunded to learners, if such a situation occurs.

Circumstances may occur that could prevent you from attending a course for which you are enrolled. For this reason, we allow you to substitute another learner in your place at no additional fee (needs to be communicated to [BTS-EMEA-PartnerLearning@jci.com](mailto:BTS-EMEA-PartnerLearning@jci.com)).

If no substitute learner is available and you must cancel your enrollment, charges will be applicable as follows-

- » 100% of the amount will be refunded if cancelled before 3 weeks of class start date.
- » 50% of the amount will be refunded if cancelled within 3 weeks of class start date.
- » No refund if cancelled within 10 days of class start date.

## **Schedule of Classes**

The latest schedule of classes is available at <https://jci-academy.com> The schedule is subject to change.

# Training Locations & Hotel Information

Learners must call the hotels directly to make reservations. The Johnson Controls Corporate rate must be requested. Be sure to ask about complimentary shuttle services to and from our learning centers. (These services are not available everywhere). Reservations made through a travel agency are not eligible for the discounted rate.

## Training facility location 1

Block D, Floor 3, Office Park Building #56,  
Dubai Internet City,  
Dubai, United Arab Emirates

Google map location: <https://goo.gl/maps/BUDkuKwjehMBhFik6>

Located approximately 25 mins from Dubai International Airport (DXB) and 35 mins from Al Maktoum International Airport (DWC).



### Suggested Hotel Accommodations

Holiday Inn Express Dubai – Internet City,

Al Sufouh Dubai Knowledge Park – Dubai, UAE

Phone: +971 4 427 5555

Website: <https://www.ihg.com/holidayinnexpress/hotels/gh/en/dubai/dxbic/>

Google map location: <https://goo.gl/maps/KHmZVxYVh5sq1Jx66>

## Training facility location 2

DSO, Light Industrial Unit Phase 5, Unit C-O2  
Dubai Silicon Oasis, Dubai United Arab Emirates

Google map location: <https://goo.gl/maps/XNLza7WkkW3mtCcW7>

Located approximately 20 mins from Dubai International Airport (DXB) and 35 mins from Al Maktoum International Airport (DWC).



### Suggested Hotel Accommodations

Premier Inn Dubai Silicon Oasis Hotel

Sheikh Mohammed Bin Zayed Road, Dubai Silicon Oasis,  
Dubai UAE

Phone: +971 4 382 1555

Website: <https://global.premierinn.com/en>

Google map location: <https://goo.gl/maps/N4nR2tEpUTB2>

Radisson Blu Hotel Apartments

Plot #26-077 , Dubai Silicon Oasis

Dubai, United Arab Emirates

Phone: +971 4 350 1111

Website: <https://www.radissonhotels.com/en-us/hotels/radisson-blu-apartments-dubai-silicon-oasis>

