Advanced Daylighting Analysis Training Course

Professional Development Training Course Outline

Category	Architectural Engineering	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Advanced Daylighting Analysis is a critical discipline at the intersection of sustainable architecture, building performance simulation, and energy-efficient design. With the global shift toward net-zero buildings, green certifications (LEED, WELL, BREEAM), and climate-responsive architecture, daylighting has become a core strategy for reducing energy consumption and enhancing occupant well-being. Advanced Daylighting Analysis Training Course equips professionals with cutting-edge tools and methodologies to perform high-precision daylight simulations, glare analysis, and visual comfort optimization using industry-leading software and data-driven workflows.

This course emphasizes parametric design, climate-based daylight modeling (CBDM), real-time simulation tools, and AI-assisted building analysis. Participants will gain hands-on expertise in evaluating daylight autonomy (DA), useful daylight illuminance (UDI), spatial daylight autonomy (sDA), and annual sunlight exposure (ASE) while integrating daylight strategies into modern architectural projects. Through real-world case studies, participants will learn to design high-performance façades, smart glazing systems, and adaptive shading solutions that align with sustainability goals and advanced building standards.

Programme Curriculum

Advanced Daylighting Analysis Training Course

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Course Duration

10 days

Course Objectives

1. Master climate-based daylight modeling (CBDM) for high-performance buildings
2. Understand daylight autonomy (DA), sDA, ASE, and UDI metrics
3. Perform advanced glare analysis (DGP, DGI) for visual comfort optimization
4. Integrate parametric daylight design workflows into architecture
5. Apply energy-efficient daylighting strategies for net-zero buildings
6. Use cutting-edge simulation tools (Radiance, Grasshopper, Honeybee, Ladybug)
7. Design adaptive façade systems and smart shading technologies
8. Optimize building orientation and envelope performance
9. Implement LEED, WELL, and BREEAM daylight compliance strategies
10. Analyze real-time daylight simulation using BIM integration
11. Develop AI-driven daylight optimization models
12. Improve occupant productivity and wellness through daylight design
13. Conduct data-driven decision-making for sustainable architecture

Target Audience

- Architects and Sustainable Design Consultants
- Building Performance Analysts
- Environmental Engineers
- Urban Planners and Smart City Designers
- Interior Designers focusing on lighting
- Energy Modelers and Simulation Experts
- Green Building Certification Professionals
- Students and Researchers in Architecture & Sustainability

Course Modules

Module 1: Fundamentals of Daylighting

- Principles of natural light
- Light behavior and reflection
- Visual comfort basics
- Daylighting vs artificial lighting
- Case Study: Passive daylight design in residential buildings

Module 2: Climate-Based Daylight Modeling (CBDM)

- Climate data interpretation
- Annual daylight simulations
- Weather file analysis
- Dynamic daylight metrics
- Case Study: Office building daylight optimization

Module 3: Daylight Metrics & Standards

- DA, sDA, ASE, UDI
- LEED daylight credits
- WELL lighting standards
- Performance benchmarks
- Case Study: LEED-certified commercial building

Module 4: Daylight Simulation Tools

- Radiance fundamentals
- Grasshopper integration
- Honeybee & Ladybug workflows
- Simulation accuracy
- Case Study: Parametric façade study

Module 5: Building Orientation & Massing

- Solar path analysis
- Site planning strategies
- Shadow analysis
- Form optimization
- Case Study: Urban master planning

Module 6: Façade Design Optimization

- High-performance glazing
- Double-skin façades
- Smart materials
- Thermal-light balance
- Case Study: Glass façade skyscraper

Module 7: Shading Systems Design

- Fixed vs dynamic shading
- Automated shading systems
- Kinetic façades
- Solar control strategies
- Case Study: Adaptive shading in offices

Module 8: Glare Analysis

- DGP and DGI metrics
- Visual discomfort factors
- Occupant-centered design
- Simulation workflows

- Case Study: Open-plan office glare control

Module 9: Daylighting in Interior Spaces

- Light distribution techniques
- Reflective materials
- Space planning
- Interior daylight optimization
- Case Study: Museum lighting design

Module 10: Energy Efficiency Integration

- Lighting energy reduction
- HVAC interaction
- Daylight harvesting systems
- Smart sensors
- Case Study: Net-zero energy building

Module 11: BIM & Daylight Integration

- Revit daylight workflows
- BIM simulation integration
- Data interoperability
- Digital twin concepts
- Case Study: BIM-based daylight project

Module 12: Parametric & Generative Design

- Algorithmic design logic
- Optimization loops
- Generative façade design
- Performance-driven modeling
- Case Study: AI-optimized building envelope

Module 13: Smart & Responsive Buildings

- IoT-based daylight systems
- Responsive environments
- Automation strategies
- Smart glass technologies
- Case Study: Intelligent office building

Module 14: Green Building Certifications

- LEED daylight credits
- WELL lighting criteria
- BREEAM standards
- Compliance strategies
- Case Study: Certified sustainable campus

Module 15: Capstone Project

- Real-world project simulation

- End-to-end daylight analysis
- Performance reporting
- Design optimization
- Case Study: Complete building daylight strategy

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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