MODERN TRANSPORTATION: ADVANCED



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Introduction

Transport systems now generate continuous data from vehicles, infrastructure, and ticketing, yet many networks still plan from last year's figures. Advanced transport management means using that data to price demand, rebalance capacity, electrify fleets, and integrate modes without breaking service. This Modern Transportation: Advanced Training Course gives transport planners, engineers, and mobility managers a complete working method at that level. Participants learn mobility strategy and network design, demand modelling, multimodal integration, electrification and alternative fuels, contract and regulation design, and performance and funding frameworks.

Modern Transportation: Advanced Course Objectives

- Apply advanced network design and service planning methods.
- Model demand with travel surveys, big data, and four-step modelling.
- Design multimodal integration: fares, ticketing, and interchange.
- Apply mobility-as-a-service and account-based ticketing models.
- Plan fleet electrification with charging strategy and grid considerations.
- Apply congestion pricing, road user charging, and demand management.
- Design contracts and regulation for operators and concessions.
- Apply safety, accessibility, and emissions standards to network design.
- Build appraisal cases with cost-benefit analysis and funding options.
- Measure network performance with reliability, coverage, and cost per trip.

Course Methodology

- Facilitated sessions built on real network plans, demand data, and contract documents.
- Case workshops on congestion pricing, mode integration, and electrification rollout.
- Demand modelling, appraisal, and pricing exercises with live data.

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- Contract and regulation review labs.
- Group exercise on an advanced transport strategy with measurable targets.

Who Should Take This Course

- Transport planners and network strategy managers.
- Mobility and smart city programme leads.
- Traffic and transport engineers.
- Public transport authority and operator staff.
- Consultants and analysts in transport policy.
- Regulators and funding agency specialists.

Modern Transportation: Advanced Course Outlines

Day 1: Mobility Strategy and Network Design

- Transport policy goals and their translation into network design.
- Corridor, hierarchy, and service structure planning.
- Coverage, connectivity, and accessibility criteria.
- Land use and transport integration principles.
- Network redesign methods and service restructuring.
- Scenario planning for demographic and economic change.
- Strategy appraisal and option selection.

Day 2: Demand Modelling and Analytics

- Travel survey methods and stated preference techniques.
- Big data sources: mobile, ticketing, and GPS traces.

- Four-step demand modelling: generation, distribution, mode choice, assignment.
- Elasticity, induced demand, and demand response modelling.
- Peak spreading and demand management measures.
- Model validation and forecast accuracy assessment.
- Dashboards and analytics for network monitoring.

Day 3: Multimodal Integration and Mobility Services

- Interchange design and timetable coordination.
- Integrated fares, ticketing, and account-based systems.
- Mobility-as-a-service platforms and their governance.
- First and last mile solutions: micro-mobility and feeder services.
- Shared mobility regulation and licensing.
- Real-time information and open data standards such as GTFS.
- Accessibility, inclusion, and universal design requirements.

Day 4: Electrification, Pricing, and Regulation

- Fleet electrification planning and depot charging strategy.
- Grid capacity, load management, and energy procurement.
- Alternative fuels: hydrogen, biofuels, and synthetic options.
- Congestion pricing and road user charging design.
- Subsidy design and performance-based payment.
- Contract models: gross cost, net cost, and concessions.
- Regulation, competition, and service quality enforcement.

Day 5: Appraisal, Funding, and Performance

- Cost-benefit analysis and multi-criteria appraisal practice.
- Value of time, accident savings, and emissions valuation.
- Funding sources: public, private, green finance, and PPP structures.
- Network KPIs: reliability, coverage, load factor, and cost per trip.
- Emissions accounting and decarbonisation targets.
- Benchmarking networks against comparable cities.
- Building an advanced transport strategy roadmap with targets.

Conclusion

By successfully completing the Modern Transportation: Advanced Training Course, participants will have acquired an advanced working command of network design and demand modelling, multimodal integration and mobility services, electrification and pricing policy, contract and regulation design, appraisal and funding frameworks, and network performance measurement. They will leave able to justify network decisions with modelled evidence, design tariffs and contracts that deliver service, and plan decarbonisation with credible numbers. Gentex Training Center delivers this programme with transport planning and policy practitioners working on live networks.

FAQs for the Modern Transportation: Advanced course

Q1 What is the "Modern Transportation: Advanced" course about?

It is a five-day programme on advanced planning and management of transport networks. It covers network design, demand modelling and analytics, multimodal integration, mobility-as-a-service, electrification, pricing and regulation, appraisal and funding, and performance measurement.

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Q2 What are the key benefits of the "Modern Transportation: Advanced" course?

Participants justify network and pricing decisions with modelled evidence instead of assertion, design integrated fares and contracts that actually deliver service, and plan fleet electrification with charging and grid constraints accounted for. They also build appraisal cases that survive funding scrutiny.

Q3 What skills will I gain from the "Modern Transportation: Advanced" course?

You will gain advanced network design and service planning, demand modelling and transport analytics, multimodal integration, pricing, and mobility services management, and electrification, appraisal, funding, and network performance management.

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Q4 What tools, methods, or standards are covered in the "Modern Transportation: Advanced" course?

The course works with network design covering corridor, hierarchy and service structure, coverage, connectivity and accessibility criteria, land use and transport integration principles, scenario planning methods, travel survey and stated preference techniques, big data sources including mobile, ticketing and GPS traces, the four-step demand model covering generation, distribution, mode choice and assignment, elasticity and induced demand assessment, peak spreading and demand management measures, model validation and forecast accuracy testing, interchange design and timetable coordination, integrated fares and account-based ticketing, mobility-as-a-service platform governance, first and last mile solutions, shared mobility licensing, GTFS and real-time information standards, universal design and accessibility requirements, fleet electrification and depot charging strategy, grid capacity and load management, hydrogen and alternative fuel assessment, congestion pricing and road user charging design, subsidy design and performance-based payment, gross cost, net cost and concession contract models, cost-benefit analysis and multi-criteria appraisal, value of time and emissions valuation, green finance and PPP funding structures, and KPIs covering reliability, coverage, load factor and cost per trip.

Q5 How is the "Modern Transportation: Advanced" course applied in real-world practice?

Teams apply it when redesigning a bus network for a growing district, modelling demand before a congestion charge, designing an integrated fare and ticketing scheme, planning depot charging for an electric bus fleet, appraising a light rail extension for funding, and reviewing reliability and cost per trip at an annual network review.