Lean Digital Construction Training Course

Professional Development Training Course Outline

Category	Architectural Engineering	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Lean Digital Construction is revolutionizing the global Architecture, Engineering, and Construction (AEC) industry by integrating Lean principles, digital technologies, BIM (Building Information Modeling), AI-driven project management, and data-centric workflows. Lean Digital Construction Training Course equips professionals with the ability to eliminate waste, optimize workflows, and enhance productivity through digital construction transformation, real-time collaboration, and smart construction technologies. As the industry shifts toward Industry 4.0 construction ecosystems, mastering Lean Digital Construction is essential for delivering faster, safer, and cost-efficient projects.

In today’s competitive environment, construction organizations are increasingly adopting digital twins, cloud-based project management platforms, IoT-enabled job sites, and predictive analytics to improve decision-making and project performance. This course empowers learners to bridge the gap between traditional construction methods and modern Lean construction automation, integrated project delivery (IPD), and sustainable smart infrastructure development, ensuring alignment with global standards such as BIM Level 2/3, Lean Six Sigma construction, and green building digitalization frameworks.

Programme Curriculum

Lean Digital Construction Training Course

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Course Objectives

1. Master Lean Construction Principles & Waste Reduction Strategies
2. Apply BIM-integrated Project Delivery (BIM 2.0 & 3D/4D/5D Modeling)
3. Implement Digital Twin Construction Technologies
4. Optimize workflows using Lean Six Sigma Construction Tools
5. Enhance productivity through AI-powered Project Scheduling
6. Deploy IoT-enabled Smart Construction Sites
7. Improve collaboration using Cloud-based Construction Management Platforms
8. Integrate Real-Time Data Analytics in Construction Projects
9. Reduce cost overruns through Predictive Cost Estimation Models
10. Strengthen safety using Digital Safety Management Systems
11. Enable sustainable development via Green Construction Digitalization
12. Adopt Integrated Project Delivery (IPD) Frameworks
13. Drive transformation using Industry 4.0 Construction Technologies

Target Audience

1. Civil Engineers & Site Engineers
2. Project Managers & Construction Managers
3. Architects & BIM Specialists
4. Quantity Surveyors & Cost Engineers
5. Real Estate Developers
6. Infrastructure & Smart City Planners
7. Construction Technology Consultants
8. Government Infrastructure & Public Works Officials

Course Modules

Module 1: Introduction to Lean Digital Construction

- Lean construction fundamentals
- Digital transformation in AEC industry
- Waste identification techniques
- Value stream mapping basics
- Case Study: Toyota Production System applied to construction workflow optimization

Module 2: Lean Construction Principles

- Pull planning systems
- Just-in-time construction delivery
- Continuous improvement (Kaizen)
- Workflow standardization
- Case Study: Last Planner System in hospital construction project

Module 3: BIM Fundamentals

- 3D modeling essentials
- BIM coordination workflows
- Clash detection methods
- BIM execution planning
- Case Study: London Crossrail BIM integration success

Module 4: Advanced BIM (4D, 5D, 6D)

- Time-based scheduling (4D BIM)
- Cost integration (5D BIM)
- Sustainability modeling (6D BIM)
- Lifecycle asset management
- Case Study: Dubai smart skyscraper BIM implementation

Module 5: Digital Twins in Construction

- Real-time simulation models
- Asset lifecycle monitoring
- Predictive maintenance systems
- Virtual construction environments
- Case Study: Singapore Smart Nation infrastructure twin model

Module 6: Lean Six Sigma in Construction

- DMAIC methodology
- Root cause analysis tools
- Defect reduction systems
- Performance optimization
- Case Study: Highway construction defect reduction project

Module 7: AI in Construction Management

- AI scheduling algorithms
- Risk prediction models
- Resource optimization systems
- Automated reporting tools
- Case Study: AI-driven skyscraper project optimization in USA

Module 8: IoT Smart Construction Sites

- Sensor-based monitoring
- Equipment tracking systems
- Worker safety IoT systems
- Real-time data collection

- Case Study: Smart bridge construction in China

Module 9: Cloud-Based Project Management

- SaaS construction platforms
- Document control systems
- Remote collaboration tools
- Workflow automation
- Case Study: Global distributed construction teams using Procore

Module 10: Data Analytics in Construction

- KPI dashboards
- Predictive analytics models
- Performance tracking systems
- Data visualization tools
- Case Study: Data-driven metro rail construction project

Module 11: Construction Cost Optimization

- Cost estimation models
- Budget control systems
- Value engineering techniques
- Financial risk analysis
- Case Study: Cost reduction in airport terminal construction

Module 12: Lean Safety Management

- Digital safety tracking systems
- Hazard identification tools
- Incident prediction models
- Safety compliance automation
- Case Study: Zero-accident construction site initiative

Module 13: Sustainable Construction Technologies

- Green building materials
- Energy-efficient design systems
- Carbon footprint tracking
- ESG compliance frameworks
- Case Study: LEED-certified smart commercial complex

Module 14: Integrated Project Delivery (IPD)

- Collaborative contracting models
- Stakeholder alignment systems
- Shared risk-reward frameworks
- Agile construction execution
- Case Study: Integrated hospital construction project delivery

Module 15: Industry 4.0 Construction Ecosystem

- Robotics in construction

- Automation in building processes
- Smart infrastructure networks
- Future-ready construction systems
- Case Study: Fully automated modular housing development

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	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

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

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