



Content  
Community  
Connection

United States  
The Electricity Forum Inc.  
742 Pre Emption Road  
Geneva, NY 14456  
Tel 289-387-1025

Canada  
The Electricity Forum  
1885 Clements Rd, Unit 218  
Pickering, ON L1W3V4  
Tel 905-686-1040  
Fax 905-686-1078  
Toll Free 855-824-6131

---

# Building Automation Training

Course details: <https://electricityforum.com/electrical-training/building-automation-training>

## COURSE DATES AND TIMES

Building Automation Training - This 12-hour live online instructor-led course teaches how systems operate to save energy and communicate to use the IOT (internet of things) and data to achieve considerable additional savings from proper BAS system integrated design, installation, commissioning, monitoring and maintenance.

Much of today's infrastructure, such as hospitals, data centers, industrial facilities and commercial and multi-residential buildings, have antiquated building automation systems that don't save as much money in energy and operations as possible and don't communicate with each other to get the benefits of real-time monitoring and information exchange. Our course teaches how to control energy consumption according to building automation industry standards.

Intelligent building automation systems have improved capabilities to manage energy use and provide better comfort and controlled lighting, security, and emergency response capabilities. IBAS can be used for many applications, including energy management, demand response capabilities, renewable energy and energy storage integration, security, and fire and safety applications. This course aims to learn the rapid technology advances in intelligent building automation systems and how they may be applied to suit various custom applications that can improve comfort, productivity, and education and contribute to economic and environmental objectives.

### **The focus of this course is on the following:**

- Building Automation Architecture
- Economics of BAS
- BAS Integration
- Emerging Technologies
- Hardware Innovations
- Software Innovations

### **What you will learn:**

This course will cover many practical examples and be interactive for students to gain a broad understanding of intelligent building automation systems.

Identify and describe the major components in the BAS for HVAC, Lighting, Security, Fire and Safety

Identify and describe the basic mechanical components in an HVAC automated control system

- Describe and explain the basic functions of all BAS systems
- Reference codes and standards applicable to BAS
- Describe and explain HMI basics and remote access
- Describe networking as used in BAS systems
- Explain the process of implementing BAS
- Explain Energy Conservation Strategies
- Justify control components for data collection and AI applications
- Describe the relationship to building rating systems and where to look for additional references

**After completion of this course, the participant will have a better understanding of the following:**

- **Building Automation Overview:** History of Building Automation | Building Types and Key Requirements | Current and Future Trends | Delivery of BAS
- **BAS Applications:** Building HVAC Basics | Space Condition Controls | Air Handler Controls | Central Utilities | Non-ATC Systems | Energy Conservation Control Strategies| BAS Fire/Safety Systems| Security Systems | BAS Surveillance Systems
- **BAS System Solutions:** Hardware and software | DDC Controllers | Field Devices| HVAC Controls | Lighting Controls | Human Machine Interface (HMI) | Fault Detection | Digital Twin
- **BAS System Delivery:** Design and Specification | Project Engineering | Application Development | Implementation | Maintenance
- **BAS System Interoperability: ASHRAE Guideline** | Internet of Things | Division 25
- The Biggest Mistakes that companies make....and how to avoid them.
- How to save and make money with Intelligent Building Automation.

## WHO SHOULD ATTEND

This Intelligent Building Automation course is designed for anyone involved with designing and providing energy management and other building automation systems or working in any facility where there is a building automation system. Students are invited to attend from a wide variety of industries, skill-levels, company sizes, and backgrounds. If you're not sure you'll fit in, or will benefit from this class, don't worry - you will - as long as you have an interest in intelligent building automations systems and the smart applications they provide.

Students who will benefit from this course include:

- Industrial, Commercial, Institutional Electrical Engineers
- Maintenance Managers
- Consulting Engineers
- Facility Managers
- Building system operators

- Building owners
- Electrical Engineers
- Electricians
- Mechanics
- Plant & Facility Maintenance Technicians
- Building Engineers
- Building Managers & Superintendents
- Plant & Facility Managers
- Multi-Craft & Cross Training Personnel
- Any Person Needing A Basic Course In Intelligent Building Automation Systems

## **STUDENTS RECEIVE**

- 100-Page Electrical Maintenance Handbook - Value \$20 (details below)
- 1.2 Continuing Education Unit (CEU) Credits (12 Professional Development Hours)
- A **FREE** Magazine Subscription (Value \$50)
- **\$100** Coupon toward any future Electricity Forum event (restrictions apply)
- Course Materials in PDF Format

