Training course on Energy Efficiency and Smart Building 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

Energy Efficiency and Smart Building Management is a critical, evolving discipline focused on dramatically reducing energy consumption and optimizing the operational performance of buildings through intelligent technology integration. In an era of escalating energy costs, stringent environmental regulations, and a global imperative for sustainability, buildings represent a significant opportunity for energy savings and carbon footprint reduction. Smart building management leverages cutting-edge technologies like IoT, AI, and sophisticated Building Automation Systems (BAS) to monitor, analyze, and control energy use in real-time, moving beyond traditional methods to create truly high-performing, sustainable, and occupant-centric environments. For property managers, facilities managers, energy managers, and asset owners, a profound command of these strategies is paramount for achieving significant operational savings, enhancing asset value, meeting ESG goals, and ensuring long-term competitiveness. Failure to embrace smart and energy-efficient management can lead to inflated operating expenses, regulatory non-compliance, diminished asset appeal, and missed opportunities for value creation. Training Course on Energy Efficiency and Smart Building Management is meticulously designed to equip with the advanced theoretical insights and intensive practical tools necessary to excel in Energy Efficiency and Smart Building Management. We will delve into sophisticated methodologies for conducting detailed energy audits and identifying optimization opportunities, master the intricacies of implementing intelligent control strategies through Building Automation Systems (BAS) and IoT devices, and explore cutting-edge approaches to leveraging data analytics, artificial intelligence, and digital twins for predictive energy management and enhanced occupant experience. A significant focus will be placed on understanding the financial implications of energy efficiency upgrades, navigating green building certifications, and developing robust measurement and verification protocols. By integrating industry best practices, analyzing real-world complex smart building case studies, and engaging in hands-on energy modeling, BAS optimization exercises, and technology implementation scenarios, attendees will develop the strategic acumen to confidently lead and optimize sustainable and intelligent building operations, fostering unparalleled cost savings, environmental stewardship, and enhanced asset value, and securing their position as indispensable assets in the forefront of high-performance building management.

Programme Curriculum

Training Course on Energy Efficiency and Smart Building Management

Introduction

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Training Course on Energy Efficiency and Smart Building Management is meticulously designed to equip aspiring and current property managers, facilities managers, energy managers, building engineers, sustainability professionals, and real estate owners with the advanced theoretical insights and intensive practical tools necessary to excel in **Energy Efficiency and Smart Building Management**. We will delve into sophisticated methodologies for **conducting detailed energy audits and identifying optimization opportunities**, master the intricacies of **implementing intelligent control strategies through Building Automation Systems (BAS) and IoT devices**, and explore cutting-edge approaches to **leveraging data analytics, artificial intelligence, and digital twins for predictive energy management and enhanced occupant experience**. A significant focus will be placed on understanding the financial implications of energy efficiency upgrades, navigating green building certifications, and developing robust measurement and verification protocols. By integrating industry best practices, analyzing real-world complex smart building case studies, and engaging in hands-on energy modeling, BAS optimization exercises, and technology implementation scenarios, attendees will develop the strategic acumen to confidently lead and optimize sustainable and intelligent building operations, fostering unparalleled **cost savings, environmental stewardship, and enhanced asset value**, and securing their position as indispensable assets in the forefront of **high-performance building management**.

Course Objectives

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

1. Analyze the fundamental principles and strategic importance of **energy efficiency** in buildings.
2. Comprehend the concept and architecture of **smart buildings** and their enabling technologies.
3. Master advanced techniques for **conducting energy audits and identifying savings opportunities**.
4. Develop and implement intelligent **energy management strategies** through Building Automation Systems (BAS).
5. Leverage **Internet of Things (IoT) devices and sensors** for real-time energy monitoring and control.
6. Apply **data analytics and artificial intelligence (AI)** for predictive energy optimization and insights.
7. Design strategies for enhancing **indoor environmental quality (IEQ)** and occupant comfort through smart controls.

8. Understand the role of **green building certifications** in validating and promoting energy performance.
9. Formulate comprehensive **measurement and verification (M&V)** plans for energy savings.
10. Evaluate the **financial benefits and Return on Investment (ROI)** of energy efficiency and smart building upgrades.
11. Navigate the challenges of **cybersecurity for smart building systems and operational technology (OT)**.
12. Explore **future trends** in smart building technology, renewable energy integration, and decarbonization.
13. Design a holistic strategy for implementing **energy efficiency and smart building management** in diverse properties.

Target Audience

This course is designed for professionals leading or involved in energy and smart building initiatives:

1. **Energy Managers:** Seeking advanced strategies for building energy performance.
2. **Facilities Managers:** Responsible for optimizing operations through smart technology.
3. **Property Managers:** Aiming to enhance asset value and tenant experience via efficiency.
4. **Building Engineers:** Deepening their expertise in intelligent building systems and controls.
5. **Sustainability Professionals:** Focusing on environmental performance and green certifications.
6. **Asset Managers:** Evaluating the strategic importance and ROI of smart building investments.
7. **Real Estate Developers:** Designing and planning energy-efficient and smart new constructions.
8. **IT & Cybersecurity Professionals:** Managing OT security in connected building environments.