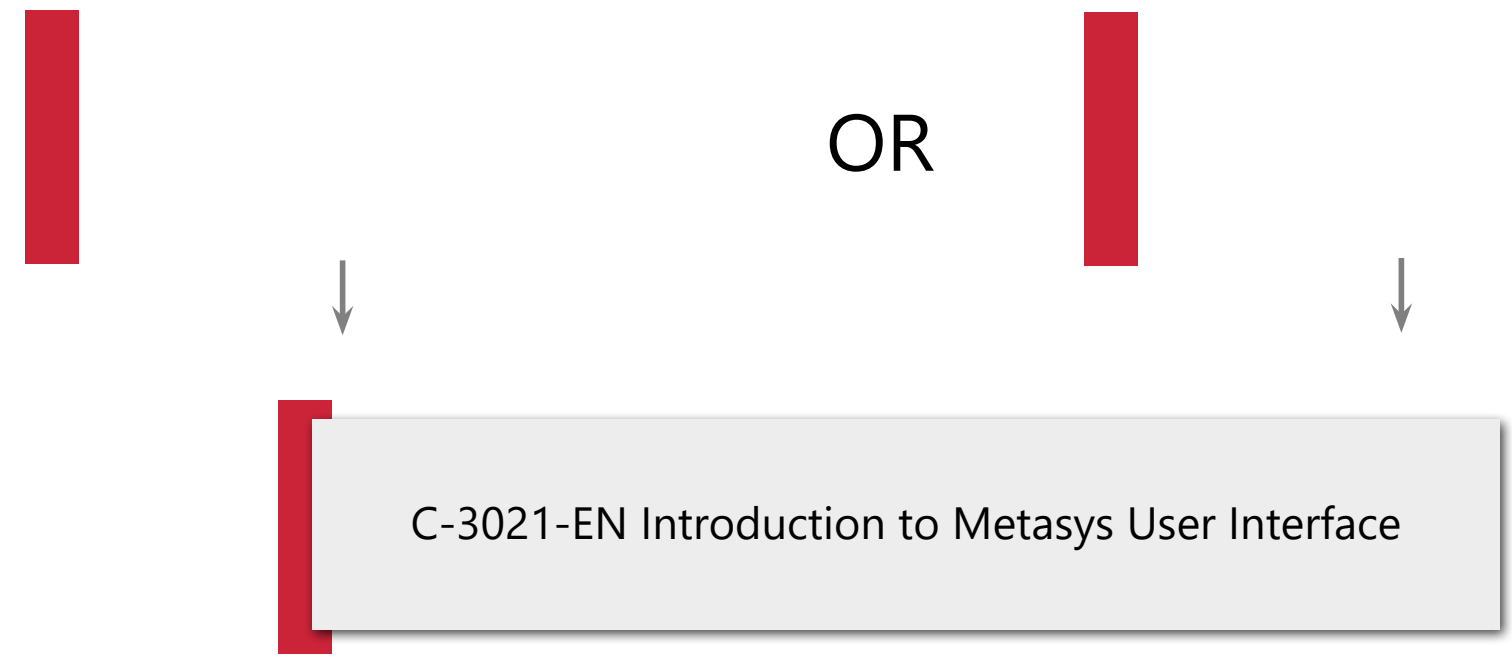
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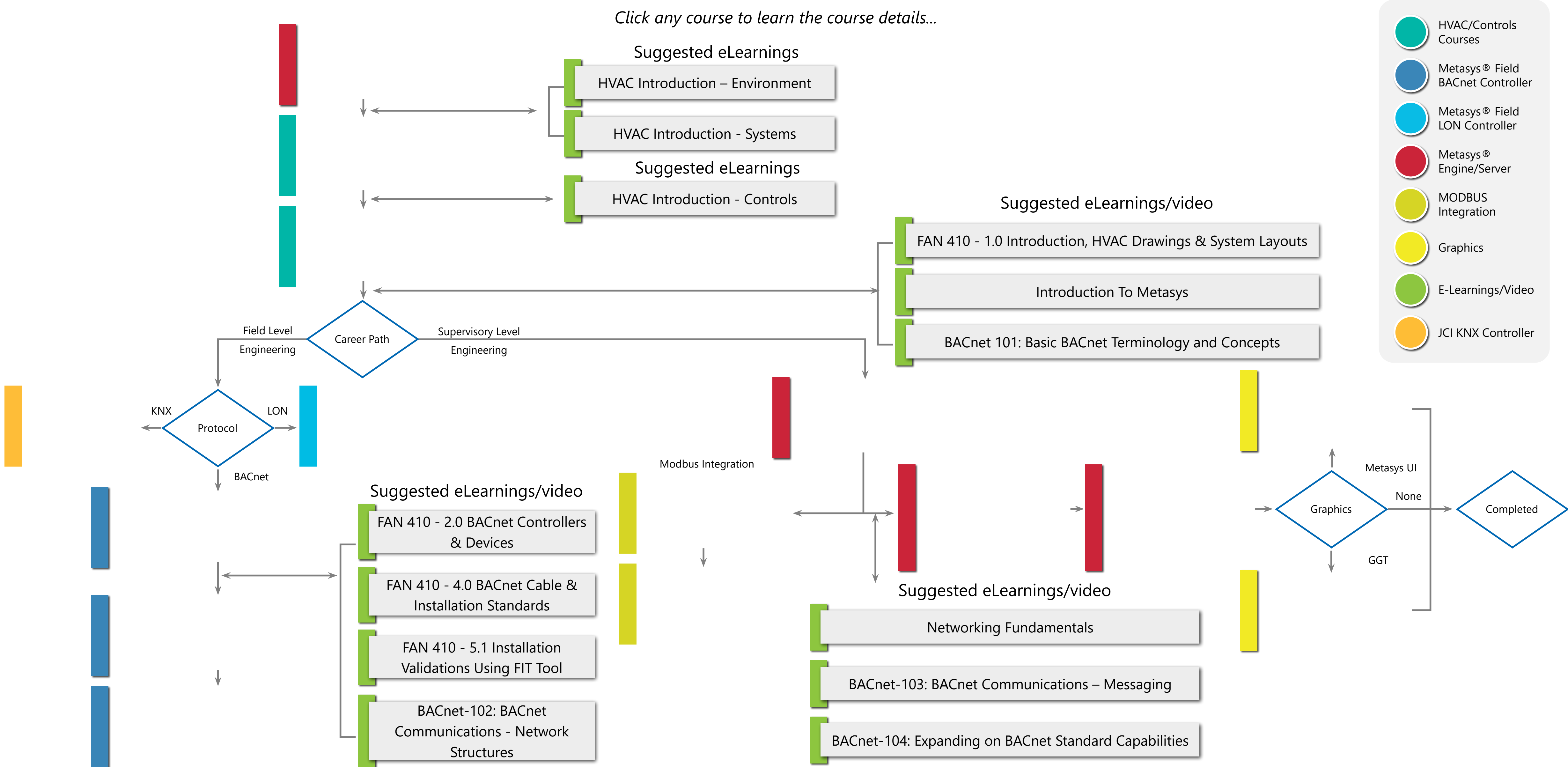


