Traffic Engineering 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

The Traffic Engineering Training Course is designed to develop advanced knowledge and practical skills in smart mobility, intelligent transportation systems (ITS), sustainable transportation planning, traffic flow optimization, and urban mobility management. With rapid urbanization, increasing congestion, road safety challenges, and the demand for data-driven transportation solutions, professionals require modern approaches to analyze, design, and manage efficient transportation networks. This course provides comprehensive expertise in traffic operations, highway capacity analysis, traffic simulation modeling, transportation analytics, road safety engineering, and smart city mobility solutions.

This professional training program integrates engineering principles, emerging technologies, artificial intelligence (AI), big data analytics, GIS-based transportation planning, and sustainable traffic management strategies to improve transportation efficiency and reduce environmental impacts. Participants will gain practical exposure through real-world traffic engineering case studies, industry-based projects, and applied problem-solving techniques that support the development of safer, greener, and more resilient transportation systems.

Programme Curriculum

Traffic Engineering Training Course

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5 days

Course Objectives

By completing this Traffic Engineering Training Course, participants will be able to:

1. Understand modern traffic engineering principles and transportation system management strategies.
2. Apply advanced techniques in traffic flow theory, capacity analysis, and congestion management.
3. Develop skills in traffic data collection, analytics, and predictive transportation modeling.
4. Analyze intersection performance using signal optimization and intelligent traffic control systems.
5. Implement road safety engineering approaches and accident prevention strategies.
6. Utilize GIS, simulation tools, and digital transportation technologies for network analysis.
7. Understand the application of Artificial Intelligence (AI) and machine learning in traffic management.
8. Design effective urban mobility planning and sustainable transportation solutions.
9. Evaluate highway and roadway performance using international standards.
10. Apply Intelligent Transportation Systems (ITS) for smart mobility transformation.
11. Develop strategies for public transportation optimization and multimodal integration.
12. Improve decision-making through real-time traffic monitoring and big data analytics.
13. Manage future transportation challenges through smart city and connected mobility innovations.

Target Audience

1. Traffic Engineers and Transportation Engineers
2. Civil Engineers and Highway Design Professionals
3. Urban Planners and Smart City Specialists
4. Road Safety Professionals and Traffic Consultants
5. Government Transportation Authorities and Municipal Engineers
6. Infrastructure Project Managers and Consultants
7. Researchers, Academics, and Engineering Students
8. Mobility Technology and ITS Professionals

Course Modules

Module 1: Fundamentals of Traffic Engineering and Transportation Systems

- Introduction to **modern traffic engineering concepts and mobility planning**
- Understanding traffic characteristics, flow patterns, and travel behavior
- Traffic stream models and fundamental traffic flow relationships
- Road network classification and transportation system hierarchy
- **Case Study:** Traffic congestion analysis and improvement strategies in a major urban corridor

Module 2: Traffic Data Collection and Transportation Analytics

- Traffic surveys, sensors, GPS data, and intelligent data collection methods
- Data processing techniques for transportation decision-making
- Application of **big data analytics in traffic management**
- Travel demand analysis and forecasting methods
- **Case Study:** Using traffic data analytics to optimize city-wide mobility operations

Module 3: Traffic Flow Analysis and Capacity Management

- Highway capacity concepts and level of service (LOS) evaluation
- Queue analysis and congestion measurement techniques
- Traffic simulation and modeling approaches
- Capacity improvement strategies for urban networks
- **Case Study:** Highway bottleneck identification and traffic flow improvement project

Module 4: Intersection Design and Signal Optimization

- Intersection traffic control principles and design methods
- Traffic signal timing, coordination, and adaptive control systems
- Roundabout planning and performance evaluation
- Pedestrian and cyclist safety integration
- **Case Study:** Smart traffic signal optimization reducing urban delays

Module 5: Intelligent Transportation Systems (ITS) and Smart Mobility

- ITS architecture and applications in modern transportation
- Connected vehicles and automated traffic management
- AI-based traffic prediction and control systems
- Real-time monitoring platforms and mobility dashboards
- **Case Study:** Smart city ITS implementation for improved traffic efficiency

Module 6: Road Safety Engineering and Accident Reduction

- Principles of traffic safety management
- Crash data analysis and black spot identification
- Road safety audits and corrective measures
- Vulnerable road user protection strategies
- **Case Study:** Accident reduction program using engineering interventions

Module 7: Sustainable Transportation and Urban Mobility Planning

- Sustainable mobility strategies and low-carbon transportation
- Public transportation integration and multimodal systems
- Active transportation planning for walking and cycling
- Climate-resilient transportation infrastructure
- **Case Study:** Sustainable urban mobility plan implementation in a growing city

Module 8: Advanced Traffic Simulation and Future Mobility Technologies

- Traffic simulation tools and digital transportation models
- GIS applications in transportation engineering
- Digital twins and predictive mobility planning
- Autonomous vehicles and future transportation networks

- **Case Study:** Simulation-based planning for future smart mobility corridors

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
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500

Start Date	End Date	Location	Price
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

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