



Civil Engineering

# Advanced Traffic Engineering and Management

# Course Introduction

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## Modern Traffic Systems

Aims to address the complexities of modern traffic systems through a structured and interdisciplinary systems engineering approach. Traffic management today requires an integrated framework that considers operations, performance, and user needs alongside technical and business demands.

Borrowing from systems engineering principles, this course focuses on understanding and optimizing traffic systems as holistic entities. Participants will explore methodologies to define requirements, plan effectively, and design robust solutions for current and future traffic challenges.

## Target Audience

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- Traffic Engineers
- Transportation Engineers
- Civil Engineers

## Learning Objectives

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- Understand the application of Systems Engineering Management in traffic engineering.
- Learn about program planning for traffic management systems.
- Explore System Management concepts for traffic systems.
- Recognize the advantages of Systems Engineering in traffic operations and organizations.

- Evaluate and develop effective traffic management programs using a systems approach.
- Gain insight into integration, interfaces, and workflows for holistic traffic engineering solutions.

## Course Outline

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### • DAY 01

#### **Foundations of Systems Engineering in Traffic Management**

- Introduction to Systems Engineering and Traffic Management

#### **The Systems Engineering Process:**

- Analyze-Synthesize-Evaluate cycle
- Transforming user needs into operational traffic systems
- Managing and improving traffic processes
- Introduction to Systems Engineering Management (SEM)

#### **Application and Influence of SEM:**

- Benefits in traffic system design
- Real-world applications in traffic management

### • Day 02

#### **Planning and Integration in Traffic Systems**

- Integration of Disciplines for traffic engineering

- Applying Management and Technology in traffic systems
- System Engineering Program Requirements for traffic management

#### **System Engineering Planning:**

- Importance of early planning in traffic systems
- Determination of program requirements

### **• Day 03**

#### **Advanced Design and Analysis**

- Developing a Partial Work Breakdown Structure (WBS) for traffic systems
- Advanced Traffic System Design:
- Designing for scalability, resilience, and efficiency

#### **Traffic Flow Analysis:**

- Identifying and addressing bottlenecks
- Tools and technologies for traffic flow optimization

#### **Performance Evaluation:**

- Metrics for assessing traffic management system performance

### **• Day 04**

## **Advanced Design and Analysis**

- Developing a Partial Work Breakdown Structure (WBS) for traffic systems
- Advanced Traffic System Design:
- Designing for scalability, resilience, and efficiency

### **Traffic Flow Analysis:**

- Identifying and addressing bottlenecks
- Tools and technologies for traffic flow optimization

### **Performance Evaluation:**

- Metrics for assessing traffic management system performance

## **• Day 05**

### **Integration and Strategic Insights**

#### **System Integration and Interfaces:**

- Ensuring interoperability of traffic subsystems

#### **Emerging Technologies in Traffic Management:**

- Role of AI, IoT, and data analytics

Case Studies and Best Practices:

- Lessons from successful traffic management projects

Evaluation and Review:

- **Final project:** Develop and present a conceptual traffic management system
- Summary of learnings and participant Q&A

# Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 19, 2025	May 23, 2025	5 days	4250.00 \$	UAE - Dubai
July 6, 2025	July 10, 2025	5 days	2150.00 \$	Virtual - Online
Sept. 15, 2025	Sept. 19, 2025	5 days	4250.00 \$	UAE - Dubai
Nov. 17, 2025	Nov. 21, 2025	5 days	5950.00 \$	USA - Los Angeles