Lighting Systems Engineering 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

Lighting Systems Engineering Training Course is designed to equip learners with advanced competencies in modern lighting design, intelligent control systems, sustainable illumination technologies, and building energy optimization strategies. Participants will gain in-depth exposure to both theoretical principles and practical implementation of lighting systems used in commercial, industrial, and smart city environments.

With the global shift toward green buildings, smart cities, LED revolution, and AI-driven lighting automation, lighting systems engineering has become a critical skill for engineers, technicians, and facility managers. This course integrates industry best practices, real-world case studies, simulation tools, and standards compliance (IEC, IES, ISO) to ensure participants are prepared for modern infrastructure demands and energy-conscious design challenges.

Programme Curriculum

Lighting Systems Engineering Training Course

Introduction

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Course Duration

5 days

Course Objectives

1. Master advanced lighting design principles
2. Understand LED technology and photometric analysis
3. Apply smart lighting control systems (IoT integration)
4. Optimize energy-efficient lighting solutions
5. Interpret lux level standards and compliance codes
6. Design building lighting layouts using CAD tools
7. Implement daylight harvesting techniques
8. Analyze lighting load calculations and power distribution
9. Develop sustainable green lighting systems
10. Integrate automation in smart building lighting
11. Evaluate lighting performance metrics (CRI, CCT, Lumen output)
12. Apply industrial lighting safety standards
13. Manage lighting retrofit and modernization projects

Target Audience

1. Electrical Engineers
2. Mechanical Engineers
3. Building Services Engineers
4. Architects and Interior Designers
5. Facility Managers
6. Energy Auditors
7. Construction Project Managers
8. Technical Diploma & Engineering Students

Course Modules

Module 1: Fundamentals of Lighting Engineering

- Basics of illumination physics
- Light behavior and propagation principles
- Luminous flux, intensity, and efficiency
- Human eye perception and visual comfort
- Introduction to lighting standards
- **Case Study:** Office workspace lighting optimization reducing eye strain and energy consumption by 25%

Module 2: LED & Modern Lighting Technologies

- LED structure and working principles
- Comparison with traditional lighting systems
- Smart LED drivers and controls
- Thermal management techniques
- Emerging OLED and laser lighting
- **Case Study:** Retail store transition from fluorescent to LED reducing operational cost by 40%

Module 3: Lighting Design & Layout Engineering

- Space lighting calculations
- CAD-based lighting design tools
- Fixture placement optimization
- Uniformity ratio and glare control
- Architectural lighting integration
- **Case Study:** Shopping mall lighting redesign improving customer dwell time and visibility

Module 4: Smart Lighting & IoT Integration

- Sensor-based lighting systems
- Motion and occupancy detection
- Wireless lighting control systems
- IoT-enabled smart building integration
- AI-driven adaptive lighting
- **Case Study:** Smart hospital lighting system improving patient recovery environment

Module 5: Energy Efficiency & Green Lighting

- Energy auditing for lighting systems
- Daylight harvesting techniques
- Power factor correction
- Renewable energy integration
- LEED certification requirements
- **Case Study:** Corporate office achieving LEED Gold via energy-efficient lighting retrofit

Module 6: Lighting Standards & Compliance

- IEC, IES, and ISO lighting standards
- Workplace illumination requirements
- Safety and emergency lighting rules
- Environmental lighting regulations
- Inspection and compliance procedures
- **Case Study:** Industrial plant achieving compliance after safety lighting redesign

Module 7: Lighting Control Systems Engineering

- Dimming technologies and protocols
- DALI and DMX control systems
- Centralized lighting control architecture
- Building management system integration
- Fault detection and diagnostics
- **Case Study:** Smart university campus reducing energy usage via centralized lighting control

Module 8: Industrial & Outdoor Lighting Systems

- Street lighting design principles
- High-mast and stadium lighting systems
- Hazardous environment lighting
- Weather-resistant lighting design
- Maintenance and lifecycle management
- **Case Study:** Smart city street lighting upgrade reducing municipal energy cost by 50%

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

Start Date	End Date	Location	Price
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:

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