

Mississauga, ON - February 24-25 2020

Richmond, BC - February 27-28, 2020

# Building Automation Systems Training

ON-SITE TRAINING  
AVAILABLE  
**FREE**  
QUOTATION  
Details pg 4



## BONUS FEATURES

- **\$100 Coupon**  
Toward any Future  
2020 Electricity  
Forum Course
- 1.4 Continuing  
Education Unit  
(CEU) Credits

2-DAY COURSE

**\$899**

RECOGNIZED BY



EARN CONTINUING  
EDUCATION UNITS (CEUS)

## THE NEW COURSE COMPLIMENTS CANADIAN GREEN AND ENERGY PROGRAMS, STANDARDS AND CODES.

This 2-day building automation systems training course teaches how systems operate to save energy and communicate to use the iot (internet of things) and data to achieve the many additional savings from proper 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 is possible and don't communicate with each other to get the benefits of real time monitoring and information exchange.

Intelligent building automation systems have improved capabilities to manage energy use, provide better comfort and controlled lighting as well as security and emergency response capabilities. IBAS can be used for many different applications some of which include energy management, demand response capabilities, renewable energy and energy storage integration, security, fire and safety applications. The purpose of this course is to learn the rapid technology advances in intelligent building automation systems and how they may be applied to suit various types of custom applications that can improve comfort, productivity, education and contribute to economic and environmental objectives.

The focus of this course is on:

- 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 will be interactive for students to gain a broad overall understanding of intelligent building automation systems.

- Identify and describe the major components in a BAS: ATC, Lighting, Security, Fire and Safety, Surveillance
- Identify and describe the basic mechanical components and controls in an HVAC control system
- Describe and explain the basic functions of DDC systems
- Reference codes and standards applicable to BAS
- Describe and explain HMI basics
- Describe networking as used in BAS systems
- Explain the process of implementing BAS
- Explain Energy Conservation Strategies
- Justify control components for project work
- Know where to look for additional references

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

- 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: DDC Controllers| Field Devices| Space Condition Controls | Air Handler Controls | Human Machine Interface (HMI)
- BAS System Delivery: Design and Specification | Project Engineering | Application Development | Implementation | Maintenance
- BAS System Interoperability: ASHRAE Guideline | Internet of Things |
- 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

## AGENDA - 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 [Basicselectricityforum.com/electrical-training/building-automation-training](http://www.electricityforum.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

## AGENDA - DAY TWO

- Power monitoring
- Security
- Closed circuit video (CCTV)
- Card and keypad access
- Elevator/escalator control
- Plumbing and water/wastewater management

### 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

### 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

**(855) 824-6131****(905) 686-1078****ON-LINE:**

www.electricityforum.com/electrical-training/building-automation-training

**MAIL:**The Electricity Forum  
1885 Clements Rd., Unit 218  
Pickering, ON L1W 3V4

## ATTENDEE INFORMATION

To receive registration fee discounts, you must REGISTER AND PREPAY prior to the course date.

NAME \_\_\_\_\_

TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

PROVINCE \_\_\_\_\_

POSTAL CODE \_\_\_\_\_

E-MAIL \_\_\_\_\_

TEL ( ) \_\_\_\_\_

FAX ( ) \_\_\_\_\_

## METHOD OF PAYMENT

 Bill My Credit Card AMEX  VISA  MasterCard

Card # \_\_\_\_\_

Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Card Holders Name \_\_\_\_\_

**FREE****Register 3 Delegates at Full Price  
and get the 4<sup>th</sup> Registration FREE!**

### REGISTRATION FEES

The registration fee to attend the two-day Intelligent Building Automation Training course is \$899.00 + tax. The registration fee includes: all course materials, a free magazine subscription to Intelligent Power Today Industrial Power Systems magazine, our latest Electrical Technology Handbook, a \$100 coupon towards any future

Electricity Forum event (restrictions apply), refreshments. Lunch not included.

## WHEN & WHERE

(Please check the date/location where you want to attend the course)

### 2-DAY BUILDING AUTOMATION SYSTEMS TRAINING

 Mississauga, ON - February 24-25, 2020  
Hampton Inn and Suites Toronto Airport Hotel  
3279 Caroga Drive, Mississauga, ON  
Tel: 905-671-4730 Richmond, BC - February 27-28, 2020  
Sandman Signature Vancouver Airport  
10251 ST. Edwards Drive  
Tel: 604-278-9611**SAVE \$100**

REGISTER AND PREPAY 14 Days prior to course date and receive an early bird discount of \$50 off the full price.

## INTERESTED IN ON-SITE BUILDING AUTOMATION TRAINING?

Cost Effective On-Site Building Automation Training

Save the cost of travel and hotels AND save on our regular public enrollment registration fees. For more information, contact Randy Hurst, President, The Electricity Forum. You can write to [randy@electricityforum.com](mailto:randy@electricityforum.com) or you can go to our on-site Building Automation training quotation page and ask for a FREE quotation: [www.electricityforum.com/onsite-requestforquote](http://www.electricityforum.com/onsite-requestforquote)