# Metasys Building End-User Operators/Engineers Learning Path

Click any course to learn the course details...



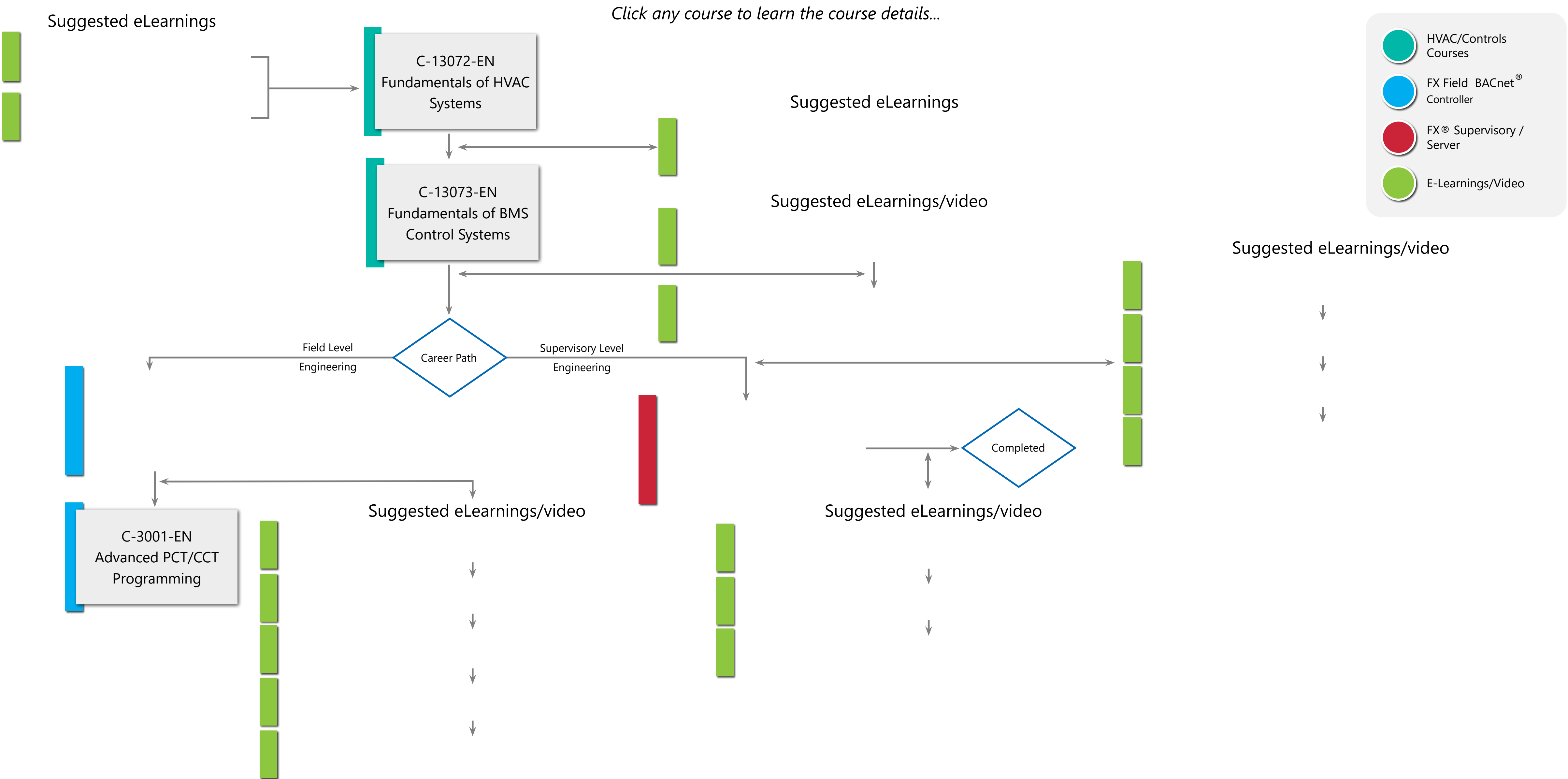
# Metasys ABCS Learning Path



- HVAC/Controls Courses
- Metasys® Field BACnet Controller
- Metasys® Field LON Controller
- Metasys® Engine/Server
- MODBUS Integration
- Graphics
- E-Learnings/Video
- JCI KNX Controller

