3D Printing in Construction 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

3D Printing in Construction, also known as Construction 3D Printing (C3DP), is revolutionizing the building industry through automation, digital fabrication, and additive manufacturing technologies. This cutting-edge approach enables the creation of complex structures using layer-by-layer concrete printing, robotic construction systems, and sustainable building materials. With the growing demand for cost-efficient housing, smart cities, and eco-friendly infrastructure, 3D printing is emerging as a disruptive innovation that enhances speed, precision, and design flexibility while reducing labor dependency and material waste.

The adoption of AI-driven construction, parametric design, BIM integration, and large-scale 3D printers is accelerating globally, making this technology a cornerstone of Industry 4.0 in construction. From affordable housing projects and disaster relief shelters to futuristic architectural designs, 3D printing is transforming how we conceptualize and execute construction projects. 3D Printing in Construction Training Course equips learners with hands-on skills, advanced tools, and real-world case studies to thrive in the rapidly evolving digital construction ecosystem.

Programme Curriculum

3D Printing in Construction Training Course

Introduction

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Course Duration

5 days

Course Objectives

1. Understand Additive Manufacturing in Construction fundamentals
2. Explore Large-Scale 3D Concrete Printing Technologies
3. Learn BIM Integration with 3D Printing Workflows
4. Analyze Sustainable Construction Materials & Green Building Tech
5. Master Parametric & Generative Design for Construction
6. Evaluate Automation & Robotics in Smart Construction
7. Study Digital Fabrication and Smart Infrastructure Development
8. Develop skills in AI & IoT in Construction Innovation
9. Understand Cost Optimization & Rapid Prototyping Techniques
10. Explore Affordable Housing Solutions using 3D Printing
11. Learn Construction Project Management with Digital Tools
12. Analyze Global Case Studies in 3D Printed Buildings
13. Gain insights into Future Trends: Smart Cities & Industry 4.0 Construction

Target Audience

1. Civil Engineers & Structural Engineers
2. Architects & Urban Planners
3. Construction Project Managers
4. Real Estate Developers
5. Mechanical & Robotics Engineers
6. BIM & CAD Professionals
7. Government & Infrastructure Authorities
8. Students & Researchers in Construction Technology

Course Modules

Module 1: Introduction to 3D Printing in Construction

- Evolution of Construction Technologies
- Basics of Additive Manufacturing
- Types of 3D Printing Methods
- **Case Study:** Key Industry Players & Innovations
- Benefits & Limitations

Module 2: Materials & Technologies

- Concrete 3D Printing Materials
- Sustainable & Recycled Materials

- Advanced Construction Composites
- Material Testing & Quality Control
- **Case Study:** Environmental Impact Analysis

Module 3: Design & Modeling

- Parametric Design Concepts
- CAD & BIM Integration
- **Case Study:** Generative Design Techniques
- Structural Optimization
- Design for Additive Manufacturing (DfAM)

Module 4: Construction Process & Workflow

- Site Preparation & Printer Setup
- Layer-by-Layer Construction Process
- **Case Study:** Automation & Robotics Integration
- Workflow Optimization
- Safety Protocols

Module 5: Equipment & Software

- Large-Scale 3D Printers
- Robotics & AI Tools
- **Case Study:** Software Platforms for Design & Simulation
- Monitoring & Control Systems
- Maintenance & Calibration

Module 6: Applications in Construction

- Residential & Commercial Buildings
- Infrastructure Projects
- Disaster Relief Housing
- **Case Study:** Smart Cities Development
- Custom Architectural Designs

Module 7: Project Management & Costing

- Budgeting & Cost Efficiency
- Time Optimization
- Risk Management
- **Case Study:** Regulatory Compliance
- ROI Analysis

Module 8: Future Trends & Innovations

- AI & Machine Learning in Construction
- IoT-enabled Smart Buildings
- Space Construction & ?????istic designs
- Sustainability & Net-Zero Buildings
- **Case Study:** Industry 4.0 Integration

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

Start Date	End Date	Location	Price
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