Construction Automation 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

Construction Automation Training Course is designed to equip professionals with advanced knowledge of smart construction technologies, digital transformation, Building Information Modeling (BIM), Artificial Intelligence (AI), robotics, automation systems, and Industry 4.0 solutions. The construction industry is rapidly evolving through automated workflows, connected job sites, digital twins, IoT-enabled equipment, autonomous machinery, and data-driven project management. This course helps participants understand how automation improves productivity, safety, cost optimization, quality control, and sustainable construction practices across modern infrastructure projects.

With a strong focus on Construction Technology (ConTech), Artificial Intelligence in Construction, Robotics, 3D Printing, drone surveying, BIM automation, machine learning, cloud collaboration, and smart project delivery, this program provides practical skills required for future-ready construction environments. Participants will explore real-world applications, industry case studies, and implementation strategies to successfully integrate automation into construction operations and achieve faster, safer, and more efficient project outcomes.

Programme Curriculum

Construction Automation Training Course

Introduction

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Course Objectives

1. Understand the fundamentals of Construction Automation and Digital Transformation.
2. Develop expertise in BIM Automation and smart construction workflows.
3. Learn applications of Artificial Intelligence (AI) and Machine Learning in construction.
4. Explore robotics and autonomous construction equipment technologies.
5. Implement IoT-enabled smart construction site monitoring systems.
6. Analyze the role of Digital Twins for predictive construction management.
7. Improve project efficiency through automation-driven planning and scheduling.
8. Apply drone technology and automated surveying solutions.
9. Understand 3D printing and additive manufacturing for construction.
10. Enhance safety using AI-powered risk detection and automation tools.
11. Develop strategies for sustainable and green automated construction practices.
12. Evaluate construction automation tools for cost control and productivity improvement.
13. Prepare organizations for future-ready Construction 5.0 and Industry 4.0 adoption.

Target Audience

1. Construction Project Managers
2. Civil Engineers and Structural Engineers
3. BIM Managers and Digital Construction Specialists
4. Architects and Design Professionals
5. Quantity Surveyors and Cost Consultants
6. Contractors and Site Supervisors
7. Technology Professionals entering ConTech
8. Construction Business Leaders and Developers

Course Modules

Module 1: Fundamentals of Construction Automation

- Introduction to Smart Construction and Industry 4.0 technologies
- Evolution from traditional construction to automated project delivery
- Overview of robotics, AI, BIM, IoT, and digital construction platforms
- Benefits of automation in productivity, safety, and quality improvement
- Construction automation maturity assessment framework
- Case Study: Implementation of automated workflows in large-scale infrastructure projects to reduce delays and improve project coordination.

Module 2: BIM Automation and Digital Workflows

- Advanced concepts of Building Information Modeling (BIM) automation
- Automated design coordination and clash detection processes
- Integration of BIM with AI and cloud collaboration platforms
- Parametric modeling and automated documentation
- BIM-based construction planning and simulation
- Case Study: Use of BIM automation in airport and high-rise building projects for improved design accuracy and reduced rework.

Module 3: Artificial Intelligence and Machine Learning in Construction

- Introduction to AI-powered construction management systems
- Predictive analytics for project delays and cost risks
- AI-based quality inspection and defect detection
- Machine learning applications in resource optimization
- Automated decision-making using construction data analytics
- Case Study: AI-based progress monitoring systems used to predict construction risks and improve project performance.

Module 4: Robotics and Autonomous Construction Equipment

- Overview of construction robotics and automation machinery
- Robotic bricklaying, excavation, and material handling systems
- Autonomous vehicles and smart construction equipment
- Human-robot collaboration on construction sites
- Safety benefits of robotic construction operations
- Case Study: Deployment of robotic systems for repetitive construction tasks to increase productivity and worker safety.

Module 5: IoT, Sensors, and Smart Construction Sites

- Introduction to IoT-enabled construction monitoring
- Smart sensors for equipment, materials, and worker tracking
- Real-time site data collection and visualization
- Connected equipment and automated reporting systems
- Predictive maintenance using IoT analytics
- Case Study: Smart construction sites using IoT sensors to monitor equipment performance and reduce downtime.

Module 6: Drones, 3D Printing, and Advanced Construction Technologies

- Drone-based surveying and automated site inspections
- 3D printing applications in modern construction
- Digital fabrication and automated manufacturing
- Laser scanning and reality capture technologies
- Future trends in autonomous construction solutions
- **Case Study:** 3D printed housing projects demonstrating faster construction cycles and reduced material waste.

Module 7: Digital Twins and Data-Driven Project Management

- Understanding **Digital Twin technology in construction**

- Real-time project visualization and monitoring
- Integration of BIM, IoT, and AI platforms
- Predictive maintenance and lifecycle management
- Data-driven decision-making for smart assets
- **Case Study:** Digital Twin implementation for smart buildings to optimize operations and energy efficiency.

Module 8: Implementing Construction Automation Strategies

- Developing a construction automation roadmap
- Selecting automation tools and technologies
- Managing digital transformation challenges
- Training teams for automated construction environments
- Measuring ROI and performance improvements
- **Case Study:** Construction companies adopting automation strategies to improve competitiveness and operational efficiency.

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:

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