Infrastructure Life Cycle Management Training Course

Professional Development Training Course Outline

Category	Construction Institute	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Infrastructure Life Cycle Management Training Course is designed to equip professionals with advanced knowledge, practical frameworks, and strategic tools to manage modern infrastructure assets from planning, design, development, operation, maintenance, optimization, and decommissioning. With the rapid evolution of smart infrastructure, digital transformation, asset performance management, predictive maintenance, sustainability engineering, and resilient infrastructure strategies, organizations require skilled professionals who can maximize asset value, reduce operational risks, and improve long-term infrastructure performance. This course integrates Infrastructure Asset Management (IAM), ISO 55000 principles, digital twins, IoT-enabled monitoring, data-driven decision-making, lifecycle cost analysis, and ESG-focused infrastructure planning.

Through real-world applications, industry case studies, and interactive learning approaches, participants will develop the ability to implement end-to-end infrastructure lifecycle strategies that enhance reliability, efficiency, safety, and sustainability. The program focuses on emerging trends such as AI-powered asset management, predictive analytics, climate-resilient infrastructure, smart cities, automation, and sustainable development goals (SDGs), enabling professionals to make informed decisions throughout the entire infrastructure lifecycle.

Programme Curriculum

Infrastructure Life Cycle Management Training Course

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5 days

Course Objectives

By the end of this training course, participants will be able to:

1. Understand the fundamentals of Infrastructure Life Cycle Management (ILCM) and its strategic importance.
2. Apply asset lifecycle optimization strategies to improve infrastructure performance and longevity.
3. Develop effective infrastructure planning and investment strategies using lifecycle approaches.
4. Implement ISO 55000 Asset Management principles for organizational excellence.
5. Apply digital transformation technologies including AI, IoT, and digital twins in infrastructure management.
6. Perform lifecycle cost analysis (LCCA) to support sustainable investment decisions.
7. Develop predictive maintenance and condition-based monitoring programs.
8. Improve infrastructure resilience through risk-based asset management frameworks.
9. Integrate sustainability, ESG, and green infrastructure practices into lifecycle planning.
10. Manage infrastructure data using analytics-driven decision-making models.
11. Enhance operational efficiency through smart infrastructure technologies.
12. Apply best practices in infrastructure renewal, rehabilitation, and modernization.
13. Build strategic capabilities for future-ready infrastructure management and climate adaptation.

Target Audience

1. Infrastructure asset managers and lifecycle management professionals.
2. Civil, structural, mechanical, and electrical engineers.
3. Project managers and program management professionals.
4. Facility managers and operations leaders.
5. Government infrastructure planners and policymakers.
6. Smart city and digital infrastructure specialists.
7. Maintenance, reliability, and asset performance engineers.
8. Consultants involved in infrastructure investment and sustainability projects.

Course Modules

Module 1: Fundamentals of Infrastructure Life Cycle Management

- Principles and concepts of **Infrastructure Lifecycle Management (ILCM)**.

- Infrastructure asset lifecycle stages-planning to disposal.
- Relationship between asset value, performance, and lifecycle strategies.
- Introduction to **strategic asset management frameworks**.
- Role of lifecycle thinking in modern infrastructure development.
- **Case Study: Singapore Smart Infrastructure Program**

Module 2: Infrastructure Planning, Design, and Lifecycle Strategy

- Developing infrastructure lifecycle strategies.
- Strategic planning for long-term asset performance.
- Design considerations for lifecycle optimization.
- Integrating sustainability into infrastructure planning.
- Managing infrastructure investment decisions.
- **Case Study: Crossrail Project, United Kingdom**

Module 3: Asset Management Frameworks and ISO 55000 Implementation

- Fundamentals of **ISO 55000 Asset Management Standards**.
- Asset management policy and objectives.
- Asset information management systems.
- Performance measurement and KPIs.
- Building an asset management maturity model.
- **Case Study: Australian Transport Infrastructure Asset Management Programs**

Module 4: Digital Transformation in Infrastructure Lifecycle Management

- Role of **Artificial Intelligence (AI)** in infrastructure management.
- Internet of Things (IoT) enabled monitoring systems.
- Digital twin technology applications.
- Big data analytics for infrastructure decisions.
- Smart infrastructure and automation trends.
- **Case Study: Dubai Smart City Infrastructure**

Module 5: Infrastructure Maintenance, Reliability, and Performance Optimization

- Preventive, predictive, and condition-based maintenance.
- Reliability-centered maintenance (RCM).
- Asset health monitoring techniques.
- Failure analysis and risk reduction.
- Optimizing maintenance strategies using analytics.
- **Case Study: European Railway Asset Management Systems**

Module 6: Lifecycle Cost Management and Sustainable Infrastructure

- Lifecycle Cost Analysis (LCCA) methodologies.
- Capital expenditure (CAPEX) and operational expenditure (OPEX) optimization.
- Sustainable infrastructure investment models.
- Carbon reduction strategies.
- ESG-driven infrastructure decision-making.
- **Case Study: Green Building Infrastructure Projects**

Module 7: Infrastructure Risk Management and Resilience Planning

- Infrastructure risk identification and assessment.
- Climate-resilient infrastructure strategies.
- Disaster preparedness and recovery planning.
- Critical infrastructure protection.
- Risk-based lifecycle decision-making.
- **Case Study: Netherlands Flood Protection Infrastructure**

Module 8: Future Trends and Advanced Infrastructure Lifecycle Management

- Future of smart infrastructure ecosystems.
- AI-driven predictive infrastructure management.
- Autonomous monitoring technologies.
- Sustainable and circular infrastructure models.
- Developing future-ready infrastructure strategies.
- **Case Study: Barcelona Smart City Infrastructure Transformation**

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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