Digital Road Asset 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

Digital Road Asset Management Training Course is designed to equip professionals with advanced knowledge of smart road infrastructure, digital transformation, AI-powered asset management, GIS-based road monitoring, IoT-enabled transportation systems, and predictive maintenance strategies. The course focuses on modern approaches to managing road networks through data-driven decision-making, digital twins, cloud-based asset platforms, automation, and intelligent transportation solutions. Participants will learn how to integrate emerging technologies with traditional road management practices to improve road safety, lifecycle performance, sustainability, operational efficiency, and investment optimization.

This comprehensive training provides practical insights into the complete lifecycle of road assets, from inventory creation and condition assessment to risk analysis, performance monitoring, and strategic maintenance planning. Through real-world case studies, industry best practices, and hands-on digital workflows, learners will understand how leading transportation organizations are implementing Smart Mobility, AI analytics, remote sensing, BIM-GIS integration, and advanced asset management frameworks to build resilient and sustainable transportation networks. The course prepares professionals to lead digital innovation initiatives and achieve measurable improvements in road infrastructure performance.

Programme Curriculum

Digital Road Asset Management Training Course

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5 days

Course Objectives

1. Understand the principles of Digital Road Asset Management (DRAM) and its role in modern infrastructure transformation.
2. Develop expertise in AI-driven road asset monitoring and predictive maintenance technologies.
3. Learn how to create and manage digital road asset inventories using GIS and cloud platforms.
4. Apply IoT sensors, connected infrastructure, and real-time data analytics for road performance monitoring.
5. Master road condition assessment methodologies using automation and smart inspection tools.
6. Understand the application of Digital Twin technology for transportation infrastructure management.
7. Implement data-driven lifecycle management strategies for roads and associated assets.
8. Improve decision-making using big data analytics, machine learning, and visualization dashboards.
9. Learn advanced approaches for risk-based asset management and infrastructure resilience planning.
10. Integrate BIM-GIS workflows and geospatial intelligence into road management systems.
11. Develop sustainable strategies aligned with green infrastructure and climate-resilient roads.
12. Understand international standards and best practices for transportation asset management systems.
13. Build leadership capability for managing smart cities, intelligent transportation systems (ITS), and digital infrastructure programs.

Target Audience

1. Road Asset Managers and Transportation Infrastructure Professionals
2. Civil Engineers and Highway Design Specialists
3. Government Transport Authorities and Municipal Officials
4. GIS Specialists and Geospatial Data Analysts
5. Smart City and Intelligent Transportation System (ITS) Professionals
6. Infrastructure Project Managers and Consultants
7. Technology Professionals working in AI, IoT, and Digital Transformation
8. Researchers, Academics, and Future Infrastructure Leaders

Course Modules

Module 1: Fundamentals of Digital Road Asset Management

- Evolution from traditional road management to digital infrastructure management
- Principles of road asset lifecycle management

- Components of a modern digital road asset ecosystem
- Role of data governance and asset information management
- Global trends in smart transportation infrastructure
- Case Study: Implementation of digital road asset management systems for large highway networks to improve maintenance planning and reduce operational costs.

Module 2: Road Asset Data Collection and Digital Inventory Systems

- Development of comprehensive digital road asset inventories
- Mobile mapping, LiDAR, drones, and remote sensing technologies
- GIS-based asset databases and spatial intelligence
- Automated road inspection and data capture techniques
- Cloud-based asset information platforms
- **Case Study:** A national road authority using LiDAR and GIS technology to create a digital inventory of thousands of kilometers of roads.

Module 3: GIS, BIM, and Digital Twin Integration

- Fundamentals of GIS-enabled road asset management
- BIM-GIS integration for infrastructure lifecycle management
- Creating digital twins for transportation networks
- 3D visualization and simulation of road assets
- Smart infrastructure monitoring workflows
- **Case Study:** Digital twin implementation for an urban transportation network to monitor infrastructure conditions in real time.

Module 4: AI, Machine Learning, and Predictive Road Maintenance

- Artificial intelligence applications in road management
- Machine learning models for pavement deterioration prediction
- Automated defect detection using computer vision
- Predictive maintenance planning and optimization
- AI dashboards for infrastructure decision-making
- **Case Study:** Use of AI-based pavement inspection systems to identify cracks and defects faster than traditional surveys.

Module 5: IoT, Sensors, and Real-Time Infrastructure Monitoring

- Internet of Things (IoT) applications in road networks
- Smart sensors for pavement and bridge monitoring
- Real-time traffic and environmental data collection
- Connected roads and intelligent transportation systems
- Edge computing and cloud analytics
- **Case Study:** Deployment of smart sensors on highways to monitor structural health and improve maintenance response times.

Module 6: Road Condition Assessment and Performance Analytics

- Pavement condition assessment techniques
- Road performance indicators and KPIs
- Automated inspection technologies

- Data visualization and analytics dashboards
- Asset performance optimization strategies
- **Case Study:** A transportation agency using analytics dashboards to prioritize road rehabilitation projects based on condition data.

Module 7: Sustainable, Resilient, and Smart Road Infrastructure

- Climate-resilient road asset management approaches
- Sustainable pavement technologies
- Carbon reduction strategies in infrastructure management
- Circular economy principles for road maintenance
- Smart mobility and future transportation trends
- **Case Study:** Implementation of sustainable road maintenance strategies to reduce lifecycle costs and environmental impact.

Module 8: Strategic Implementation of Digital Road Asset Management Systems

- Developing digital transformation roadmaps
- Asset management maturity assessment
- Change management and organizational readiness
- Digital procurement and technology selection strategies
- Future trends: AI automation, autonomous mobility, and smart cities
- **Case Study:** Transformation of a public road agency from manual asset management processes to an integrated digital platform.

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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