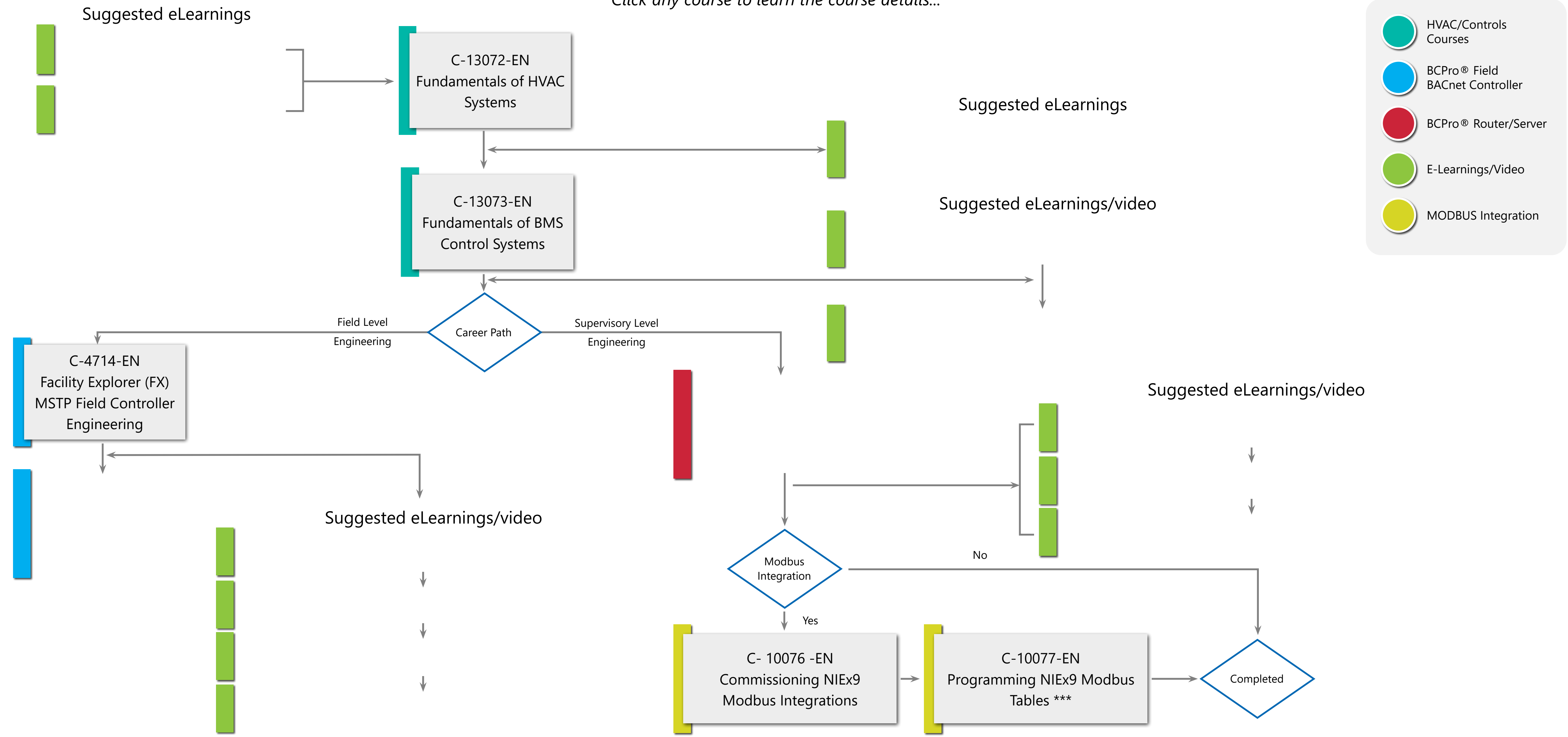


# Facility Explorer (FX) ABCS Learning Path



# BCPro ABCS Learning Path

Click any course to learn the course details...



# C-4714-EN Facility Explorer (FX) MSTP Field Controller Engineering

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 5 Days

**Category** Controls

**Map** [Facility Explorer \(FX\)](#)  
[BCPro ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Fundamental Student must have a strong knowledge of the JCI field controllers. A familiarization with BAS systems would also be beneficial.

## Course Description

Participants will receive an overview of the FX 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.

## Learning Objectives

Course Topics:

- » Introduction to the FX MSTP Field Controllers system
- » Creating applications using the standards tree
- » Establish Peer to Peer communications
- » Using Bluetooth to connect to controllers
- » Downloading and uploading controllers
- » Commissioning inputs and outputs
- » Commissioning state based strategies
- » Implementing Zigbee Wireless communications
- » Making custom changes to controllers
- » Programming blocks
- » Analyzing PID loops and Hybrid activities
- » Configuring Sequencers and Multistage Controllers
- » Troubleshooting network systems

# C-13072-EN Fundamentals of HVAC Systems

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 1 Day

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)  
[Facility Explorer \(FX\)](#)  
[BCPro ABCS Learning Path](#)

### **Audience -**

» Technicians/Engineers with minimal experience working on HVAC Systems

### **Pre-Requisites Course (s) -**

» Fundamental understanding of Microsoft® Windows™

## Course Description

This course is designed to provide technicians, engineers with basic knowledge of HVAC to have an overview of the refrigeration cycle and its components, understand P-H Diagrams and Psychometric charts, Air side components – AHUs, Ducts and Airflow , Water side components – Piping , pump curves and sizing.

## Learning Objectives

At the end of this module, you will be able to:

- » Define the major processes in a HVAC system
- » Illustrate a Refrigeration cycle on a P-H Chart
- » Use a Psychometric Chart to plot a cooling and dehumidifying process
- » Explain the different components used on the Air-Side of a system
- » Explain the different components used on the Water-Side of a system

