Training course on Building Automation Systems (BAS) Management

Professional Development Training Course Outline

Category	Real Estate Institute	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Building Automation Systems (BAS) Management is an advanced and indispensable discipline for optimizing the operational efficiency, energy performance, and occupant comfort of modern buildings. BAS are the central nervous system of smart properties, integrating control over HVAC, lighting, security, and other critical building services. Effective BAS management goes beyond mere technical operation; it demands a strategic understanding of how to leverage these systems to reduce energy consumption, minimize operational costs, enhance indoor environmental quality, and improve overall asset value. For facilities managers, property managers, building engineers, and asset managers, a profound command of BAS management is paramount for transforming buildings into intelligent, high-performing assets, ensuring regulatory compliance, and driving sustainable operations. Failure to competently manage BAS can lead to inefficient energy use, occupant discomfort, increased maintenance costs, and a missed opportunity to truly optimize building performance. Training Course on Building Automation Systems (BAS) Management is meticulously designed to equip with the advanced theoretical insights and intensive practical tools necessary to excel in Building Automation Systems (BAS) Management. We will delve into sophisticated methodologies for understanding BAS architecture and operational principles, master the intricacies of optimizing BAS for maximum energy efficiency and occupant comfort, and explore cutting-edge approaches to data analytics, fault detection, cybersecurity, and seamless integration with emerging PropTech solutions. A significant focus will be placed on understanding the nuances of various BAS platforms, strategic maintenance planning, and navigating complex procurement and commissioning processes. By integrating industry best practices, analyzing real-world complex building system case studies, and engaging in hands-on BAS simulation exercises, data interpretation, and optimization scenario planning, attendees will develop the strategic acumen to confidently lead and enhance the performance of intelligent buildings, fostering unparalleled operational excellence, energy savings, and asset value creation, and securing their position as indispensable assets in the forefront of smart building management.

Programme Curriculum

Training Course on Building Automation Systems (BAS) Management

Introduction

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Training Course on Building Automation Systems (BAS) Management is meticulously designed to equip aspiring and current facilities managers, property managers, building engineers, energy managers, and real estate operations professionals with the advanced theoretical insights and intensive practical tools necessary to excel in **Building Automation Systems (BAS) Management**. We will delve into sophisticated methodologies for **understanding BAS architecture and operational principles**, master the intricacies of **optimizing BAS for maximum energy efficiency and occupant comfort**, and explore cutting-edge approaches to **data analytics, fault detection, cybersecurity, and seamless integration with emerging PropTech solutions**. A significant focus will be placed on understanding the nuances of various BAS platforms, strategic maintenance planning, and navigating complex procurement and commissioning processes. By integrating industry best practices, analyzing real-world complex building system case studies, and engaging in hands-on BAS simulation exercises, data interpretation, and optimization scenario planning, attendees will develop the strategic acumen to confidently lead and enhance the performance of intelligent buildings, fostering unparalleled **operational excellence, energy savings, and asset value creation**, and securing their position as indispensable assets in the forefront of **smart building management**.

Course Objectives

Upon completion of this course, participants will be able to:

1. Analyze the fundamental principles and strategic importance of **Building Automation Systems (BAS)** in modern real estate.
2. Identify and understand the **architecture, components, and communication protocols** of various BAS.
3. Master the operational control, programming basics, and **optimization techniques for BAS**.
4. Implement advanced strategies for **energy management and efficiency** through BAS configuration and analytics.
5. Develop expertise in **fault detection and diagnostics (FDD)** to proactively identify and resolve building system issues.
6. Comprehend and mitigate **cybersecurity risks specific to BAS and operational technology (OT)**.
7. Integrate BAS with other critical **building systems and emerging PropTech solutions (IoT, IWMS)**.
8. Formulate comprehensive **maintenance strategies, lifecycle management, and upgrade plans** for BAS.
9. Apply techniques for **BAS data analytics, performance monitoring, and reporting** to stakeholders.
10. Navigate the entire process of **BAS procurement, design, installation, and commissioning**.
11. Understand **regulatory compliance and industry standards** relevant to BAS operations.

12. Explore **future trends in building automation, AI, machine learning, and digital twins**.
13. Design a holistic **BAS management strategy** to enhance building performance and occupant well-being.

Target Audience

This course is designed for professionals responsible for the operation and optimization of large buildings:

1. **Facilities Managers:** Seeking to leverage BAS for operational efficiency and cost savings.
2. **Building Engineers:** Desiring to deepen their understanding of BAS programming and advanced controls.
3. **Energy Managers:** Focused on maximizing energy efficiency through BAS optimization.
4. **Property Managers:** Aiming to understand how BAS impacts tenant comfort and asset value.
5. **Asset Managers:** Evaluating the long-term strategic value of BAS investments.
6. **Real Estate IT & Security Professionals:** Managing the intersection of IT and OT in buildings.
7. **Building Owners/Operators:** Seeking to enhance building performance and reduce operational risk.
8. **BAS Integrators/Technicians:** Looking to advance their knowledge in strategic BAS management.

Course Duration: 10 Days

Course Modules

Module 1: Introduction to Building Automation Systems (BAS)

- Defining Building Automation Systems (BAS) and their evolution in smart buildings.
- The strategic role of BAS in enhancing building performance, energy efficiency, and occupant experience.
- Overview of key BAS functions: HVAC control, lighting, access control, fire safety integration.
- Understanding the concept of "intelligent buildings" and BAS as their central nervous system.
- The benefits of effective BAS management for operational cost reduction and asset value.

