AI for Construction Engineering Training Course

Professional Development Training Course Outline

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

Course Introduction

AI for Construction Engineering Training Course is designed to empower construction professionals with cutting-edge Artificial Intelligence (AI) technologies that are transforming the Architecture, Engineering, and Construction (AEC) industry. As the construction sector rapidly adopts Generative AI, Machine Learning, Building Information Modeling (BIM), Digital Twins, Predictive Analytics, Computer Vision, Robotics, IoT, and Smart Project Management, professionals must acquire the skills needed to improve project efficiency, reduce costs, enhance safety, and make data-driven decisions. This training equips participants with practical knowledge to integrate AI into planning, design, scheduling, procurement, quality assurance, safety management, and facility operations.

Through hands-on demonstrations, industry case studies, AI-powered software tools, and real-world applications, participants will learn how AI revolutionizes construction lifecycle management. The course explores emerging technologies such as ChatGPT for Engineering, AI-assisted BIM, Drone Analytics, Autonomous Construction Equipment, Predictive Maintenance, Risk Analytics, Digital Construction, Sustainable Smart Buildings, AI Project Controls, and Intelligent Asset Management. By the end of the training, participants will be capable of leveraging AI solutions to improve productivity, enhance collaboration, optimize resources, and support sustainable infrastructure development.

Programme Curriculum

AI for Construction Engineering Training Course

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Course Duration

5 days

Course Objectives

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

1. Understand Artificial Intelligence applications in modern construction engineering.
2. Apply Generative AI for engineering documentation, reports, and project planning.
3. Integrate AI with Building Information Modeling (BIM) for intelligent design and coordination.
4. Utilize Machine Learning for predictive construction analytics.
5. Implement Computer Vision for site monitoring and quality inspection.
6. Apply Drone AI Analytics for surveying, mapping, and progress tracking.
7. Use Digital Twin Technology for infrastructure lifecycle management.
8. Optimize project scheduling using AI Project Management tools.
9. Enhance workplace safety using AI Safety Monitoring and wearable technologies.
10. Perform Predictive Maintenance using IoT and AI algorithms.
11. Analyze construction risks using Predictive Risk Analytics.
12. Develop Smart Construction strategies using Industry 4.0 technologies.
13. Build an AI implementation roadmap for construction organizations.

Target Audience

1. Construction Engineers
2. Civil Engineers
3. Project Managers
4. Site Engineers and Supervisors
5. Quantity Surveyors
6. Architects and BIM Professionals
7. Government Infrastructure Agencies
8. Engineering Consultants and Contractors

Course Modules

Module 1: Introduction to AI in Construction Engineering

- Fundamentals of Artificial Intelligence
- AI trends transforming the AEC industry

- Industry 4.0 and Digital Construction
- AI ecosystem in construction projects
- AI implementation roadmap
- **Case Study:** AI adoption in large-scale infrastructure projects to improve productivity and cost efficiency.

Module 2: AI for Building Information Modeling (BIM)

- AI-enabled BIM workflows
- Intelligent clash detection
- Automated quantity take-offs
- AI-assisted design optimization
- BIM digital collaboration
- **Case Study:** AI-enhanced BIM implementation for a commercial high-rise building.

Module 3: Machine Learning and Predictive Analytics

- Machine Learning fundamentals
- Predictive cost estimation
- Schedule forecasting
- Resource optimization
- Construction risk prediction
- **Case Study:** Machine learning model for predicting project delays and budget overruns.

Module 4: Computer Vision, Drones and Robotics

- Computer vision for site monitoring
- AI-powered drone inspections
- Automated defect detection
- Robotics in construction
- Image analytics for quality assurance
- **Case Study:** Drone AI monitoring for highway construction progress tracking.

Module 5: AI for Construction Safety

- AI-powered safety monitoring
- PPE detection using computer vision
- Hazard prediction models
- Wearable IoT safety devices
- Safety dashboards and reporting
- **Case Study:** AI safety monitoring system reducing workplace incidents on construction sites.

Module 6: Digital Twins and Smart Infrastructure

- Digital Twin concepts
- IoT integration
- Real-time asset monitoring
- Predictive infrastructure maintenance
- Smart city applications
- **Case Study:** Digital Twin implementation for intelligent building operations.

Module 7: Generative AI for Construction Project Management

- ChatGPT for engineering documentation
- AI-generated reports
- AI scheduling assistants
- Procurement and contract automation
- AI-powered decision support
- **Case Study:** Generative AI reducing project documentation time by over 50%.

Module 8: AI Strategy, Ethics and Future Construction Technologies

- AI governance and ethics
- Data privacy and cybersecurity
- AI implementation strategy
- Emerging AI technologies in construction
- Organizational digital transformation
- **Case Study:** Enterprise-wide AI transformation in an international construction company.

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