



Content
Community
Connection

United States
One Franklin Square, Suite 302
Geneva, NY 14456
Tel: 315-7889-8323
Fax: 315-789-8940

Canada
1885 Clements Rd, Unit 218
Pickering, ON L1Z 1X5
905-686-1040
Tel: Fax 905-686-1078
Toll Free: 1-855-824-6131

Intelligent Building Automation Systems

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

<https://www.electricityforum.com/onsite-training-rfq>

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

STUDENTS RECEIVE

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

COURSE OUTLINE

Building Automation Training Course Outline

Instructor: David Katz,

Sustainable Resources Management Inc.- Sustainable Environmental Solutions Inc.

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
- Security and Door Access 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
- DVR and CCTV Systems interaction
- Interaction with Life Safety Systems and Fire Protection
- Building Maintenance using BAS / BMS
- Power monitoring
- Security
- Card and keypad access
- Elevator/escalator control
- Plumbing and water/waste water management

DAY TWO

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

BAS INTEGRATION

- Space Condition Controls
- Air Handler Controls
- Roof-top Units (RTUs)
- Fan Coil Units (FCUs)
- Heat Pump Units (HPUs)
- Variable Air Volume boxes (VAVs)

BAS STRATEGIES FOR ENERGY CONSUMPTION

- Chillers Control
- Boilers Control and Backup
- Lighting control
- 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
- Wired and Wireless Communication
- 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

Questions and Answers

COURSE TIMETABLE

Both days:

Start: 8:00 a.m.

Coffee Break: 10:00 a.m.

Lunch: 12:00 noon

Restart: 1:15 p.m.

Finish: 4:30 p.m.

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

<https://www.electricityforum.com/onsite-training-rfq>