Green Roof 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

Green Roof Systems represent a transformative innovation in sustainable urban development, integrating vegetation layers into building rooftops to enhance environmental performance, energy efficiency, and climate resilience. As cities continue to expand and face challenges such as urban heat island effect, stormwater runoff, air pollution, and carbon emissions, green roofs have emerged as a critical component of green infrastructure, climate-smart cities, and net-zero building strategies. Green Roof Systems Training Course is designed to equip learners with practical and technical expertise in designing, installing, and maintaining high-performance green roof systems aligned with global sustainability standards.

The course provides an in-depth understanding of extensive and intensive green roofs, waterproofing technologies, drainage systems, plant selection, structural load considerations, and ecosystem integration. Participants will gain hands-on knowledge of modern tools, best practices, and real-world applications used in LEED certification projects, smart city developments, and urban sustainability programs. By the end of the course, learners will be capable of implementing green roof solutions that improve building performance, reduce environmental impact, and support biodiversity in urban environments.

Programme Curriculum

Green Roof Systems Training Course

Introduction

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Course Duration

5 days

Course Objectives

1. Understand green infrastructure systems design principles
2. Analyze urban heat island mitigation strategies
3. Apply stormwater management and retention techniques
4. Evaluate energy efficiency in sustainable building envelopes
5. Design biodiversity-friendly rooftop ecosystems
6. Implement LEED and green building certification standards
7. Assess structural load capacity for rooftop greening
8. Integrate climate resilience and adaptation solutions
9. Develop eco-friendly irrigation and water recycling systems
10. Identify plant species for sustainable roof landscaping
11. Apply carbon footprint reduction techniques in buildings
12. Manage maintenance systems for long-term roof performance
13. Utilize smart monitoring technologies in green roofs (IoT sensors)

Target Audience

1. Civil and Structural Engineers
2. Architects and Urban Designers
3. Environmental Scientists and Ecologists
4. Construction and Project Managers
5. Sustainability and ESG Consultants
6. Landscape Architects and Horticulturists
7. Government Urban Planning Officers
8. Real Estate Developers and Property Managers

Course Modules

Module 1: Introduction to Green Roof Systems

- Types: extensive, semi-intensive, intensive systems
- Benefits of urban sustainability integration
- Global green roof adoption trends
- Environmental impact assessment
- Policy and regulatory frameworks
- **Case Study:** Berlin, Germany green roof adoption program reducing urban heat by 2–4°C.

Module 2: Green Roof Design Principles

- Structural design considerations
- Load-bearing calculations
- Waterproofing and insulation layers
- Roof slope and drainage design
- Wind and climate adaptation design
- **Case Study:** Chicago City Hall green roof structural retrofit success.

Module 3: Waterproofing and Drainage Systems

- Membrane technologies (PVC, EPDM)
- Root barrier systems
- Drainage layer optimization
- Leak detection systems
- Moisture control techniques
- **Case Study:** Singapore Marina Bay Sands waterproofing innovation system.

Module 4: Plant Selection and Urban Ecology

- Native vs adaptive species selection
- Drought-resistant vegetation systems
- Biodiversity enhancement strategies
- Pollinator-friendly green roofs
- Seasonal maintenance planning
- **Case Study:** Toronto City Hall pollinator rooftop garden project.

Module 5: Stormwater Management Systems

- Rainwater harvesting integration
- Runoff delay and absorption techniques
- Water retention layer design
- Overflow control systems
- Climate resilience water modeling
- **Case Study:** New York City green roof stormwater credit program.

Module 6: Energy Efficiency and Building Performance

- Thermal insulation benefits
- HVAC load reduction impact
- Passive cooling techniques
- Energy savings measurement tools
- Carbon reduction analysis
- **Case Study:** Freiburg, Germany eco-building district energy savings study.

Module 7: Installation and Construction Techniques

- Step-by-step installation process
- Material selection and logistics
- Safety protocols during installation
- Quality assurance methods
- Cost estimation and budgeting

- **Case Study:** London Olympic Park sustainable roof installation project.

Module 8: Maintenance and Smart Monitoring Systems

- Irrigation scheduling systems
- Fertilization and soil health management
- Pest and disease control strategies
- IoT-based monitoring sensors
- Long-term sustainability planning
- **Case Study:** Tokyo smart green roof monitoring using AI-based sensors.

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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