Fire Alarm 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

Fire Alarm Systems Engineering Training Course is designed to equip participants with advanced technical knowledge and practical competencies required to design, install, commission, test, and maintain intelligent fire detection systems, addressable fire alarm panels, smoke detection networks, and emergency evacuation systems. With increasing global emphasis on smart buildings, IoT-enabled safety systems, and NFPA/BS compliance standards, professionals in this field are expected to integrate engineering precision with regulatory compliance and digital monitoring technologies.

This course provides a structured pathway into the world of fire safety engineering, hazard detection systems, and integrated building management systems (BMS). Participants will gain hands-on expertise in system configuration, fault diagnosis, zoning design, and emergency response integration. Emphasis is placed on real-world application, including risk assessment, fire modeling fundamentals, system interoperability, and smart alarm analytics, ensuring graduates are fully prepared for roles in modern construction, industrial safety, and infrastructure protection sectors.

Programme Curriculum

Fire Alarm Systems Engineering Training Course

Introduction

Fire Alarm Systems Engineering Training Course is designed to equip participants with advanced technical knowledge and practical competencies required to design, install, commission, test, and maintain intelligent fire detection systems, addressable fire alarm panels, smoke detection networks, and emergency evacuation systems. With increasing global emphasis on smart buildings, IoT-enabled safety systems, and NFPA/BS compliance standards, professionals in this field are expected to integrate engineering precision with regulatory compliance and digital monitoring technologies.

This course provides a structured pathway into the world of fire safety engineering, hazard detection systems, and integrated building management systems (BMS). Participants will gain hands-on expertise in system configuration, fault diagnosis, zoning design, and emergency response integration. Emphasis is placed on real-world application, including risk assessment, fire modeling fundamentals, system interoperability, and smart alarm analytics, ensuring graduates are fully prepared for roles in modern construction, industrial safety, and infrastructure protection sectors.

Course Duration

5 days

Course Objectives

1. Master fire alarm system design principles for commercial and industrial buildings
2. Understand NFPA 72, BS 5839 compliance standards and global fire codes
3. Configure addressable and conventional fire alarm control panels (FACP)
4. Apply smoke detection technologies and heat sensor calibration techniques
5. Develop expertise in fire risk assessment and hazard zoning
6. Integrate IoT-based smart fire detection systems
7. Perform fault diagnosis and troubleshooting in alarm networks
8. Design emergency evacuation and voice alarm systems
9. Implement building management system (BMS) integration strategies
10. Conduct system commissioning, testing, and validation procedures
11. Apply wireless fire alarm communication technologies
12. Enhance knowledge of fire suppression system coordination
13. Develop competency in predictive maintenance and alarm analytics

Target Audience

1. Electrical Engineers
2. Fire Safety Engineers
3. Mechanical Engineers in HVAC & building systems
4. Construction Project Managers
5. Facility Maintenance Engineers
6. HSE (Health, Safety & Environment) Officers
7. Building Inspectors and Compliance Officers
8. Technical Diploma & Engineering Students

Training Modules

Module 1: Fire Alarm System Fundamentals

- Principles of fire detection systems
- Types of alarm technologies
- System architecture overview
- Signal transmission methods
- Safety standards overview
- **Case Study:** Analysis of fire alarm failure in a commercial mall due to poor zoning design

Module 2: Fire Codes & Standards Compliance

- NFPA 72 requirements

- BS 5839 classification system
- International fire safety regulations
- Inspection and certification processes
- Documentation and audit readiness
- **Case Study:** Compliance upgrade in a hospital fire safety system to meet NFPA standards

Module 3: Smoke & Heat Detection Technologies

- Photoelectric vs ionization detectors
- Heat detector calibration
- Multi-sensor detection systems
- Environmental interference factors
- Detector placement optimization
- **Case Study:** False alarm reduction in a data center using multi-criteria detectors

Module 4: Fire Alarm Control Panels (FACP)

- Conventional vs addressable panels
- Loop configuration and programming
- Input/output module setup
- Alarm logic configuration
- Panel troubleshooting techniques
- **Case Study:** Addressable system upgrade in a high-rise building improving response time

Module 5: System Design & Zoning

- Fire zone planning principles
- Risk-based layout design
- Cable routing and loop design
- Load calculations
- Building classification impact
- **Case Study:** Fire zoning optimization in a shopping complex reducing evacuation time

Module 6: IoT & Smart Fire Systems

- Cloud-connected fire alarm systems
- Real-time monitoring dashboards
- AI-based smoke analytics
- Mobile alert integration
- Predictive safety systems
- **Case Study:** Smart campus fire detection system reducing incident response time by 40%

Module 7: Testing, Commissioning & Maintenance

- System validation procedures
- Loop testing and continuity checks
- Preventive maintenance scheduling
- Fault detection techniques
- Performance reporting
- **Case Study:** Commissioning failure analysis in an industrial plant due to wiring faults

Module 8: Integrated Safety & Emergency Systems

- Fire suppression coordination
- Voice evacuation systems
- Elevator recall integration
- HVAC shutdown interface
- Emergency response automation
- **Case Study:** Integrated evacuation system success in a stadium emergency simulation

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