# C-13073-EN Fundamentals of BMS Control Systems

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 2 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)  
[Facility Explorer \(FX\)](#)  
[BCPro ABCS Learning Path](#)

### **Audience -**

» Technicians/Engineers with minimal experience working on HVAC Control Systems

### **Pre-Requisites Course (s) -**

» Fundamental understanding of Microsoft® Windows™

## Course Description

This course is designed to provide technicians, engineers with basic knowledge of controls and HVAC to have an overview of the Building Management Systems that includes controls fundamentals, VAVs, CAVs and their control, Chiller Sequencing Strategies, Protocols and BMS Equipment selection. Preparing an I/O summary for a BMS.

## Learning Objectives

At the end of this module, you will be able to:

- » Define the basic concepts used in a control system
- » Identify the types of Variable air volume systems
- » Classify the various chiller sequencing strategies
- » Sketch an I/O summary
- » Explain BMS equipment selection

# C-3001-EN Advanced PCT/CCT Programming

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 3 Days

**Category** Controls

**Map** [Facility Explorer \(FX\)](#)  
[BCPro ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» FX MSTP Field Controller Engineering (#4714) and PCG/PCV/PCX  
controller programming experience

## Course Description

Students must have a strong knowledge of Johnson Controls field controllers (C-4714-EN) & A familiarization of building automation systems (BAS) would also be beneficial

## Learning Objectives

Course Topics:

- » Central Plant Application in PCT
- » Modules and Blocks in PCT
- » Activities as Containers
- » Hybrid Activities
- » PID and PID Pre-Processor
- » State Tables
- » Sequencer and Multi-stage Controller
- » PRAC+ and PMAC
- » Review of Custom Lab
- » Hands-on Labs
- » Final Review

# C-4721 EN Facility Explorer (FX) N4 Supervisory Controllers Engineering

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 5 Days

**Category** Controls

**Map** [Facility Explorer \(FX\)](#)

### Audience -

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

### Pre-Requisites Course (s) -

Students must have a strong knowledge of Johnson Controls field controllers (C-4714-EN) & A familiarization of building automation systems (BAS) would also be beneficial

## Course Description

Basic instruction on design, engineer and program projects using FXWorkbench Pro running on Niagara 4.

