



Department of Civil, Architectural, and Environmental Engineering (CAEE)

Introduction to CAEE

Graduate Programs

Academic Year 2024-2025

CAEE GRADUATE PROGRAMS

<https://www.iit.edu/caee/programs>

We offer 4 main types of graduate programs

Master of Engineering

30 credit hours

Coursework only

Typically 3 to 4 semesters

Master of Science

32 credit hours

Coursework

Research & Thesis

Typically 4 semesters

Doctor of Philosophy

84 credit hours

Coursework

Research & Dissertation

3-5 years beyond Masters

Certificate

9-12 credit hours

Coursework only

Non-degree

Typically 1 to 2 semesters

Graduate degrees offered in CAEE

- **Master of Engineering (ME) in CAEE – 30 hours (coursework-only)**

- Architectural Engineering
- Construction Engineering & Management
- Environmental Engineering
- Master of Public Works
- Structural Engineering
- Transportation Engineering
- Urban Systems Engineering

- **Joint Master's programs – 30 hours (coursework-only)**

- Energy Systems (Joint Armour)
 - Energy Conservation/Buildings track
- Engineering Management (Joint Armour)
 - Project Management track
- High Performance Buildings (Joint Architecture + CAEE)

Graduate Certificates

(9-12 hours each):

- Architectural Engineering
- Building Energy Modeling
- Construction Management
- Earthquake & Wind Design
- Environmental Engineering
- Infrastructure Eng & Management
- Transportation Systems Planning

- **Research-based degrees with thesis/dissertation:**

- Master of Science (MS) – 32 hours (6-8 thesis hours)**

- Civil Engineering, Architectural Engineering, or Environmental Engineering

- PhD – 52 hours beyond MS (24-36 thesis hours)**

- Civil Engineering, Architectural Engineering, or Environmental Engineering

- Specialize in one of our areas of concentration

CAEE FACULTY, STAFF, AND STUDENTS

CAEE @ IIT: Full-Time Faculty (15) and Staff (4)

Faculty: Structural



Jamshid Mohammadi
Professor
Interim Provost



Mehdi Modares
Associate Professor
Grad Associate Chair



Gongkang Fu
Professor



Steve Kleps
Assoc Teaching Prof
UG Associate Chair



Matthew Gombeda
Assistant Professor

Staff:



Clarice Donaldson
Administrative Associate

Architectural



Edoarda Corradi
Assoc Teaching Prof
IPRO Director,
Kaplan Institute



Mohammad
Heidarinejad
Associate Professor



Brent Stephens
Professor
Department Chair
Arthur W. Hill Chair



Deborah Steimel-Clair
Assoc Teaching Prof
Director, Prof & Cont
Education in Armour



Ray Lemming
Assoc Teaching Prof
Director, Construction
Programs in Armour



Ivan Mutis
Associate Professor

Construction



Charlotte Jackson
Academic Program
Coordinator



Stan Johnson
Shop Manager

Environmental • Geotech



David Lampert
Associate Professor



Boyoung Jeong
Asst Teaching Prof

Transportation



Zongzhi Li
Professor



Mohammad Miralinaghi
Assistant Professor



Andrew Edwards
Associate Lab Manager

CAEE @ IIT: Adjunct faculty (20+)



Paul Anderson, PhD
Retired, IIT Associate Professor



August (Gus) Domel, PhD, SE, PE
Principal, Engineering Systems, Inc.



Steven Barrett, PE
Fire Protection Engineer III, SmithGroup



Larry Dorn, MS
Architecture/Construction Consultant



Julide Bozoglu, PhD
Director of Digital Practice, Goettsch Partners



Bill Franek, PhD, PE
Retired, IL EPA



Michael Desch, PhD
Staff Engineer, AISC



Don Grabowski, PE
VP Rail Services, GSG Consultants



Ferdinand Dimailig
Principal, BOX Studios



Christopher Haite
Senior PMIS Implementation Specialist, AECOM



Mojtaba Dirbaz, PhD, PE
Discipline Manager, L&T Technology Services



Soliman Khudeira, PhD, PE, SE
Section Chief, City of Chicago



Abbas Divani, PhD, PE
Civil Engineer, Illinois DOT



Ajit Naik, PE
Director of Building Performance Analytics
Baumann Consulting

CAEE @ IIT: Adjunct faculty (20+)



Ibrahim Osman, PhD
Asst Vice President, Bowman Consulting



Lipika Swarup, PhD
Project Controls Specialist III, Fermilab



Karoline Qasem, PhD, PE
Project Manager, Fehr Graham



Svetlana Taylor
Engineer, Geosyntec



Juan Quiroz, PhD
Principal Structural Engineer, Stantec



Jennifer Wilkie, PhD, PE
Principal Engineer, Jacobs Engineering



Laurence Rohter, MS, PE
Senior Science Advisor, IITRI (retired)



