Building Acoustics 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

Building Acoustics Engineering is a specialized discipline focused on the science, design, and control of sound within built environments to achieve optimal noise control, sound insulation, vibration mitigation, and acoustic comfort. In modern construction, acoustic performance is no longer optional it is a critical requirement for sustainable architecture, green buildings, smart cities, and high-performance infrastructure. Building Acoustics Engineering Training Course provides a comprehensive foundation in room acoustics, building noise control, HVAC noise management, soundproofing technologies, and environmental acoustics engineering aligned with global standards such as ISO 3382 and ISO 16283.

With rapid urbanization and increasing demand for quiet buildings, sound quality optimization, and noise pollution reduction, professionals must understand both theoretical and practical aspects of acoustics engineering. This course bridges the gap between architectural design and acoustic engineering solutions, empowering participants to design buildings that meet high-performance acoustic standards in residential, commercial, industrial, and institutional environments.

Programme Curriculum

Building Acoustics Engineering Training Course

Introduction

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Course Duration

5 days

Course Objectives

1. Master fundamentals of building acoustics engineering principles
2. Understand sound propagation, reflection, absorption, and diffusion
3. Apply noise control engineering techniques in buildings
4. Design effective sound insulation systems for walls, floors, and ceilings
5. Analyze and mitigate HVAC noise and vibration issues
6. Implement room acoustic design for auditoriums and studios
7. Evaluate impact noise and airborne noise transmission
8. Apply acoustic modeling and simulation software tools
9. Understand environmental noise assessment and compliance
10. Design green building acoustic solutions
11. Conduct acoustic measurements and field testing
12. Apply international standards like ISO acoustic regulations
13. Develop expertise in real-world acoustic engineering project execution

Target Audience

1. Civil Engineers
2. Mechanical Engineers
3. Architectural Designers
4. Acoustic Consultants
5. Construction Project Managers
6. HVAC Engineers
7. Environmental Engineers
8. Graduate Engineering Students

Course Modules

Module 1: Fundamentals of Building Acoustics

- Nature of sound and wave propagation
- Sound frequency, intensity, and decibel scale
- Human perception of noise and psychoacoustics
- Acoustic terminology and engineering units
- Introduction to building acoustics systems
- **Case Study:** Acoustic issues in a high-rise residential building near a highway

Module 2: Noise Control Engineering

- Types of noise: airborne, structure-borne, impact
- Noise path analysis in buildings
- Passive and active noise control methods
- Acoustic barriers and damping materials
- Noise reduction coefficient (NRC) applications
- **Case Study:** Noise reduction in an urban hospital environment

Module 3: Sound Insulation & Isolation Techniques

- Wall, floor, and ceiling insulation systems
- Mass law and transmission loss principles
- Double-wall and floating floor systems
- Sealing techniques for acoustic leakage
- Material selection for insulation performance
- **Case Study:** Soundproofing a luxury hotel suite

Module 4: Room Acoustics Design

- Reverberation time calculation (RT60)
- Speech intelligibility and clarity index
- Acoustic treatment for auditoriums
- Diffusers, absorbers, and reflectors
- Acoustic optimization of multipurpose halls
- **Case Study:** Acoustic redesign of a university lecture hall

Module 5: HVAC Noise & Vibration Control

- Noise sources in HVAC systems
- Duct acoustics and silencer design
- Vibration isolation techniques
- Equipment mounting and damping solutions
- Noise control in mechanical rooms
- **Case Study:** HVAC noise correction in a commercial office tower

Module 6: Environmental Noise Assessment

- Outdoor noise measurement techniques
- Environmental impact assessment (EIA)
- Traffic and industrial noise modeling
- Regulatory compliance standards
- Noise mapping and monitoring systems
- **Case Study:** Airport noise impact study in an urban area

Module 7: Acoustic Materials & Technologies

- Sound-absorbing material properties
- Advanced composite acoustic materials
- Sustainable green acoustic solutions
- Smart acoustic sensors and systems
- Fire-rated acoustic materials
- **Case Study:** Green building acoustic optimization project

Module 8: Acoustic Simulation & Software Tools

- Introduction to acoustic modeling software
- 3D room acoustics simulation
- Predictive noise analysis tools
- BIM integration for acoustics
- Interpretation of simulation results
- **Case Study:** Virtual acoustic design of a concert hall

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

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