## Learning Objectives

### Course Topics:

- » Course Introduction and System Overview
- » Supervisory Controller User Interface Overview
- » FXWorkbench Pro Overview
- » Creating a Station
- » Adding N2 and BACNet® MSTP 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 Program Examination

# C-14001-EN BCPro UI Engineering & Graphics

## Course Information - [PLP Link](#)

<b>Course Type</b>	Classroom
<b>Duration</b>	2 Days
<b>Category</b>	Controls
<b>Map</b>	<a href="#">BCPro ABCS Learning Path</a>

### Audience -

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

### Pre-Requisites Course (s) -

Students must have a strong knowledge of Johnson Controls field controllers (C-4714-EN) & A familiarization of building automation systems (BAS) would also be beneficial

## Course Description

In this Two-day course, students will learn an overview of the BCPro UI Graphics tool with its features and terminology.

## Learning Objectives

Course Topics:

- » Exploring the BCPro UI
- » Planning for the UI for New site
- » Import Database and graphics creation
- » Custom graphics with BCPro UI.
- » Trend, Calendar & Alarming creation.
- » Interlock Programming



# C-14002-EN KNX Certification

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 5 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

## Course Description

KNX is the worldwide leader in hospitality sector, bringing thousands of users and professionals in a unique technological world ready for the future.

## Learning Objectives

### Course Topics:

- » KNX Project Design ETS Professional: Basic
- » KNX Project Design ETS Professional: Advanced (only for informative purposes)
- » KNX Commissioning ETS
- » KNX Diagnostics & Trouble Shooting ETS
- » KNX System arguments
- » KNX System overview
- » KNX TP Topology
- » KNX TP Telegram
- » KNX Bus devices
- » KNX TP Installation
- » KNX Powerline
- » KNX RF

### Certification Exam:

At the end of the KNX Basic course there is a theoretical and practical exam in order to test the course participant's basic KNX knowledge.

# C-10076-EN -Commissioning NIE9 Modbus Integrations

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 1 Day

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)  
[BCPro ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Modbus Protocol Overview for Technicians Prior to the Class  
» Download and obtain a temporary license for the VMD Generator Express.  
» Download and obtain a temporary license for Multi-application protocol explorer (optional, but recommended).

## Course Description

Learn how to commission a NIE9 Modbus integration using a VMD file previously created.

## Learning Objectives

Course Topics:

- » Introduction to NIE9 for Third Party Modbus Integration (Review of prework)
- » Modbus Communication (Review of prework)
- » Licensing
- » The Vendor Model Definition (VMD) File
- » Integrating the NIE9 (including Troubleshooting)
- » Mass Changes Tool
- » Objectives
- » Describe how the NIE9 is integrated into Metasys using Modbus communications
- » Integrate a NIE9 into Metasys using a VMD file.
- » Diagnose problems that can occur during an integration
- » Recognize how Mass Changes Tool can be used to organize data

# C-10077-EN Programming NIEx9 Modbus Tables \*\*\*

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 2 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)  
[BCPro ABCS Learning Path](#)

### **Audience -**

» Controls Technicians, Lead Systems Specialists, System Designer, System Engineers

### **Pre-Requisites Course (s) -**

Prior the Class

- » Download and obtain a temporary license for VMD Generator Express.
- » Download and obtain a temporary license for multi-application protocol explorer (optional, but recommended).

## Course Description

Learn how to use the VMD Generator Express (VGE) to create and modify Modbus tables needed for the NIEx9 integration platform.

## Learning Objectives

Course Topics:

- » Introduction to NIEx9 for Third Party Modbus Integration (Review of pre-work)
- » Modbus Communication (Review of pre-work)
- » Licensing
- » The Vendor Model Definition (VMD) File
- » Integrating the NIEx9 (including Troubleshooting)
- » Mass Changes Tool
- » About the Modbus device VMD file
- » Create NIEx9 Modbus VMD files
- » Certification Assignment
- » Objectives
- » Describe how the NIEx9 is integrated into Metasys using Modbus communications
- » Integrate a NIEx9 into Metasys using a VMD file.
- » Diagnose problems that can occur during an integration.
- » Recognize how Mass Changes Tool can be used to organize data.
- » Create a Modbus device VMD file that enables the connection between Modbus and Metasys.