Module 2: BAS Architecture and Communication Protocols

- Components of a typical BAS architecture: controllers, sensors, actuators, user interfaces.
- Understanding BAS networking topologies (e.g., peer-to-peer, master-slave).
- Key communication protocols: BACnet, LonWorks, Modbus, IP.
- Data points, control logic, and programming fundamentals within BAS.
- The role of open protocols vs. proprietary systems in BAS interoperability.

Module 3: BAS Operational Control and Optimization

- Strategies for programming BAS to achieve optimal setpoints and schedules.
- Implementing advanced control strategies: optimal start/stop, demand control ventilation (DCV).
- Zone control optimization for enhanced occupant comfort and energy savings.
- Managing alarms, alerts, and system notifications effectively.
- Best practices for BAS user interface navigation and operational reporting.

Module 4: Energy Management and Efficiency through BAS

- Leveraging BAS for comprehensive energy monitoring, tracking, and reporting.
- Implementing energy efficiency strategies: unoccupied mode, temperature setbacks, load shedding.
- Identifying energy waste through BAS data analysis and benchmarking.
- Integrating renewable energy sources and grid interaction through BAS.

- Developing and managing energy conservation measures (ECMs) using BAS.

Module 5: Advanced HVAC System Integration and Control

- In-depth control strategies for various HVAC systems: chillers, boilers, air handling units (AHUs), variable air volume (VAVs).
- Optimizing central plant operations for maximum efficiency.
- Managing indoor air quality (IAQ) through BAS controls and sensors.
- Integrating humidity control, CO2 monitoring, and filtration systems.
- Troubleshooting common HVAC performance issues via BAS diagnostics.

Module 6: BAS Data Analytics and Performance Monitoring

- Collecting, storing, and visualizing BAS operational data for insights.
- Utilizing BAS historical data for trend analysis and anomaly detection.
- Developing custom dashboards and reports for key performance indicators (KPIs).
- Benchmarking building performance against industry standards and peer groups.
- The role of data analytics in identifying energy savings opportunities and maintenance needs.

Module 7: Fault Detection and Diagnostics (FDD) for BAS

- Introduction to Fault Detection and Diagnostics (FDD) principles and methodologies.
- Implementing FDD rules and algorithms within BAS or external platforms.
- Identifying common equipment faults: sticky dampers, failed sensors, faulty valves.
- Prioritizing and dispatching maintenance based on FDD alerts.
- Measuring the ROI of FDD in reducing maintenance costs and improving efficiency.

Module 8: BAS Cybersecurity and Network Resilience

- Understanding the unique cybersecurity vulnerabilities of Operational Technology (OT) systems like BAS.
- Common cyber threats targeting BAS: ransomware, denial-of-service, unauthorized access.
- Implementing network segmentation, firewalls, and secure remote access for BAS.
- Patch management, firmware updates, and vulnerability assessments for BAS components.
- Developing incident response plans specific to BAS cyber incidents.

Module 9: Integration of BAS with Other Building Technologies

- Integrating BAS with lighting control systems for advanced occupancy-based control.
- Connecting BAS with access control and security systems for enhanced safety.
- The role of BAS in broader smart building ecosystems and PropTech integration.
- Interoperability with Integrated Workplace Management Systems (IWMS) and Computerized Maintenance Management Systems (CMMS).
- Data exchange and API considerations for seamless system communication.

Module 10: BAS Maintenance, Lifecycle Management, and Upgrades

- Developing a comprehensive maintenance program for BAS hardware and software.
- Understanding the lifecycle of BAS components and planning for replacements/upgrades.
- Strategies for managing BAS vendor relationships and service contracts.
- Evaluating the business case for BAS modernizations and platform migrations.
- Ensuring documentation, as-built drawings, and operational manuals are current.

Module 11: BAS Procurement, Commissioning, and Project Management

- Best practices for BAS system specification and vendor selection.
- Understanding the design, installation, and programming phases of a BAS project.
- The critical role of commissioning in verifying BAS performance and functionality.
- Project management methodologies for BAS implementation: scope, schedule, budget.
- Post-occupancy evaluation and continuous optimization after BAS deployment.

Module 12: Future Trends in Building Automation and Smart Buildings

- The convergence of BAS with Artificial Intelligence (AI) and Machine Learning (ML) for predictive control.
- Digital Twin technology: creating virtual models of buildings for enhanced BAS management.
- The impact of 5G and edge computing on BAS data processing and connectivity.
- Human-centric building design and the role of BAS in occupant well-being.
- Futureproofing BAS for evolving regulatory landscapes and decarbonization goals.

Training Methodology

- **Interactive Workshops:** Facilitated discussions, group exercises, and problem-solving activities.
- **Case Studies:** Real-world examples to illustrate successful community-based surveillance practices.
- **Role-Playing and Simulations:** Practice engaging communities in surveillance activities.
- **Expert Presentations:** Insights from experienced public health professionals and community leaders.
- **Group Projects:** Collaborative development of community surveillance plans.
- **Action Planning:** Development of personalized action plans for implementing community-based surveillance.
- **Digital Tools and Resources:** Utilization of online platforms for collaboration and learning.
- **Peer-to-Peer Learning:** Sharing experiences and insights on community engagement.
- **Post-Training Support:** Access to online forums, mentorship, and continued learning resources.

Register as a group from 3 participants for a Discount

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Certification

Upon successful completion of this training, participants will be issued with a globally recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

- Participants must be conversant in English.
- Upon completion of training, participants will receive an Authorized Training Certificate.
- The course duration is flexible and can be modified to fit any number of days.
- Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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