Transportation Systems Engineering

The Transportation Systems Engineering graduate program at the Georgia Institute of Technology provides students with in-depth knowledge of design and performance and encourages them to understand the environmental, institutional and societal context in which these systems operate. At the core of the program is the understanding that transportation systems engineering can promote a thriving economy and a high quality of life by ensuring the safe and efficient movement of information, people, goods and services. We also recognize that transportation systems affect the environment through construction, maintenance and operation of facilities, and through the travel behaviors they encourage. Students supplement the core technical transportation courses in urban transportation planning, traffic engineering, highway and transit facility design, administration and statistical analysis with technical electives from other academic units.

THE Master’s Degree Reqs*

| SPECIALIZATION REQUIREMENT** | 18 CREDITS | 12 CREDITS |
| APPROVED ELECTIVES | 12 CREDITS | 12 CREDITS |
| THESIS | 0 CREDITS | 6 CREDITS |
| TOTAL REQUIRED CREDITS | 30 CREDITS | 30 CREDITS |

*Degree requirements for the MSCE and MSENVE degrees. Requirements for the MSBIOE, MSCSE, and MSESM degrees differ – please contact gradinfo@coe.gatech.edu for more information. **Specializations include: Construction and Infrastructure Systems Engineering; Environmental Engineering; Geosystems Engineering; Structural Engineering, Mechanics and Materials; Transportation Systems Engineering; Water Resources Engineering.

RESEARCH AREAS

- Planning methods for transportation investment
- Enhanced methods for monitoring and modeling travel behavior
- Airline passenger behavior
- Smart city infrastructure with connected and automated vehicles
- Development of new models for estimating vehicle emissions
- Improved concepts for intermodal transportation
- Sustainable development and transportation
- Development of decision support tools for infrastructure management

UNIVERSITY TRANSPORTATION CENTERS

Our nation’s transportation system has achieved unprecedented levels of mobility and contributed to our economic health and the quality of life enjoyed by all residents. However, the United States faces critical infrastructure, funding, technology and demographic challenges to preserve and enhance its transportation system for future generations.

To address these challenges, Georgia Tech is a key partner in six U.S. Department of Transportation University Transportation Centers (UTCs), four within the transportation group: the National Center for Sustainable Transportation (NCST); the Southeastern Transportation Research, Innovation, Development and Education (STRIDE) Center; the Center for Advancing Research in Transportation Emissions, Energy and Health (CAR-TEEH), and the Center for Teaching Old Models New Tricks (TOMNET). These centers work with state, regional and local agencies to provide leadership on research, education and technology transfer with respect to today’s most pressing transportation issues.

Georgia Tech also leads the Georgia Transportation Institute (GTI), which was established to coordinate and act as a focal point for transportation research in the state of Georgia. GTI-affiliated researchers are active in a broad range of topics including policy and planning, environmental issues, transportation technology, transportation infrastructure, safety, and traffic operations.

PH.D. DEGREE REQS

The Ph.D. program includes research and approximately 50 credits beyond the Bachelor’s degree. Doctoral students, in concert with their advisor and thesis committee, construct an individualized program of study tailored to the student’s research interests. Major elements of the program include:

- Comprehensive exam
- Minor
- Research Proposal
- Thesis
- Oral defense

Georgia Tech also leads the Georgia Transportation Institute (GTI), which was established to coordinate and act as a focal point for transportation research in the state of Georgia. GTI-affiliated researchers are active in a broad range of topics including policy and planning, environmental issues, transportation technology, transportation infrastructure, safety, and traffic operations.
TRANSPORTATION SYSTEMS ENGINEERING

FACULTY

ADJO A. AMEKUDZI-KENNEDY, PH.D.  Associate Chair, Global Engineering Leadership and Research Development & Professor
Civil infrastructure/asset management, infrastructure decision support systems, sustainable infrastructure systems.

GIOVANNI CIRCELLA, PH.D.  Senior Research Engineer
Travel behavior, discrete choice modeling, travel demand modeling, land use/transportation interactions.

THOMAS DOUTHAT, J.D., PH.D.  Post-Doctoral Researcher
Transportation planning, economic development, city planning, law and policy.

FRANKLIN GBOLOGAH, PH.D.  Research Engineer II
Freeway operations, Intelligent Transportation Systems (ITS), transportation safety, traffic simulation and data management.

OLGA KEMENOVA, PH.D.  Research Engineer II
Transportation statistics, mobile source emissions modeling and analysis.

JEFFREY NEWMAN, PH.D.  Research Engineer II
Travel demand forecasting, application and estimation of advanced discrete choice models, machine learning for travel behavior analysis.

ALEXANDER SAMOYLOV, PH.D.  Research Scientist II
Vehicle remote sensing, motor vehicle emissions analysis, database applications.

YICHING WU  Research Engineer II
Infrastructure asset management, pavement technology, roadway safety, logistics, GPS/GIS technologies.

ADJUNCT FACULTY

JOHN D. LEONARD II, PH.D.
Advanced technology applications, intelligent transportation systems, traffic operations, traffic engineering, traffic safety, computer simulation, network modeling, computer programming, systems analysis.

JOHN Z. LUH, PH.D., P.E.
ITS design, traffic signal design, highway network evaluation, traffic engineering, transportation planning.

FRANK SOUTHWORTH, PH.D.
Freight and passenger transportation planning models and methods, public transit, evacuation planning, land use/transportation interaction, sustainable transportation systems.

RESEARCHERS

CHENBO AI, PH.D.  Research Engineer I
Remote sensing technologies for intelligent roadway asset/infrastructure/pavement management using mobile LiDAR, image processing and GPS/GIS.

GIOVANNI CIRCELLA, PH.D.  Senior Research Engineer
Travel behavior, discrete choice modeling, travel demand modeling, land use/transportation interactions.

THOMAS DOUTHAT, J.D., PH.D.  Post-Doctoral Researcher
Transportation planning, economic development, city planning, law and policy.

FRANKLIN GBOLOGAH, PH.D.  Research Engineer II
Freeway operations, Intelligent Transportation Systems (ITS), transportation safety, traffic simulation and data management.

OLGA KEMENOVA, PH.D.  Research Engineer II
Transportation statistics, mobile source emissions modeling and analysis.

JEFFREY NEWMAN, PH.D.  Research Engineer II
Travel demand forecasting, application and estimation of advanced discrete choice models, machine learning for travel behavior analysis.

ALEXANDER SAMOYLOV, PH.D.  Research Scientist II
Vehicle remote sensing, motor vehicle emissions analysis, database applications.

YICHING WU  Research Engineer II
Infrastructure asset management, pavement technology, roadway safety, logistics, GPS/GIS technologies.