Construction and Infrastructure Systems Engineering

CEEatGT 2017-2018 GRADUATE STUDIES

MASTER'S DEGREE REQS*	NON-THESIS OPTION	THESIS OPTION
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@ce.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.

PH.D. DEGREE REQS

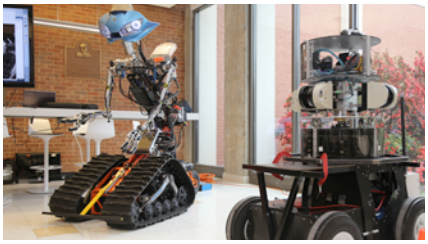
The Ph.D. program includes research and approximately 50 credits beyond the Bachelor's degree. Doctoral students, in concert with their advisor and thesis committee, construct an individualized program of study tailored to the student's research interests. Major elements of the program include:

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

THE Construction and Infrastructure Systems Engineering program focuses on methods of building civil infrastructure projects that effectively control the project cost and duration while meeting safety, quality, environmental and other criteria. The interdisciplinary nature of construction engineering encourages students to supplement graduate courses in civil and environmental engineering with those from other programs at Georgia Tech, such as computer science, electrical and computer engineering, building construction and industrial and systems engineering. A strong research program in Construction and Infrastructure Systems Engineering and Management funded by the National Science Foundation, Construction Industry Institute, Georgia Department of Transportation, National Cooperative Highway and Research Program, foundations, and various industry partners provides an excellent complement to the educational component of the program.

RESEARCH AREAS

- Construction information technology
- Robotics and automation in construction
- Construction data modeling and visualization
- Knowledge management for decision support systems
- Smart, sustainable and resilient cities



FACILITIES

Robotics and Intelligent Construction Automation Lab (RICAL) is a research facility used in the development and application of advanced construction technologies to improve current construction methods and process for building and transportation-related infrastructure. The facility is equipped with a custom-built hybrid LIDAR system; commercial LIDAR units; UAV; custom-built, all-terrain, heavy-duty mobile robots; large display touch screens; a robot testbed; thermography cameras; wireless technologies (RFID, Ultra-Wideband, bluetooth sensors); portable pneumatic and electrical power systems. **RICAL.CE.GATECH.EDU**

The Network Dynamics Lab is a research facility focused on examining, modeling and improving engineering network dynamics of industrial and societal importance. Current dynamics under exploration in the Lab include: building-occupant network dynamics, globalizing network dynamics, workforce virtualization dynamics, information system integration dynamics, and extreme event dynamics. The facility houses the CyberGRID (Cyber-enabled Global Research Infrastructure for Design), which supports experimentation and pedagogy associated with distributed project execution and enables data visualization. **NDL.GATECH.EDU**

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Georgia Tech School of Civil and Environmental Engineering
College of Engineering

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FACULTY

BAABAK ASHURI, PH.D. DBIA, CCP *Associate Professor*
Innovative project delivery systems, economic decision analysis of resilient and sustainable infrastructure systems, investment valuation of high-performance buildings, energy performance benchmarking of multifamily properties, financial feasibility analysis of alternative energy technologies, predictive project analytics, data mining of BIM projects, project finance, real options analysis for infrastructure asset valuation, cost estimation and forecasting, budget-based design, risk management, portfolio management.

YONG K. CHO, PH.D. *Associate Professor & Group Coordinator*
Field automation in construction, robotics, pavement maintenance, sustainable building energy management, construction safety, BIM, virtual design and construction, machine vision, thermography, rapid as-built modeling, real-time equipment tracking and 3D visualization, wireless sensor networking for mobile asset tracking.

LAURENCE J. JACOBS, PH.D. *College of Engineering Associate Dean for Academic Affairs & Professor*
Quantitative nondestructive evaluation of civil engineering materials; wave propagation in solids, emphasizing guided waves; nonlinear methods and heterogeneous materials; optical techniques; acoustic sensors for condition monitoring of structural components.

KIMBERLY E. KURTIS, PH.D. *Interim School Chair & Professor*
Multi-scale structure and performance (i.e., early age through durability) of cement-based materials, cement and admixture chemistry, characterization of cement-based materials, fiber-cement composites, sustainable construction materials, forensics.

ERIC MARKS, PH.D., P.E. *Professor of the Practice*
Automated data sensing, real-time location tracking of construction resources, innovative safety solutions for construction sites, Building Information Modeling (BIM), automated safety data collection of leading indicators, 3-D visualization through laser scanning for equipment operator visibility.

JOHN E. TAYLOR, PH.D. *Frederick L. Olmsted Professor*
Civil engineering network dynamics of industrial, societal and environmental importance, including dynamics associated with information system integration, industry globalization, workforce virtualization, energy conservation in and across buildings, and human mobility perturbation in natural disasters.

IRIS TIEN, PH.D. *Assistant Professor*
Probabilistic methods for modeling and reliability assessment of civil infrastructure systems, stochastic processes, risk analysis, structural and infrastructure health monitoring, signal processing and machine learning, and decision making under uncertainty.

YI-CHANG (JAMES) TSAI, PH.D., P.E. *Professor*
Smart city infrastructure, new transportation systems with connected and automated vehicles, big data analytics, optimization of spatial sensing and information technology, GPS/GIS, processing and analysis of image/laser/LiDAR/UAV/mobile device data using artificial intelligence and machine learning, infrastructure/asset management, pavement technology, roadway safety, freight/port logistics.






EMERITUS FACULTY
LAWRENCE F. KAHN, PH.D.

ADJUNCT FACULTY
DANIEL CASTRO, PH.D., P.E.
T. RUSSELL GENTRY, PH.D., P.E.

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