Timber Structures Engineering 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

Timber Structures Engineering is rapidly becoming one of the most sustainable, eco-friendly, and high-performance construction solutions in modern civil engineering. As the global construction industry shifts toward green building technologies, carbon-neutral infrastructure, and renewable construction materials, timber has re-emerged as a key structural material due to its strength-to-weight ratio, durability, cost-efficiency, and environmental benefits. This training course provides a comprehensive foundation in the design, analysis, detailing, and construction of timber structures, aligned with international standards such as Eurocode 5 and modern engineered wood systems.

Timber Structures Engineering Training Course is designed to bridge the gap between theoretical knowledge and real-world application in mass timber engineering, cross-laminated timber (CLT), glued laminated timber (Glulam), and hybrid structural systems. Participants will gain hands-on exposure to structural design optimization, seismic performance of timber buildings, fire resistance engineering, and digital modeling using BIM tools. With increasing demand for low-carbon architecture, sustainable urban development, and green certified buildings, this training equips engineers, architects, and construction professionals with cutting-edge competencies required in today’s evolving construction landscape.

Programme Curriculum

Timber Structures Engineering Training Course

Introduction

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Course Duration

5 days

Course Objectives

1. Understand fundamentals of timber engineering design and structural behavior
2. Apply Eurocode 5 and international timber design standards
3. Analyze load distribution in timber structural systems
4. Design mass timber buildings using CLT and Glulam technologies
5. Evaluate fire resistance performance of timber structures
6. Implement seismic-resistant timber construction techniques
7. Develop skills in sustainable and green building design
8. Perform structural analysis using engineering software tools
9. Understand connections and joint detailing in timber systems
10. Assess durability, decay resistance, and moisture effects
11. Integrate BIM (Building Information Modeling) in timber design
12. Optimize cost-effective and low-carbon structural solutions
13. Apply real-world project case studies in timber construction

Target Audience

1. Civil Engineers specializing in structural design
2. Architects focused on sustainable building design
3. Construction project managers
4. Structural engineering students and graduates
5. Timber manufacturing and fabrication professionals
6. Green building consultants and sustainability experts
7. Government infrastructure and housing officers
8. BIM technicians and digital construction specialists

Course Modules

Module 1: Fundamentals of Timber Engineering

- Properties of structural timber materials
- Mechanical behavior of wood under load
- Timber grading and classification systems
- Advantages of engineered wood products

- Introduction to sustainable forestry materials
- **Case Study:** Residential timber-framed housing project in Scandinavia demonstrating energy efficiency and structural stability.

Module 2: Timber Structural Design Principles

- Load paths in timber structures
- Limit state design methodology
- Safety factors and design considerations
- Structural stability and bracing systems
- Serviceability criteria in timber design
- **Case Study:** Mid-rise timber office building design using modern engineered wood systems.

Module 3: Cross-Laminated Timber (CLT) Systems

- CLT manufacturing process and properties
- Panel behavior under vertical and lateral loads
- Connection systems in CLT structures
- Design limitations and advantages
- Applications in multi-storey buildings
- **Case Study:** 10-storey CLT residential building in Austria showcasing rapid modular construction.

Module 4: Glued Laminated Timber (Glulam) Structures

- Fabrication of Glulam beams and columns
- Structural efficiency of curved members
- Load-bearing capacity and span optimization
- Connection detailing in Glulam systems
- Architectural flexibility in design
- **Case Study:** Long-span timber sports hall using Glulam arches.

Module 5: Fire Safety and Durability in Timber Structures

- Charring rate and fire resistance principles
- Fire protection design strategies
- Moisture control and biological degradation
- Protective coatings and treatments
- Compliance with fire safety regulations
- **Case Study:** Commercial timber complex meeting 90-minute fire resistance standards.

Module 6: Seismic Design of Timber Structures

- Earthquake-resistant design principles
- Energy dissipation in timber systems
- Base isolation techniques
- Ductile connections in timber frames
- Performance-based seismic design
- **Case Study:** Seismic-resistant timber school building in Japan.

Module 7: Digital Design & BIM Integration

- BIM modeling for timber structures

- Structural simulation tools
- Parametric design in timber engineering
- Clash detection and coordination
- Digital fabrication workflows
- **Case Study:** Fully BIM-coordinated timber hospital project reducing construction errors by 30%.

Module 8: Sustainable Construction & Hybrid Systems

- Carbon footprint reduction strategies
- Hybrid timber-concrete systems
- Lifecycle assessment of timber structures
- Green certification systems (LEED, BREEAM)
- Future trends in mass timber construction
- **Case Study:** Hybrid timber skyscraper integrating concrete core and timber framing for sustainability.

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