Integrated Structural-BIM Systems 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

Integrated Structural-BIM Systems Training Course is designed to equip engineers, architects, and construction professionals with advanced competencies in Building Information Modeling (BIM), structural engineering integration, and digital construction workflows. The course focuses on bridging the gap between traditional structural design methods and modern BIM-driven digital ecosystems, enabling participants to work efficiently in a fully coordinated, data-rich environment. With the rise of Industry 4.0, smart construction, digital twins, and AI-assisted design, this program empowers learners to become industry-ready professionals capable of delivering high-performance, clash-free, and cost-optimized structural systems.

This training emphasizes real-world application using tools such as Autodesk Revit, Navisworks, Tekla Structures, BIM 360, and parametric design platforms, ensuring participants understand both theoretical frameworks and practical implementation. The course aligns with global standards such as ISO 19650 BIM protocols, Lean Construction principles, and sustainable building practices, making it highly relevant for modern infrastructure and mega-project delivery. Learners will engage in collaborative workflows, interdisciplinary coordination, and simulation-based design validation to enhance project accuracy, reduce rework, and improve lifecycle asset management.

Programme Curriculum

Integrated Structural-BIM Systems Training Course

Introduction

Integrated Structural-BIM Systems Training Course is designed to equip engineers, architects, and construction professionals with advanced competencies in Building Information Modeling (BIM), structural engineering integration, and digital construction workflows. The course focuses on bridging the gap between traditional

structural design methods and modern BIM-driven digital ecosystems, enabling participants to work efficiently in a fully coordinated, data-rich environment. With the rise of Industry 4.0, smart construction, digital twins, and AI-assisted design, this program empowers learners to become industry-ready professionals capable of delivering high-performance, clash-free, and cost-optimized structural systems.

This training emphasizes real-world application using tools such as Autodesk Revit, Navisworks, Tekla Structures, BIM 360, and parametric design platforms, ensuring participants understand both theoretical frameworks and practical implementation. The course aligns with global standards such as ISO 19650 BIM protocols, Lean Construction principles, and sustainable building practices, making it highly relevant for modern infrastructure and mega-project delivery. Learners will engage in collaborative workflows, interdisciplinary coordination, and simulation-based design validation to enhance project accuracy, reduce rework, and improve lifecycle asset management.

Course Duration

5 days

Course Objectives

1. Master BIM-driven structural design workflows for modern construction projects
2. Apply ISO 19650 BIM standards in real-world project environments
3. Integrate structural engineering analysis with BIM platforms
4. Develop proficiency in Revit Structure and Tekla Structures modeling
5. Enhance clash detection and coordination using Navisworks Manage
6. Implement digital twin technology in structural lifecycle management
7. Utilize parametric and computational design techniques
8. Improve project efficiency using Lean BIM construction methodologies
9. Conduct 4D scheduling and 5D cost estimation integration
10. Apply cloud-based BIM collaboration (BIM 360 / Autodesk Construction Cloud)
11. Strengthen skills in AI-assisted construction planning and automation
12. Optimize structural workflows using interoperable BIM data exchange (IFC standards)
13. Deliver sustainable and carbon-efficient structural BIM solutions

Target Audience

1. Structural Engineers
2. Civil Engineers
3. Architects & Architectural Designers
4. BIM Modelers & Coordinators
5. Construction Project Managers
6. Quantity Surveyors
7. Infrastructure Consultants
8. Engineering Students & Graduates

Course Modules

Module 1: BIM Fundamentals & Structural Integration

- Introduction to BIM ecosystem and workflows
- Structural modeling principles in BIM environment
- Data-driven design coordination concepts

- BIM object creation and libraries
- Case Study: Residential high-rise BIM structural modeling workflow

Module 2: Advanced Revit Structure Modeling

- Parametric structural modeling techniques
- Steel and concrete system creation
- Family creation and customization
- Worksharing and collaboration tools
- Case Study: Commercial complex structural Revit model

Module 3: Tekla Structures for Steel Detailing

- Steel connection modeling and detailing
- Fabrication-ready drawing generation
- Reinforcement detailing workflows
- Interoperability with BIM platforms
- Case Study: Industrial warehouse steel structure project

Module 4: Clash Detection & Coordination

- Navisworks clash detection workflows
- Model federation techniques
- Issue tracking and resolution systems
- Interdisciplinary coordination methods
- Case Study: Hospital project coordination conflict resolution

Module 5: 4D Scheduling & 5D Cost Integration

- Construction sequencing with BIM
- Time-based simulation (4D BIM)
- Cost estimation and quantity linking (5D BIM)
- Project optimization techniques
- Case Study: Infrastructure bridge construction simulation

Module 6: Digital Twin & Smart Construction

- Digital twin concept and applications
- Real-time asset monitoring systems
- IoT integration in structural systems
- Predictive maintenance modeling
- Case Study: Smart stadium lifecycle digital twin

Module 7: BIM Collaboration & Cloud Platforms

- Autodesk Construction Cloud workflows
- BIM 360 collaboration tools
- Data sharing and version control
- Multi-stakeholder coordination systems
- Case Study: Airport terminal collaborative BIM execution

Module 8: Sustainable & AI-Driven Structural BIM

- Green building BIM strategies
- Carbon footprint analysis tools
- AI in structural optimization
- Generative design applications
- Case Study: Net-zero energy office building design

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