## **COURSE OUTLINE**

### **Building Automation Systems Training Course Outline**

#### **DAY ONE**

#### **BUILDING AUTOMATION OVERVIEW**

- History of Building Automation
- Building Types and key Requirements
- Current and Future Trends – Wired & Wireless – FDD -AI – IoT- Digital Twin
- Delivery of BAS – Designers, System Integrators and Contractors

#### **TYPES OF BUILDING AUTOMATION AND CONTROL SYSTEMS**

- Building Automation Systems (BAS)
- Building control System (BcS)

- Building management System (BmS)
- Direct Digital Control (DDC)
- Energy management and control Systems (EmcS)

## **BAS APPLICATIONS**

- Building HVAC Basics [cityforum.com/electrical-training/building-automation-training](http://cityforum.com/electrical-training/building-automation-training)
- Air Handler controls
- Security and Door Access Systems
- BAS Surveillance systems
- BAS Fire and Safety Systems

## **BAS SYSTEM SOLUTIONS**

- DDC controllers and sensors
- Space condition controls
- Boiler and Chiller Plants
- Air Handler controls
- Lighting controls
- Human machine Interface (HMI)

## **BAS COMMUNICATION PROTOCOLS**

- BACnet, BACnet/IP, BACnet MS/TP
- EnOcean
- LONWORKS
- Modbus
- OPC
- Zigbee
- LoRA
- Bluetooth
- Zwave

## **BUILDING RAINING**

### **COMPLIMENTARY BUILDING INITIATIVES**

- BOMA BEST
- Energy Star
- LEED Accreditation
- Green Globes
- WELL, Fitwel
- Net Zero Carbon
- Associations – CABA, ISA, BOMA, IFMA, CaGBC

### **BENEFITS OF BUILDING AUTOMATION SYSTEMS**

- Energy Savings
- Environmental Impact Reduction
- Improved Security
- DVR and CCTV Systems interaction
- Interaction with Life Safety Systems and Fire Protection
- Building maintenance using BAS / BmS with CMMS
- Operator convenience
- Power monitoring
- Security
- Closed circuit video (CCTV)
- Card and keypad access
- Elevator/escalator control
- Plumbing and water/wastewater management

## **DAY TWO**

## **BAS SYSTEM DELIVERY PROCESS -New and Upgrade**

- Design and Specification
- Project Engineering
- Application Development of custom functions
- Implementation of a specific applications
- Maintaining a BAS System

### **DAY TWO**

#### **BAS INTEGRATION**

- Space condition controls
- Air Handler controls
- Air Handling Units (AHUs)
- Roof-top Units (RTUs)
- Fan coil Units (FCUs)
- Heat Pump Units (HPUs)
- Variable Air Volume boxes (VAVs)

#### **BAS STRATEGIES FOR ENERGY REDUCTION**

- Chillers control
- Boilers control and Backup
- Lighting control
- Typical Process close Loop control
- Demand Control Ventilation
- Central Utilities
- Energy conservation
- Water conservation
- Water leak Detection

#### **BAS SYSTEM SOLUTIONS**

- DDC Basics-Direct Digital control

- Local control and Field devices
- Human machine Interface (HMI) Applications
- IoT and Digital Twin -FDD -AI - ML

### **BAS SYSTEM INFORMATION INTERACTIONS**

- Occupancy and Security System to BAS
- DVR and CCTV Systems interaction
- First Responders Digital Information
- Interaction with Life Safety Systems and Fire Protection

### **BAS ECONOMICS:**

- Design and Life cycle costing reports for Intelligent Buildings
- Monetization of Intelligent Building
- Utility and government incentive programs

### **BUILDING MAINTENANCE USING BAS/BmS**

- CMMS interface with BAS
- Project Haystack naming convention
- Real time monitoring benefits

### **BAS CASE STUDIES:**

- High Performance Buildings
- Smart Buildings

### **Questions and Answers**

### **COURSE TIMETABLE**

**Both days:**

Start: 10:00 a.m. Eastern Time  
Finish: 4:30 p.m. Eastern Time

Contact us Today for a FREE quotation to deliver this course at your company's location.

<https://electricityforum.com/onsite-requestforquote>