Low-Carbon Building Technologies 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

The construction and built environment sector is undergoing a rapid transformation driven by climate change mitigation, net-zero emissions targets, green construction standards, and sustainable urban development goals. Low-Carbon Building Technologies (LCBT) are at the core of this shift, integrating energy-efficient design, renewable energy systems, green materials, carbon footprint reduction strategies, and smart building technologies to significantly reduce operational and embodied carbon in buildings.

Low-Carbon Building Technologies Training Course is designed to equip professionals with practical and strategic knowledge of low-carbon architecture, sustainable building design, green certification systems (LEED, BREEAM, EDGE), circular construction practices, and climate-resilient infrastructure. Participants will gain hands-on understanding of how to design, construct, and manage buildings that align with net-zero carbon pathways, ESG compliance, and global sustainability frameworks.

Programme Curriculum

Low-Carbon Building Technologies Training Course

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Course Duration

5 days

Course Objectives

1. Understand principles of low-carbon construction and sustainable building design
2. Apply net-zero energy building (NZEB) strategies in real projects
3. Evaluate carbon footprint assessment tools and lifecycle analysis (LCA)
4. Implement energy-efficient HVAC and smart energy systems
5. Integrate renewable energy technologies in building design
6. Use green building materials and sustainable sourcing methods
7. Develop skills in building energy modeling and simulation
8. Apply circular economy principles in construction
9. Understand green building certification systems (LEED, EDGE, BREEAM)
10. Design using passive solar architecture and climate-responsive strategies
11. Promote water efficiency and sustainable drainage systems
12. Analyze embodied carbon reduction techniques in construction
13. Align projects with ESG standards and global climate goals (SDGs, Paris Agreement)

Target Audience

- Architects and architectural designers
- Civil and structural engineers
- Construction project managers
- Sustainability and ESG consultants
- Urban planners and smart city developers
- Real estate developers and investors
- Government and policy regulators in infrastructure
- Environmental and energy auditors

Course Modules

Module 1: Fundamentals of Low-Carbon Buildings

- Introduction to carbon emissions in construction
- Global climate policies and net-zero targets
- Overview of sustainable development goals (SDGs)
- Building lifecycle carbon impacts
- Green construction trends and innovations
- **Case Study:** Net-zero residential housing project in Scandinavia using passive design strategies

Module 2: Sustainable Building Design Principles

- Climate-responsive architecture techniques
- Passive solar design strategies

- Natural ventilation and daylight optimization
- Thermal insulation and building envelope design
- Energy-efficient spatial planning
- **Case Study:** Passive house community development in Germany

Module 3: Energy Efficiency & Smart Systems

- High-efficiency HVAC systems
- Smart building automation systems (BAS)
- Energy monitoring and analytics tools
- LED and intelligent lighting systems
- Demand-side energy management
- **Case Study:** Smart commercial office tower in Singapore with AI energy optimization

Module 4: Renewable Energy Integration

- Solar PV systems in buildings
- Wind and hybrid energy solutions
- Building-integrated photovoltaics (BIPV)
- Energy storage systems (batteries)
- Net-zero energy building design frameworks
- **Case Study:** Solar-powered university campus in California

Module 5: Green Materials & Sustainable Construction

- Low-carbon concrete and alternatives
- Recycled and upcycled building materials
- Sustainable timber and bamboo technologies
- Life-cycle assessment of materials
- Eco-friendly construction practices
- **Case Study:** Bamboo-based eco-resort construction in Southeast Asia

Module 6: Carbon Accounting & Lifecycle Analysis

- Embodied carbon vs operational carbon
- Carbon footprint measurement tools
- Life Cycle Assessment (LCA) methods
- Environmental Product Declarations (EPDs)
- Carbon reporting standards
- **Case Study:** Carbon-neutral hospital project in the UK

Module 7: Green Building Certification Systems

- LEED certification framework
- BREEAM assessment system
- EDGE certification for emerging markets
- Compliance documentation processes
- Certification scoring and optimization
- **Case Study:** LEED Platinum-certified skyscraper in Dubai

Module 8: Circular Economy & Future Cities

- Circular construction principles
- Waste reduction and material reuse
- Adaptive reuse of buildings
- Smart cities and low-carbon infrastructure
- Climate-resilient urban planning
- **Case Study:** Circular economy-based redevelopment project in Amsterdam

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