



To minimize congestion, a city traffic department combines real-time monitoring with statistical analysis software that predicts congestion points and optimizes signal lights to control flow.

For increased profitability and service improvement, an airline uses competitive analysis tools to adjust seat pricing and shift demand from peak hours.

To plan access to a new sports arena, an architectural firm uses high-resolution simulation to predict the movement of people and vehicles.

The revolution in information technology is leading to a similar revolution in another essential element of modern life: transportation. With transportation demand growing in the face of shrinking resources—including funding—the direction is changing from building new infrastructure to managing existing systems through the use of sophisticated management, analysis, and modeling tools. This is the high road in transportation systems management, the path awaiting those who choose it as the focus of their master's in civil engineering at SMU-Lyle.

FIND US **HERE**

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MASTER OF SCIENCE | CIVIL ENGINEERING

transportation systems management



TRANSPORTATION SYSTEMS MANAGEMENT

INTERSECTING DISCIPLINES

Continuing advances in telecommunications, information management, and computing technology have paved the way to more efficient use of existing infrastructure, more intelligent planning, and ultimately, the creation of 'smart cities' with fully integrated transportation systems. This is the focus of Lyle's Master of Science in Civil Engineering with emphasis in transportation systems management. In addition to core subjects such as transportation planning, traffic engineering, and highway design, students have the opportunity to explore such cross-disciplinary electives as numerical analysis, logistics systems engineering, transportation demand analysis, environmental management systems, and economic decision analysis, among many others. They acquire a strong analytical background plus an understanding of how analysis and optimization tools from other fields can be applied to 21st century transportation issues and goals.

MEASURE PERFORMANCE

Lyle's curriculum is presented by an expert faculty whose own research studies into intermodal transportation networks, dynamic traffic assignment, micro-simulation of pedestrian movement, and airline operation modeling—to name only a few—offer qualified students the opportunity to play a role in engineering the future of transportation systems. Lectures take place in small classes to ensure optimal opportunities for strong mentoring, open exchanges, and productive work. Our goal is to put every student on the road to a professional career or advanced studies at the doctoral level.

ACADEMIC PROGRAM

Requirements include the completion of ten graduate level courses (30 CH), or the completion of eight courses (24 CH) and a thesis (6 CH).

Core Courses (15 CH).

Highways Design and Safety
Operations Research Models
Probability and Statistics for Scientists and Engineers
Project Management
Transportation Planning and Traffic Engineering

Example Electives (15 CH or 9 CH and Thesis).

Advanced Java Programming
Air Pollution Management and Engineering
Analysis of Transportation Systems
Engineering Economics and Decision Analysis
Geographical Information Systems and Mapping
Graph Theory: Algorithms and Applications
Integer Programming
Introduction to Construction Management
Introduction to Environmental Management Systems
Introduction to Numerical Analysis
Linear Programming
Logistics Systems Engineering
Network Flows
Special Projects (Transportation Engineering)
Statistical Analysis
Statistical Design and Analysis of Experiments
Transportation Demand Analysis
Thesis