

Intelligent Building Automation Systems

ON-SITE TRAINING
AVAILABLE
FREE
QUOTATION
Details pg 4



BONUS FEATURES

- 30 Industrial Electrical Handbooks - Value \$99
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- Forum Course
- 1.4 Continuing Education Unit (CEU) Credits
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- Forum

- Presentations in Paper Format
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2-DAY COURSE

\$799

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EARN CONTINUING EDUCATION UNITS (CEUS)

THIS NEW COURSE COMPLIES WITH CANADIAN GREEN BUILDING STANDARDS AND CODES!!

This 2-day introduction to Intelligent Building Automation Systems (BAS) and Internet of Things (IoT) training course is designed to assist organizations to identify the many savings to be gained from proper system integrated design, installation, testing and real time 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 Auto-

mation | 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 and wireless – FDD -AI - IoT
- Delivery of BAS – Designers, System Integrators and Contractors

TYPES OF BUILDING AUTOMATION AND CONTROL SYSTEMS

- Building Automation and 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
- 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

GREEN ENERGY SAVING BUILDING STANDARDS

- BOMA BEST
- Energy Star
- AEE, AESP, CIET
- CABA
- LEED Accreditation
- Green Globes
- WELL, Fitwell
- Carbon Reduction Programs

BENEFITS OF BUILDING AUTOMATION SYSTEMS

- Energy Savings
- Environmental Impact
- Improved Security
- DVR and CCTV Systems interaction
- Interaction with Life Safety Systems and Fire Protection
- Building Maintenance using BAS / BMS
- Operator Convenience
- Power monitoring
- Security

- Close circuit video (CCTV)
- Card and keypad access
- Elevator/escalator control
- Plumbing and water/waste water management

BLOCK DIAGRAM OF A BAS/BMS

- BAS System Delivery
- Design and Specification
- Project Engineering
- Application Development of custom made application
- Implementation of a specific application
- Maintaining a BAS System

AGENDA - 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 (HPU)
- Variable Air Volume boxes (VAVs)

BAS STRATEGIES FOR ENERGY CONSUMPTION

- Chillers Control
- Boilers Control and Backup
- Lighting control
- Typical Process Close Loop Control
- Lighting control
- Central Utilities
- Energy Conservation
- Water Conservation
- Water leak Detection

BAS SYSTEM SOLUTIONS

- DDC Basics-Direct Digital Control
- Local Control and Field devices
- The Human Machine Interface (HMI) Applications:
 - ASHRAE Defined
 - Basic HMI
 - Wired and Wireless Communication
- Modbus
- Profibus
- Control Net
- LonTalk
- Industrial Ethernet
- Open Architecture Networks

BAS SYSTEM INTERACTION

- DVR and CCTV Systems interaction
- Interaction with Life Safety Systems and Fire Protection

BAS ECONOMICS:

- Life cycle costing for Intelligent Buildings
- CABA 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:

**(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 4th Registration FREE!**

REGISTRATION FEES

The registration fee to attend the two-day Intelligent Building Automation Training course is \$799.00 + 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 2019

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 25-26, 2019
Hampton Inn and Suites Toronto Airport Hotel
3279 Caroga Drive, Mississauga, ON
Tel: 905-671-4730 Richmond, BC - February 28-March 1, 2019
Sandman Signature Vancouver Airport
10251 ST. Edwards Drive
Tel: 604-278-9611**SAVE \$50**

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

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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 or you can go to our on-site Building Automation training quotation page and ask for a FREE quotation: www.electricityforum.com/onsite-requestforquote