Building Systems Commissioning 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 Systems Commissioning (BSC) is a critical, structured quality assurance process that ensures all building systems mechanical, electrical, plumbing (MEP), HVAC, fire safety, energy systems, and smart automation are designed, installed, tested, and operated according to the owner's project requirements and global performance standards. In today's rapidly evolving smart infrastructure, green buildings, and net-zero energy construction era, commissioning plays a vital role in reducing lifecycle costs, improving energy efficiency, and enhancing occupant comfort and safety.

Building Systems Commissioning Training Course equips professionals with cutting-edge knowledge of ISO standards, LEED commissioning requirements, BIM-integrated commissioning, predictive maintenance, IoT-based building analytics, and digital twin technologies. Participants will gain hands-on expertise in managing complex building systems, performing functional performance testing (FPT), and ensuring compliance with international building codes, sustainability frameworks, and commissioning best practices.

Programme Curriculum

Building Systems Commissioning Training Course

Introduction

Building Systems Commissioning (BSC) is a critical, structured quality assurance process that ensures all building systems mechanical, electrical, plumbing (MEP), HVAC, fire safety, energy systems, and smart automation are designed, installed, tested, and operated according to the owner's project requirements and global performance standards. In today's rapidly evolving smart infrastructure, green buildings, and net-zero energy construction era, commissioning plays a vital role in reducing lifecycle costs, improving energy efficiency, and enhancing occupant comfort and safety.

Building Systems Commissioning Training Course equips professionals with cutting-edge knowledge of ISO standards, LEED commissioning requirements, BIM-integrated commissioning, predictive maintenance, IoT-based building analytics, and digital twin technologies. Participants will gain hands-on expertise in managing complex building systems, performing functional performance testing (FPT), and ensuring compliance with international building codes, sustainability frameworks, and commissioning best practices.

Course Duration

5 days

Course Objectives

1. Master Advanced Building Systems Commissioning (BSC) lifecycle
2. Apply LEED, ASHRAE, and ISO 50001 commissioning standards
3. Understand HVAC performance optimization and energy efficiency tuning
4. Conduct Functional Performance Testing (FPT) and system validation
5. Implement BIM-integrated commissioning workflows
6. Use IoT-enabled smart building diagnostics and monitoring
7. Develop commissioning plans, checklists, and test scripts
8. Ensure fire safety, electrical reliability, and MEP integration compliance
9. Perform energy audit and carbon footprint reduction analysis
10. Apply digital twin technology in building commissioning
11. Manage deficiency tracking and quality assurance documentation
12. Optimize building automation systems (BAS/BMS) performance
13. Achieve net-zero energy building readiness and sustainability compliance

Target Audience

1. Mechanical, Electrical & Plumbing (MEP) Engineers
2. Building Commissioning Agents (CxA)
3. Facility Managers & Operations Engineers
4. HVAC Design Engineers
5. Construction Project Managers
6. Energy Consultants & Sustainability Experts
7. Smart Building & Automation Engineers
8. Architecture & Infrastructure Consultants

Course Modules

Module 1: Fundamentals of Building Systems Commissioning

- Commissioning lifecycle stages (design, construction, O&M)
- Roles and responsibilities of commissioning team
- Project requirements documentation (OPR & BOD)
- Commissioning standards (ASHRAE, LEED, ISO)
- Commissioning vs. quality control distinction
- **Case Study:** Commissioning failure in HVAC system leading to 25% energy loss in a commercial tower.

Module 2: HVAC Systems Commissioning & Optimization

- Air handling unit (AHU) performance testing
- Chiller plant optimization strategies

- Air balancing and duct leakage testing
- Thermal comfort compliance standards
- Energy efficiency benchmarking
- **Case Study:** Optimization of hospital HVAC reducing operational energy cost by 30%.

Module 3: Electrical Systems Commissioning

- Power distribution system testing
- Load balancing and fault analysis
- Emergency power & UPS validation
- Grounding and safety compliance
- Electrical reliability assessment
- **Case Study:** Data center power failure prevention through commissioning validation.

Module 4: Plumbing & Fire Protection Systems

- Water supply and drainage testing
- Fire sprinkler system commissioning
- Pump performance verification
- Leak detection and pressure testing
- Safety compliance audits
- **Case Study:** Fire system commissioning in a high-rise preventing code violations.

Module 5: Building Automation Systems (BMS/BAS)

- Smart controls and sensor calibration
- HVAC automation integration
- Fault detection and diagnostics (FDD)
- Energy management systems (EMS)
- Real-time monitoring dashboards
- **Case Study:** Smart building retrofit achieving 20% energy savings using BMS tuning.

Module 6: Energy Efficiency & Sustainability Commissioning

- Green building certification requirements
- Net-zero energy strategies
- Carbon emission tracking systems
- Energy modeling and simulation
- Renewable integration systems
- **Case Study:** LEED Platinum office building achieving net-zero readiness.

Module 7: Digital Commissioning (BIM & IoT Integration)

- BIM-based commissioning workflows
- Digital twin implementation
- IoT sensors in building diagnostics
- Cloud-based commissioning platforms
- Predictive maintenance systems
- **Case Study:** Airport terminal using BIM-integrated commissioning to reduce defects by 40%.

Module 8: Commissioning Documentation & Handover

- Commissioning reports and compliance documentation
- Deficiency tracking systems
- Training O&M teams for facility operation
- Final acceptance and handover process
- Post-occupancy evaluation (POE)
- **Case Study:** Commercial complex achieving smooth handover with zero post-occupancy defects.

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