MERCURY

# Smart Mobility & Demand Responsive Transport Systems

22 – 26 November 2026
Cairo (Egypt)



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## Introduction

The Smart Mobility & Demand Responsive Transport Systems course provides an in-depth exploration of modern transportation strategies designed to improve urban mobility efficiency. Participants will examine innovative smart mobility concepts and learn how these systems integrate with public transport networks to provide seamless, flexible travel options. The course emphasizes the role of digital platforms in managing demand-responsive transport DRT operations and enhancing service reliability. Intelligent Transportation Systems ITS technologies and data-driven solutions to optimize route planning and operational efficiency. Participants will analyze case studies demonstrating successful smart mobility implementations in urban environments. This training equips learners with the knowledge and practical skills required to lead, design, and implement DRT and smart mobility solutions in modern cities.

## Targeted Groups

This Smart Mobility & Demand Responsive Transport Systems training targets professionals seeking knowledge and skills:

- Urban planners are looking to modernize city transport systems.
- Public transport managers are aiming to integrate DRT services.
- Mobility consultants supporting smart city initiatives.
- Transport operations analysts seeking digital solutions.
- Policy makers designing sustainable urban mobility policies.
- IT professionals developing DRT digital platforms.
- Researchers exploring intelligent transport systems and innovations.

## Course Objectives

Participants will achieve the following objectives by completing the Smart Mobility & Demand Responsive Transport Systems course:

- Understand the fundamental concepts of smart mobility and DRT operations.
- Analyze integration strategies between DRT services and public transport networks.
- Learn how ITS technologies route optimization.
- Evaluate digital platforms for operational efficiency in DRT systems.
- Develop actionable strategies for implementing mobility solutions in urban areas.
- Assess emerging trends and technologies shaping the future of smart mobility.
- Apply best practices for monitoring, reporting, and improving DRT services.
- Explore case studies of successful smart mobility implementations.
- Enhance decision-making for transport system planning and management.

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- Design frameworks for sustainable, demand-responsive transport services.

## Targeted Competencies

Participants will gain the following competencies during the Smart Mobility & Demand Responsive Transport Systems program:

- Proficiency in smart mobility planning and deployment.
- Expertise in integrating DRT with traditional public transport networks.
- Ability to evaluate and implement digital platforms for transport operations.
- Knowledge of ITS technologies and their applications in mobility.
- Skills to analyze urban mobility data for operational optimization.
- Competence in developing sustainable transport policies and practices.
- Capacity to design user-centered mobility solutions.
- Understanding of real-time monitoring and performance metrics for DRT.
- Problem-solving skills for traffic congestion and transport inefficiencies.
- Ability to plan and manage flexible transport solutions in cities.

## Studying Scenarios

In this Smart Mobility & Demand Responsive Transport Systems training, participants develop skills through the following scenarios:

- Designing a DRT route network integrated with a city's metro and bus systems.
- Simulating digital booking and dispatch platforms for demand-based transit.
- Evaluating ITS technologies to improve fleet efficiency and reduce delays.
- Analyzing traffic data to optimize flexible transport operations.
- Implementing real-world case studies for smart mobility initiatives.
- Planning transport solutions for high-demand urban corridors.

## Course Content

### Unit 1: Fundamentals of Smart Mobility

- Definition and scope of smart mobility concepts.
- Evolution of urban transport systems toward digital solutions.
- Key components of demand-responsive transport DRT.
- Differences between fixed-route transit and flexible DRT services.
- Role of mobility-as-a-service MaaS in urban environments.
- Benefits of smart mobility for city efficiency and sustainability.
- Introduction to ITS technologies supporting urban transport.
- Overview of digital platforms in transportation management.

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## Unit 2: Integration with Public Transport Networks

- Principles of seamless multimodal transport integration.
- Linking DRT services with metro, bus, and rail networks.
- Managing passenger information across transport modes.
- Operational challenges in public transport integration.
- Case studies of cities successfully implementing integrated mobility.
- Techniques to balance demand, capacity, and service frequency.
- Policies to support accessibility, sustainability, and equity.

## Unit 3: Digital Platforms for DRT Operations

- Software platforms for booking and scheduling demand-responsive services.
- Real-time data collection and analytics in transport operations.
- Mobile applications for passenger engagement and communication.
- AI and machine learning applications for route optimization.
- Automated dispatch systems to improve fleet efficiency.
- Predictive modeling for demand forecasting and resource allocation.
- Cybersecurity considerations for digital mobility platforms.

## Unit 4: Intelligent Transportation Systems ITS Technologies

- Introduction to ITS technologies in urban mobility.
- Traffic monitoring and adaptive signal control systems.
- Fleet management and telematics applications.
- Sensors, IoT devices, and data collection for transport efficiency.
- GIS tools for transport network mapping and planning.
- Integration of ITS with public transport and DRT services.
- Evaluating system performance and operational metrics.
- Emerging ITS trends for smart city mobility.

## Unit 5: Advanced Smart Mobility Planning

- Strategies for implementing scalable DRT solutions.
- Assessing economic, social, and environmental impacts.
- Designing policy frameworks for sustainable urban transport.
- Methods for measuring customer satisfaction and service reliability.
- Scenario planning for high-demand corridors and peak hours.
- Case studies on successful smart mobility transformations.
- Future trends: autonomous vehicles, shared mobility, and the evolution of MaaS.

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## Final Insights & Key Takeaways

Participants will leave this course equipped to design, implement, and manage smart mobility solutions efficiently. They will understand the integration of DRT systems with public transport networks and the role of digital and ITS technologies in enhancing urban mobility.