Electronic Road Pricing (ERP) and Safety Considerations Training Course

Professional Development Training Course Outline

Category	Traffic Management & Road Safety	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Electronic Road Pricing (ERP) systems are transforming the future of smart mobility, traffic optimization, and urban transport management by leveraging intelligent transport systems (ITS) and real-time data analytics. As cities continue to face congestion, carbon-emission challenges, and increasing demand for seamless mobility, ERP is emerging as a scalable and efficient solution that aligns with global shifts toward smart cities, sustainable transport infrastructure, and digital road-charging frameworks. Electronic Road Pricing (ERP) and Safety Considerations Training Course provides a comprehensive understanding of ERP technologies, safety protocols, policy considerations, and operational workflows essential for modern transportation ecosystems.

The rapid evolution of ERP from traditional gantry-based models to satellite GNSS-enabled road pricing requires professionals to adopt cutting-edge competencies in traffic engineering, mobility data governance, risk assessment, and road-safety compliance. Participants will gain practical insights into system architecture, cybersecurity safeguards, enforcement strategies, and real-world implementation case studies, empowering them to design, evaluate, and manage safe and effective ERP systems in alignment with global smart transport innovation trends.

Programme Curriculum

Electronic Road Pricing (ERP) and Safety Considerations Training Course

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Course Duration

5 days

Course Objectives

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

1. Understand core principles of Electronic Road Pricing (ERP) and Smart Mobility Systems.
2. Analyze ERP system architecture, infrastructure design, and real-time data integration.
3. Evaluate traffic optimization strategies using digital tolling analytics.
4. Apply road-safety assessment frameworks to ERP deployments.
5. Identify cybersecurity risks and data-privacy challenges in ERP systems.
6. Assess operational performance metrics using intelligent transport KPIs.
7. Develop ERP policy, compliance, and enforcement strategies.
8. Compare global ERP models and emerging GNSS-based road-pricing systems.
9. Integrate sustainability and environmental impact indicators into ERP planning.
10. Conduct risk mitigation and safety-scenario analysis for ERP corridors.
11. Support digital transformation initiatives in transportation authorities.
12. Interpret mobility data analytics for strategic decision-making.
13. Formulate implementation guidelines for future-ready smart-transport ecosystems.

Target Audience

1. Transport Planners & Traffic Engineers
2. Smart Mobility and ITS Professionals
3. Government Transport & Urban Policy Makers
4. Infrastructure Development Consultants
5. Road Safety Specialists & Risk Analysts
6. Digital Transformation & Smart-City Executives
7. Public Transport Operations Managers
8. Technology Providers & ERP System Vendors

Course Modules

Module 1: Introduction to Electronic Road Pricing (ERP)

- Evolution of digital road-pricing systems
- ERP technologies and ITS ecosystem integration
- Congestion management through dynamic pricing

- ERP’s role in smart-city mobility
- Key performance benefits and limitations

  Case Study: Singapore ERP 1.0 and transition to ERP 2.0

Module 2: ERP System Architecture & Technology Framework

- Gantry-based vs GNSS-based pricing models
- In-vehicle units, transponders, and sensor technologies
- Cloud platforms for transaction processing
- Real-time monitoring and interoperability protocols
- Infrastructure scalability and upgrade strategies

  Case Study: Norway GNSS-based tolling expansion

Module 3: Traffic Optimization & Mobility Analytics

- Data-driven congestion prediction
- AI algorithms for traffic flow management
- Heat maps, vehicle-tracking, and performance dashboards
- Incident response and mobility coordination
- Machine-learning models for demand forecasting

  Case Study: London Congestion Charging analytics framework

Module 4: Road Safety Considerations & Risk Management

- Safety assessment of toll gantries and roadside assets
- Human-factor engineering in ERP zones
- Speed-compliance and enforcement technologies
- Emergency response protocols in ERP corridors
- Hazard identification and mitigation planning

  Case Study: Tokyo Shuto Expressway safety evaluation

Module 5: Cybersecurity & Data Privacy in ERP Systems

- Vulnerability assessment of ERP digital infrastructure
- Data encryption and secure payment frameworks
- Cyber-risk controls for tolling networks
- Privacy governance and legal compliance
- Threat monitoring and intrusion detection

  Case Study: Cyber-resilience assessment in Germany’s Toll Collect

Module 6: ERP Policies, Regulations & Enforcement Strategies

- Regulatory models and national frameworks
- Violation detection & automated enforcement systems
- Penalty structures and compliance management
- Public communication and stakeholder engagement
- Legislative harmonization for cross-border tolling

  Case Study: EU Interoperable Electronic Tolling Directive

Module 7: Environmental & Sustainability Impact

- Measuring carbon-emission reduction through ERP

- Air-quality improvement metrics
- Integrating ERP with public-transport incentives
- Sustainable pricing strategies
- Urban mobility decarbonization pathways

  Case Study: Stockholm congestion reduction & emissions impact

Module 8: Implementation, Evaluation & Future Trends

- Project planning and phased deployment
- Cost-benefit analysis & financial modelling
- KPIs for ERP performance evaluation
- Future trends: GNSS tolling, blockchain payments, autonomous-vehicle pricing
- Creating a roadmap for digital mobility transformation

  Case Study: New Zealand's shift toward nationwide distance-based charging

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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