

MSCE Transportation Engineering (students who started prior to fall 2023)

A minimum of 28 units of coursework is required for this degree.

Each student's program is worked out in consultation with faculty and staff advisors. Many program alternatives are feasible, subject to academic advice.

Transportation Engineering (3 Courses)

- **CE 582:** Transportation System Security and Emergency Management
- **CE 583:** Design of Transportation Facilities
- **CE 584:** Intelligent Transportation Systems
- **CE 585:** Traffic Engineering and Control
- **CE 586:** Modeling Transportation Network Supply and Demand
- **CE 588:** Railroad Engineering
- **CE/ISE/PPD 589:** Port Engineering: Planning and Operational Analysis

Transportation Planning (1 or 2 Courses)

- **CE/PPD 579:** Introduction to Transportation Planning Law
- **PPD/CE 633:** Methods and Modeling Tools for Transportation Planning
- **PPD/CE 634:** Institutional and Policy Issues in Transportation
- **PPDE/CE 637:** Urban Mass Transit
- **PPDE 644:** Land Use and Transportation Planning
- **PPD 531L:** Planning Studio (Transportation section)

Computer Methods (1 Courses)

- **CE 505:** Data Management for Civil and Environmental Engineers
- **CSCI 455x:** Introduction to Programming Systems Design
- **DSCI 510:** Principles of Programming for Informatics
- **ISE 435:** Discrete Systems Simulation
- **SSCI 581:** Concepts for Spatial Thinking
- **PPD 631:** Geographic Information Systems for Policy, Planning, & Development

Quantitative Methods (1 or 2 Courses)



- **CE 561:** Uncertainty Quantification and Data Analytics in Civil and Mechanical Engineering
- **CSCI 570:** Analysis of Algorithms
- **ISE 520:** Optimization Theory and Algorithms: Numerical Optimization
- **ISE 525:** Design of Experiments
- **ISE 530:** Optimization Models for Analytics
- **PPD 557:** Modeling and Operations Research
- **ISE 532:** Network Flows
- **ISE 536:** Linear Programming and Extensions
- **ISE 538:** Performance Analysis: Using Markov Methods
- **MATH/CSCI 501:** Numerical Analysis and Computation
- **PM/MATH 544L:** Multivariate Analysis
- **PM 603:** Structural Equation Modeling **or** **PPD 558:** Multivariate Statistical Analysis
- **PPDE 668:** Applied Econometrics for Program Evaluation

Quantitative Methods (1 or 2 Courses)

- **CE 471:** Principles of Transportation Engineering
- **CE 501:** Construction Practices
- **CE 502:** Accounting, Finance and Strategy
- **CE 506:** Heavy Construction Estimating
- **CE 526:** Engineering Mathematical Methods
- **CE 558:** International Construction and Engineering
- **CE 561:** Uncertainty Quantification and Data Analytics in Civil and Mechanical Engineering
- **CE 569:** Project Controls
- **CE 582:** Transportation System Security and Emergency Management
- **CE 583:** Design of Transportation Facilities
- **CE 584:** Intelligent Transportation Systems
- **CE 585:** Traffic Engineering and Control
- **CE 586:** Modeling Transportation Network Supply and Demand
- **CE 588:** Railroad Engineering
- **CE/ISE/PPD 589:** Port Engineering: Planning and Operational Analysis
- **CE 590:** Directed Research (in Transportation Engineering)
- **CSCI 455x:** Introduction to Programming Systems Design
- **CSCI 570:** Analysis of Algorithms
- **DSO 581:** Supply Chain Management
- **ECON 502:** Mathematical Methods in Dynamic Economics
- **ENE 502:** Environmental and Regulatory Compliance
- **ENE 505:** Energy and the Environment
- **ENE 535:** Air Pollution Management: Exposure, Health Effects and Risk
- **ENGR 596:** Internship in Engineering



- **ISE 435:** Discrete Systems Simulation
- **ISE 515:** Engineering Project Management
- **ISE 520:** Optimization Theory and Algorithms: Numerical Optimization
- **ISE 525:** Design of Experiments
- **ISE 527:** Quality Management for Engineers
- **ISE 529:** Predictive Analytics
- **ISE 532:** Network Flows
- **ISE 535:** Data Mining
- **ISE 538:** Performance Analysis using Markov Methods
- **ISE 544:** Management of Engineering Teams
- **ISE 561:** Economic Analysis of Engineering Projects
- **ISE 562:** Decision Analysis
- **ISE 570:** Human Factors in Engineering
- **ISE 576:** Industrial Ecology: Technology Environment Interaction
- **ISE 580:** Performance Analysis with Simulation
- **PPD 542:** Policy and Program Evaluation
- **PPD 557:** Modeling and Operations Research
- **PPD 558:** Multivariate Statistical Analysis
- **PPD 560:** Methods for Policy Analysis
- **PPD/ISE 587:** Risk Analysis
- **PPD 617:** Urban Demography and Growth
- **PPD 619:** Smart Growth and Urban Sprawl: Policy Debates & Planning Solutions
- **PPD 631:** Geographic Information Systems for Policy, Planning, & Development
- **PPD/CE 633:** Urban Transportation Planning and Management
- **PPD/CE 634:** Institutional and Policy issues in Transportation
- **PPD 636:** Infrastructure and Modern Society
- **PPD 644:** Shaping the Built Environment
- **PPDE 668:** Applied Econometrics for Program Evaluation (Up to 4 Units)
- **PPD 692:** Transportation and the Environment
- **PPD 694:** Coastal Policy and Planning
- **PPD 709:** Applications in the Advanced Quantitative Methods
- **PPDE 637:** Urban Mass Transit
- **PPDE 644:** Land Use and Transportation Planning
- **SSCI 581:** Concepts for Spatial Thinking
- **SSCI 583:** Spatial Analysis and Modeling
- **SSCI 587:** Spatial Data Acquisition
- **SSCI 589:** Cartography and Visualization