# C-388-EN Metasys system extended architecture for Building Operators

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 3 Days

**Category** Controls

**Map** [Metasys Building End-User Operator](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Fundamental understanding of Microsoft® Windows™

## Course Description

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 facility management system. This course is for building personnel who have new installations of Metasys system extended architecture using NAEs or NIEs or for those who have migrated from their existing Metasys system.

## Learning Objectives

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
- » Tantalization
- » Graphics
- » Hands-on Labs
- » Final Review

# C-389-EN Metasys system extended architecture for Building Engineers

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 5 Days

**Category** Controls

**Map** [Metasys Building End-User Operators](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Fundamental understanding of Microsoft® Windows™

## Course Description

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

## Learning Objectives

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 Labs
  - » Final Review

# C-3021-EN Introduction to Metasys® User Interface

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 6 Hours

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)  
[Metasys Building End-User Operators](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Fundamental understanding of Microsoft® Windows™

## Course Description

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.

## Learning Objectives

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

# C-4703-EN Metasys FEC Operations/Troubleshooting

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 3 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Fundamentals of HVAC Systems (C-13072) & Fundamentals of HVAC Control Systems(C-13073) or equivalent experience.

## Course Description

Upon successful completion of this course, the participants will be able to commission BACnet MS/TP Field Equipment Controller (FEC) systems using the Controller Configuration Tool (CCT) through a wireless commissioning converter (BTCVT).

## Learning Objectives

In this two-day course, students will learn how to access and read existing strategies and how to download and test existing configurations on the Field Equipment Controllers (FECs). The course is designed for building personnel who want to gain a better understanding of HVAC Control Systems and Johnson Controls FEC devices.

Course Topics:

- » Overview of FEC Controllers
- » Controller Configuration Tool (CCT) Overview
- » Bluetooth Wireless Communications
- » Downloading and Uploading FEC Controllers
- » Control Strategies and State Control
- » Modifying Points in an FEC Controller
- » FEC and IOM Hardware
- » MS/TP Communications
- » Trunk Utilities
- » VMA Controller
- » Installation Practices
- » Simulation Mode in CCT
- » Hands-on Labs
- » Final Review

# C-4707-EN Metasys FEC Engineering & Programming

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 3 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Fundamentals of HVAC Systems (C-13072) & Fundamentals of HVAC Control Systems(C-13073) or equivalent experience.

## Course Description

Develop standard and modified HVAC system applications using Controller Configuration Tool (CCT). Modify and/or augment the software of CCT software for a small to mid-size projects to onsite changes.

## Learning Objectives

Students will learn how to program and test control strategies for theFieldEquipment Controllers (FECs) in this three-day course. The course is designed for experienced building personnel who want to expand their knowledge of HVAC Systems and Johnson Controls FEC devices.

Course Topics:

- » FEC Controller Overview
- » Controller Configuration Tool (CCT) Overview
- » Control Strategies
- » State Control Basics
- » Creating a New Application
- » Simulation Mode
- » Program Modification
- » Program Analysis
- » Data Flow
- » Side loops
- » Hands-on Labs
- » Final Review



# C-4704-EN Metasys FEC Custom Programming

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 3 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Metasys FEC Systems Engineering (#4707) and FEC controller programming experience.

## Course Description

This course provides participants with the skills to use CCT to make major modifications to standard systems to complete unusual HVAC system control sequences for BACnet MS/TP Field Equipment Controller (FEC) devices.

## Learning Objectives

Students will learn how to create and test customized control strategies for FEC controllers in this 4.5-day course. The course is designed for experienced building personnel who want to expand their knowledge of HVAC Control Systems and Johnson Controls FEC devices.

Course Topics:

- » Central Plant Application in CCT
- » Modules and Blocks in CCT
- » Activities as Containers
- » Hybrid Activities
- » PID and PID Pre-Processor
- » State Tables
- » Sequencer and Multi-stage Controller
- » PRAC+ and PMAC
- » Review of Custom Lab
- » Hands-on Labs
- » Final Review

# C-391-EN Metasys system extended architecture Engineering & Setup

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 5 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Metasys FEC Systems Engineering (#4707). A familiarization with BAS systems or knowledge of operating the Metasys system extended architecture would also be beneficial

## Course Description

Students will learn how to set up and manage the NAE database and to use the power of the System Configuration Tool to generate an NAE database from existing ASC controller programming.