Course Duration: 10 Days

Course Modules

Module 1: Strategic Imperative of Energy Efficiency

- Analyzing the global and local drivers for energy efficiency in the built environment.
- Quantifying the economic, environmental, and social benefits of reduced energy consumption.
- Understanding the role of buildings in climate change and decarbonization efforts.
- Regulatory frameworks and policy incentives promoting energy efficiency.
- Setting ambitious energy performance targets and sustainability goals.

Module 2: Fundamentals of Smart Buildings & Architecture

- Defining smart buildings: integration of systems, data analytics, and intelligent automation.
- Overview of smart building architecture: sensors, actuators, controllers, networks, and platforms.
- The Internet of Things (IoT) in buildings: connected devices and data streams.
- Key communication protocols and interoperability challenges in smart environments.
- The transition from traditional building management to intelligent operations.

Module 3: Advanced Energy Auditing & Opportunity Identification

- Methodologies for conducting comprehensive ASHRAE Level I, II, and III energy audits.
- Utilizing building energy modeling (BEM) software for baseline development and savings projections.
- Identifying low-cost/no-cost energy conservation measures (ECMs) and capital projects.
- Analyzing utility bills, historical consumption patterns, and demand profiles.
- Prioritizing ECMs based on ROI, payback period, and strategic alignment.

Module 4: Building Automation Systems (BAS) for Energy Control

- Optimizing BAS programming and control sequences for maximum energy efficiency.
- Implementing advanced HVAC control strategies: optimal start/stop, demand-controlled ventilation (DCV).
- Leveraging BAS for lighting management, daylight harvesting, and occupancy-based control.
- Integrating BAS with central plant operations (chillers, boilers, pumps) for system-wide efficiency.
- Troubleshooting BAS inefficiencies and fine-tuning controls for continuous optimization.

Module 5: IoT & Sensor Technologies for Real-Time Management

- Deploying a network of IoT sensors for granular data collection (temperature, occupancy, light, air quality).
- Utilizing real-time data from IoT for immediate operational adjustments and anomaly detection.
- Understanding wireless communication protocols for IoT devices in buildings.
- Managing large-scale IoT deployments: connectivity, data security, and scalability.
- Case studies of IoT-driven energy savings and operational improvements.

Module 6: Data Analytics, AI & Predictive Energy Management

- Collecting, processing, and visualizing vast amounts of building operational data.
- Applying data analytics to identify energy waste patterns and predict equipment failures.
- Introduction to Artificial Intelligence (AI) and Machine Learning (ML) in energy management.
- Leveraging AI for predictive control strategies, fault detection, and energy forecasting.
- Developing custom dashboards and reports for insightful energy performance analysis.

Module 7: Indoor Environmental Quality (IEQ) & Occupant Well-being

- Balancing energy efficiency with optimal indoor environmental quality (IEQ) for occupant health and comfort.
- Managing air quality (CO2, VOCs, particulate matter) through smart ventilation and filtration.
- Optimizing thermal comfort, lighting levels, and acoustic environments via smart controls.
- Personalized occupant experiences: mobile apps for comfort control and feedback.
- The link between IEQ, productivity, and tenant satisfaction and retention.

Module 8: Green Building Certifications & ESG Reporting

- Overview of leading green building certifications: LEED, BREEAM, EDGE, WELL.
- Understanding the energy-related requirements and credit categories within each standard.
- Navigating the certification process for new construction and existing buildings (O+M).
- The role of smart building data in demonstrating compliance for certifications.
- Integrating energy performance into broader ESG (Environmental, Social, Governance) reporting frameworks.

Module 9: Renewable Energy Integration & Storage Solutions

- Feasibility and implementation of on-site renewable energy systems (solar PV, geothermal).
- Understanding grid integration, net metering, and power purchase agreements (PPAs).
- Battery energy storage systems (BESS) for peak shaving, demand response, and resilience.
- Microgrids and their role in enhancing building energy independence.
- Financial incentives and policies supporting renewable energy adoption in real estate.

Module 10: Measurement, Verification & Continuous Optimization

- Developing robust Measurement and Verification (M&V) plans for energy efficiency projects (IPMVP).

- Quantifying actual energy savings and comparing them against baseline and predictions.
- Utilizing continuous commissioning and re-commissioning processes for ongoing optimization.
- Establishing key performance indicators (KPIs) for energy and smart building performance.
- Strategies for ongoing monitoring, analysis, and continuous improvement in energy management.

Module 11: Cybersecurity for Smart Building Systems (OT Security)

- Understanding the unique cybersecurity risks and vulnerabilities of Operational Technology (OT) systems in smart buildings.
- Common cyber threats targeting BAS, IoT devices, and integrated networks.
- Implementing network segmentation, secure remote access, and robust authentication for OT.
- Patch management, vulnerability assessments, and incident response for smart building systems.
- Developing a converged IT/OT cybersecurity strategy for secure building operations.

Module 12: Future Trends in Smart Buildings & Energy Decarbonization

- The advent of Digital Twins: virtual replicas for predictive performance and scenario planning.
- The role of advanced AI and machine learning in autonomous building operations.
- Impact of blockchain on energy trading and carbon credit management in buildings.
- Strategies for deep decarbonization and achieving net-zero energy/carbon buildings.
- The evolving landscape of smart cities and their implications for building energy management.

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

Send us an email: info@fineskilltrainingcenter.org or call +254769199797

Certification

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

Tailor-Made Course

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price

23 Nov 2026	04 Dec 2026	Online	$2,000
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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