BIM Automation Using Dynamo 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

Building Information Modeling (BIM) has evolved beyond 3D modeling into a data-driven, automation-first digital construction ecosystem. With increasing demand for parametric design, computational workflows, and construction digitization, professionals are shifting toward advanced BIM automation tools such as Autodesk Revit + Dynamo + Python scripting. This training course is designed to equip learners with cutting-edge skills in BIM automation, generative design, and computational workflows, enabling faster project delivery, improved accuracy, and reduced manual workload.

BIM Automation using Dynamo Training Course focuses on transforming traditional BIM practices into intelligent, rule-based systems. Participants will learn how to automate repetitive modeling tasks, manage large datasets, integrate external data sources, and optimize building design processes using visual programming and algorithmic modeling techniques. The course emphasizes real-world applications in architecture, structural engineering, MEP coordination, and construction management using industry-standard workflows aligned with ISO 19650 BIM standards, digital twins, and smart construction technologies.

Programme Curriculum

BIM Automation Using Dynamo Training Course

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Course Duration

5 days

Course Objectives

1. Master Dynamo visual programming for Revit automation
2. Develop parametric modeling workflows for smart BIM design
3. Automate repetitive tasks using graph-based computational design
4. Integrate Python scripting for advanced BIM logic control
5. Create data-driven BIM models for construction efficiency
6. Implement generative design techniques in architecture workflows
7. Optimize clash detection and coordination automation
8. Build custom Revit plugins using Dynamo nodes
9. Enable interoperability between BIM and external databases
10. Apply AI-assisted BIM automation techniques
11. Develop rule-based modeling systems for MEP and structure
12. Enhance productivity through workflow optimization and scripting
13. Support digital twin development and smart construction pipelines

Target Audience

1. BIM Architects and Design Professionals
2. Structural Engineers working in Revit environments
3. MEP Engineers focused on coordination workflows
4. Construction Managers and Project Planners
5. CAD Technicians transitioning to BIM automation
6. Interior Designers using parametric modeling tools
7. Engineering Students in AEC (Architecture Engineering Construction)
8. Digital Construction and VDC (Virtual Design Construction) specialists

Course Modules

Module 1: Introduction to BIM Automation & Dynamo Environment

- BIM automation fundamentals and workflows
- Overview of Dynamo interface and nodes
- Understanding visual programming logic
- Revit-Dynamo integration setup
- Data flow concepts in BIM systems
- **Case Study:** Automating room data extraction from Revit models for project reporting

Module 2: Parametric Design Fundamentals

- Parameter-driven modeling concepts
- Adaptive components in Revit
- Constraint-based design logic
- Geometry manipulation techniques
- Rule-based modeling structures
- **Case Study:** Parametric façade system design using adaptive components

Module 3: Data Management in BIM using Dynamo

- Excel-Revit data linking
- CSV-based data automation
- Data filtering and sorting techniques
- Scheduling automation workflows
- Database connectivity fundamentals
- **Case Study:** Automated door/window scheduling linked with Excel database

Module 4: Geometry Automation & Modeling Efficiency

- Creating and modifying geometry using nodes
- Surface and solid manipulation
- Mass modeling automation
- Level and grid generation automation
- Geometry optimization techniques
- **Case Study:** Automated generation of multi-floor building grids and levels

Module 5: Python Integration in Dynamo

- Introduction to Python scripting in Dynamo
- Revit API basics for automation
- Custom node creation using Python
- Data structure handling (lists, dictionaries)
- Advanced logic building
- **Case Study:** Automated sheet creation with dynamic naming conventions

Module 6: Clash Detection & Coordination Automation

- BIM coordination workflows
- Rule-based clash detection
- Model validation techniques
- Automated issue reporting
- Multi-disciplinary coordination setup
- **Case Study:** Automated MEP clash detection report generation

Module 7: Generative Design & Optimization

- Introduction to generative design principles
- Design space exploration techniques
- Performance-based modeling
- Optimization algorithms basics
- Scenario-based design automation
- **Case Study:** Optimizing building orientation for daylight and energy efficiency

Module 8: Advanced BIM Automation & Digital Twins

- Smart construction workflows
- Digital twin integration concepts
- IoT + BIM data linking
- Cloud-based BIM automation
- Future trends in computational BIM
- **Case Study:** Real-time BIM model update using simulated construction data

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
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

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