## Learning Objectives

Course Topics:

- » Course Introduction
- » System Overview and Comparisons
- » NAE User Interface Overview
- » System Configuration Tool Overview
- » Adding BACnet Devices
- » Newest Feature Objects
- » Overview: Designing a New Archive Database
- » Hands-on Labs
- » Final Review

# C-397-EN Metasys system extended architecture Advanced Engineering

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 5 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

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

## Course Description

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.

## Learning Objectives

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 Labs
- » Final Review

# C-3002-EN Metasys Graphics Generation Tool

## Course Information - [PLP Link](#)

<b>Course Type</b>	Classroom
<b>Duration</b>	3 Days
<b>Category</b>	Controls
<b>Map</b>	<a href="#">Metasys ABCS Learning Path</a>

### Audience -

- » End Users and/or Authorized Building Controls Specialists/Contractors Only.

### Pre-Requisites Course (s) -

- » Metasys system extended architecture for Building Engineers (#389) OR Metasys system extended architecture Engineering and Setup (#391).

## Course Description

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 already familiar with Automation System graphics or other computerized graphic creation. In this three-day course, students will learn an overview of the Graphics + tool with its features and terminology.

## Learning Objectives

Course Topics:

- » 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.

# C-10895-EN Configuring the Archive Database & Metasys UI

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 2 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Metasys system extended architecture Engineering and Setup (#391).

## Course Description

This course focuses on the tasks related to configuring spaces and equipment for the Metasys UI, for a new Metasys site You will learn the importance of engaging the customer in defining how the site appears in the UI, how to configure the UI using the Rapid Archive Creation (RAC), and finally the tasks related to the customer turnover meeting related to the UI. You will complete.

## Learning Objectives

### Objectives

At the end of this lesson, you will be able to:

- » Introduce the customer to their newly created Metasys User Interface for New project
- » Use SCT to generate the database with the Metasys UI configure Spaces and Equipment
- » Describe the importance of working with the customer to define the spaces tree
- » Describe how configuration decisions impact the data visible in the UI

### Course Topics:

- » Exploring the Metasys UI
- » Planning for the Metasys UI for New site
- » Rapid Archive
- » Customer Turnover of the Metasys UI.

# C-3022-EN Metasys® User Interface Graphics Editor

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 6 Hours

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)

### **Audience -**

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

### **Pre-Requisites Course (s) -**

» Metasys system extended architecture Engineering and Setup (#391) & Configuring the Archive Database & Metasys UI (C-10895-EN)

## Course Description

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.

## Learning Objectives

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

# C-7010-EN LN-Series LONWORKS Controllers Programming And Troubleshooting

## Course Information - [PLP Link](#)

**Course Type** Classroom

**Duration** 5 Days

**Category** Controls

**Map** [Metasys ABCS Learning Path](#)

### Audience -

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

### Pre-Requisites Course (s) -

» Metasys system extended architecture Engineering and Setup (#391) & Student must bring their laptop to class with a licensed version of LN Builder installed, and a LON Talk Adapter such as the 75010 USB interface

## Course Description

This course provides an opportunity for hands-on practice using the Metasys system LN controllers to configure typical applications for each controller type, using the LN-Builder database management tool. The course also provides an opportunity to map LonWorks points into the Metasys extended architecture system.

## Learning Objectives

### Objectives:

After completing this course, the learner will be able to:

- » Select appropriate Metasys system LN LonWorks device
- » Configure Metasys system LN Application Specific Controllers
- » Apply a simple strategy using a Metasys system LN Programmable Controller
- » Configure the NAE for LON

### Course Topics:

- » Introduction to the Metasys system LN series of LonWorks controllers
- » Obtaining & installing software plug-ins

- » Obtaining other Johnson Controls support material.
- » Johnson Controls Metasys system LN Application Specific product
- » Controller selection,
- » Configuration peculiarities
- » Johnson Controls Metasys system LN Programmable products
- » Introduce the Graphical Programming Language
- » Configuring the NAE for LON,
- » Employ standard snippets and master library objects
- » Build and save custom Snippets