BLACKBIRD FOR TRAINING

Traffic Safety Software



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Introduction

This intermediate-to-advanced course provides participants with a practical understanding of software-supported approaches to traffic safety management. It focuses on traffic safety data analysis, traffic simulation and modelling, predictive analytics, Intelligent Transportation Systems ITS, real-time traffic information, and technology-supported decision-making.

The course combines theoretical concepts with computer-based practical exercises, realistic traffic scenarios, data analysis activities, simulation-based exercises, and an integrated case study.

Course Objectives

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

- Understand the role of software and digital technologies in traffic safety management.
- Identify and prepare traffic safety and traffic-flow data for analysis.
- Analyse accident and traffic data to identify safety risks and trends.
- Understand traffic simulation and modelling approaches.
- Develop and compare traffic-management scenarios.
- Understand predictive analytics, IoT and big-data applications in traffic safety.
- Evaluate traffic safety scenarios using data and simulation-based approaches.
- Use analytical results to support traffic safety planning and decision-making.

Course Outlines

Day 1 - Traffic Safety Software Fundamentals

- Introduction to traffic safety software and digital traffic management.
- Traffic safety data sources, requirements and preparation.
- Traffic flow, road safety and key performance indicators.
- Overview of simulation, modelling and data-analysis applications.
- Software-supported approaches to traffic safety decision-making.



Day 2 - Traffic Safety Data Analysis - Practical Application

- Collection and preparation of accident and traffic-flow data.
- Analysis of accident patterns and traffic safety indicators.
- Identification of high-risk locations and safety trends.
- Data visualization and interpretation for traffic safety.
- Practical Exercise: Analyse a traffic safety dataset, identify the main safety risks and prepare data-based recommendations.

Day 3 - Traffic Simulation and Modelling - Practical Application

- Fundamentals of traffic simulation and modelling.
- Development of traffic-management scenarios.
- Modelling traffic-flow and road-network conditions.
- Comparison of alternative traffic scenarios.
- Practical Exercise: Develop and compare two traffic-management scenarios and evaluate their traffic-flow and safety implications.

Day 4 - Predictive Analytics and Intelligent Traffic Technologies - Practical Application

- Predictive analytics for traffic safety improvement.
- IoT applications in traffic monitoring.
- Big-data applications in traffic management and safety.
- Real-time traffic information and technology-supported decisions.
- Practical Exercise: Analyse real-time/predictive traffic data, identify potential safety risks and recommend corrective measures.

Day 5 - Integrated Traffic Safety Software Case Study

- Developing an integrated traffic safety assessment.
- Combining traffic data, analysis and simulation results.
- Evaluating alternative safety improvement scenarios.
- Preparing software-supported traffic safety recommendations.
- Integrated Case Study: Analyse a complete traffic safety problem and present a data-driven improvement strategy.

Why Attend This Course? Wins & Losses!

Wins

- Improved understanding of traffic safety software applications.
- Stronger traffic data analysis and interpretation skills.
- Practical experience with simulation-based scenarios.
- Better understanding of predictive and intelligent traffic technologies.
- Improved ability to support data-driven traffic safety decisions.



Losses if Not Attended

- Greater dependence on manual traffic assessment.
- Limited use of available traffic safety data.
- Reduced ability to evaluate alternative traffic scenarios.
- Limited understanding of technology-supported safety analysis.
- Less effective use of data for traffic safety decision-making.

Conclusion

This course provides a structured combination of theory and practical application, enabling participants to use traffic data, simulation, modelling, predictive analytics and intelligent technologies to support modern traffic safety assessment and improvement.

Frequently Asked Questions FAQ

1. Who should attend this course?

Traffic safety engineers, traffic engineers, transportation planners, road safety professionals and personnel involved in traffic management.

2. Is the course suitable for intermediate-level participants?

Yes. The course progresses from core concepts to advanced analytical, simulation and technology-supported applications.

3. Does the course include practical exercises?

Yes. Days 2, 3 and 4 include computer-based practical exercises, while Day 5 includes an integrated case study.

4. Does the course require a specific software package?

No. The course focuses on software-supported methods and applications rather than a specific software vendor.

5. What type of data will be used in the practical exercises?

Participants will work with traffic-flow, accident, safety and scenario-based datasets relevant to traffic safety assessment.

