Intelligent Lighting Systems Training Course

Professional Development Training Course Outline

Category	Architectural Engineering	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Intelligent Lighting Systems Training Course is designed to equip learners with advanced competencies in automated lighting control, smart sensors integration, AI-driven illumination systems, and sustainable energy optimization. As modern cities, industries, and buildings transition toward smart ecosystems and green energy compliance, intelligent lighting has become a critical pillar in achieving carbon reduction targets, operational efficiency, and enhanced user experience.

This course delivers a comprehensive understanding of wireless lighting networks, adaptive lighting algorithms, human-centric lighting design, and cloud-based lighting management platforms. Participants will explore real-world implementations across smart cities, commercial buildings, industrial automation, healthcare facilities, and smart homes. By integrating cutting-edge technologies such as AI, machine learning, motion detection systems, and IoT protocols (Zigbee, DALI, BLE, KNX), learners will gain the expertise required to design, deploy, and manage next-generation intelligent lighting infrastructures.

Programme Curriculum

Intelligent Lighting Systems Training Course

Introduction

Intelligent Lighting Systems Training Course is designed to equip learners with advanced competencies in automated lighting control, smart sensors integration, AI-driven illumination systems, and sustainable energy optimization. As modern cities, industries, and buildings transition toward smart ecosystems and green energy compliance, intelligent lighting has become a critical pillar in achieving carbon reduction targets, operational efficiency, and enhanced user experience.

This course delivers a comprehensive understanding of wireless lighting networks, adaptive lighting algorithms, human-centric lighting design, and cloud-based lighting management platforms. Participants will explore real-

world implementations across smart cities, commercial buildings, industrial automation, healthcare facilities, and smart homes. By integrating cutting-edge technologies such as AI, machine learning, motion detection systems, and IoT protocols (Zigbee, DALI, BLE, KNX), learners will gain the expertise required to design, deploy, and manage next-generation intelligent lighting infrastructures.

Course Duration

5 days

Course Objectives

1. Master IoT-enabled Smart Lighting Systems Architecture
2. Understand Energy-Efficient Lighting Automation Strategies
3. Apply AI-Based Lighting Control Algorithms
4. Configure Wireless Lighting Protocols (Zigbee, DALI, KNX, BLE)
5. Design Human-Centric Lighting Environments
6. Implement Smart Sensor Integration for Motion & Occupancy Detection
7. Develop Cloud-Based Lighting Management Solutions
8. Optimize Smart City Lighting Infrastructure Systems
9. Analyze Real-Time Lighting Data Analytics & Monitoring
10. Enhance Sustainable Green Building Lighting Compliance
11. Deploy Adaptive and Context-Aware Lighting Systems
12. Integrate Renewable Energy with Smart Lighting Networks
13. Troubleshoot Advanced Intelligent Lighting System Failures

Target Audience

1. Electrical and Electronics Engineers
2. Smart Building & Facility Managers
3. IoT Developers and System Integrators
4. Urban Planning and Smart City Professionals
5. Energy Consultants and Sustainability Experts
6. Automation and Control System Technicians
7. Architecture and Interior Lighting Designers
8. Government Infrastructure and Utility Officers

Course Modules

Module 1: Fundamentals of Intelligent Lighting Systems

- Introduction to smart lighting technologies
- Evolution from traditional to intelligent lighting
- Core components of lighting automation
- Role of IoT in lighting systems
- System architecture overview
- **Case Study:** Smart office lighting transformation reducing 40% energy consumption in a corporate building.

Module 2: IoT and Wireless Lighting Protocols

- Zigbee, Z-Wave, DALI, KNX fundamentals
- Bluetooth Low Energy (BLE) applications

- Network topologies in lighting systems
- Device interoperability standards
- Communication security protocols
- **Case Study:** Smart campus deployment using Zigbee-based lighting network.

Module 3: Sensors and Automation Technologies

- Motion, occupancy, and daylight sensors
- Infrared and ultrasonic detection systems
- Sensor calibration and placement strategies
- Adaptive lighting triggers
- Fault detection systems
- **Case Study:** Hospital corridor adaptive lighting improving patient safety and energy savings.

Module 4: AI and Machine Learning in Lighting

- AI-based brightness optimization
- Predictive lighting control systems
- Behavioral pattern analysis
- Deep learning for occupancy prediction
- Smart decision-making algorithms
- **Case Study:** AI-driven smart mall lighting increasing customer engagement and reducing peak load usage.

Module 5: Smart City Lighting Infrastructure

- Street lighting automation systems
- Centralized control platforms
- Public safety integration
- Traffic-aware lighting adjustments
- Grid synchronization systems
- **Case Study:** Smart city LED streetlight upgrade reducing municipal energy costs by 55%.

Module 6: Cloud-Based Lighting Management

- IoT cloud platforms overview
- Remote monitoring and control
- Dashboard analytics and reporting
- Data storage and security
- API integration with building systems
- **Case Study:** Multi-site commercial building managed through centralized cloud lighting dashboard.

Module 7: Energy Efficiency and Sustainability

- Green building lighting standards (LEED compliance)
- Carbon footprint reduction strategies
- Renewable energy integration (solar lighting systems)
- Demand-response lighting control
- Lifecycle energy analysis
- **Case Study:** Solar-powered smart street lighting in coastal urban areas reducing grid dependency.

Module 8: System Design, Troubleshooting & Maintenance

- System configuration and commissioning
- Fault detection and diagnostics
- Firmware updates and system upgrades
- Preventive maintenance strategies
- Performance optimization techniques
- **Case Study:** Industrial warehouse lighting system downtime reduction through predictive maintenance.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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

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

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com