Rebecca Wingate
Associate, Cambridge Systematics



Rich Schultz, PhD, GISP, CPG
Illinois GIS Association Board of Directors



Chris Winnie, PE
Mechanical Engineer III, SmithGroup



Sania Seilabi
Postdoctoral Fellow, University of Buffalo



Tommy Zakrzewski, PhD
Principal, Director of Building Eng. Physics, HKS



PS Sriraj, PhD
Director, UIC Urban Transportation Center

Faculty highlights - Awards



Edoarda Corradi
Associate Teaching Professor
2023 Outstanding Faculty Advisor Award
U.S. Department of Energy
Solar Decathlon Design Challenge



Gongkang Fu
Professor
**2022 TRB Roy W. Crum
Distinguished Service Award**



Mohammad Heidarinejad
Associate Professor
**2023-24 Sigma Xi/IIT Award
for Excellence in University Research**
ILLINOIS TECH



Brent Stephens
Professor and Department Chair
Arthur W. Hill Endowed
Chair in Sustainability
2024 ISIAQ Academy of Fellows



Faculty highlights – Expertise



Gongkang Fu

Time, money, lost business are part of hefty price tag to rebuild critical Baltimore bridge



Minnah Arshad
USA TODAY

Published 5:23 a.m. ET March 27, 2024 | Updated 12:39 p.m. ET April 2, 2024

<https://www.usatoday.com/story/news/nation/2024/03/27/francis-scott-key-bridge-rebuild/73110543007/>



Brent Stephens

Public Health Officials Should Urgently Prioritize Reducing Exposure to Indoor Fine Particulate Matter, New Report Recommends

News Release | January 19, 2024



<https://www.nationalacademies.org/news/2024/01/public-health-officials-should-urgently-prioritize-reducing-exposure-to-indoor-fine-particulate-matter-new-report-recommends>



Mohammad Heidarinejad

Heat Study: Chicago Temperatures Vary As Much As 22 Degrees Between Neighborhoods

BORDERLESS

<https://borderlessmag.org/2024/01/29/chicago-heat-map-campaign-heat-vulnerability-index-disaster-disrupters-northwestern-university/>

Core Research Areas

Active funding: ~\$5M

Structural Engineering – Gombeda, Modares, Fu, Mohammadi

- Reinforced and precast/prestressed concrete structures
- Cementitious materials
- Blast design and analysis
- Bridge performance and asset management
- Structural health monitoring
- Dynamic analysis of uncertain structures

Fly ash in precast concrete

Gombeda - \$1M



Early strength tension-driven high strength concrete

Gombeda - \$56k



IL-specific nonproprietary UPHC

Gombeda - \$19k



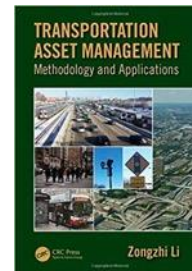
Building envelope inspection/rehab open textbook

Mohammadi, Corradi, et al. - \$142k



Transportation Engineering – Li, Miralinaghi

- Urban transportation planning and modeling
- Intelligent transportation systems
- Transportation asset management
- Safety and security analyses
- Connected and automated vehicles
- Shared transportation systems



Bridge element deterioration curves

Fu - \$150k



Operationalizing transit signal priority

Miralinaghi - \$37k



Construction Engineering and Management – Mutis

- Information technologies for construction
- Virtual design construction
- Building Information Modeling (BIM)
- Interoperability and semantics
- Construction informatics
- Construction management education



i-learn: empowering learning using mixed reality and machine learning

Mutis - \$550k (NSF)

Mixed reality for eng. design interpretation in construction eng. mgmt.

Mutis - \$300k (NSF)



VR/AR in 1st Year Engineering

Corradi and Mohammadi - \$64k

Core Research Areas

Active funding: ~\$5M

Architectural Engineering – Stephens, Heidarinejad

- Energy, air quality, and health in buildings
- Building performance assessment
- Building energy simulation
- Indoor/outdoor airflow measurements & CFD
- Multi-scale modeling of building energy systems
- Novel building controls
- Building science measurements
- Energy efficiency evaluations



Sources and sinks of oxidative PM
Stephens & Heidarinejad & - \$249k

Low-cost stream trap failure detection and radiator controls
Heidarinejad & Stephens - \$100k+

Swamp cooler filtration solutions for wildfire smoke
Stephens & Heidarinejad - \$200k (\$1M total, PI: PHI)

Air filtration for military veterans with COPD
Stephens & Heidarinejad - \$1M + \$300k suppl
(with Jesse Brown VA Medical Center)

Improving control sequences in buildings with virtual and physical testbeds
Heidarinejad - \$100k – New Investigator Award

Environmental Engineering – Lampert, Stephens

- Contaminated sediment remediation
- Wastewater treatment and reuse
- Water quality modeling and monitoring
- Computing for water systems
- Food, energy, water life cycle assessment
- Indoor pollutant dynamics
- Indoor air cleaning, filtration, and ventilation
- Infectious disease transmission
- Human exposure assessment and health outcomes



Sorbent-amended caps for PFAS contaminated sediments
Lampert - \$100k (Phase 2)



Forecasting harmful algal blooms with unmanned systems
Lampert - \$80k (\$250k total; PI OSU)



Transport of PFAS to surface waters
Lampert - \$250k (IWRC)



PFAS bioaccumulation in contaminated sediment
Lampert - \$200k (NOAA)



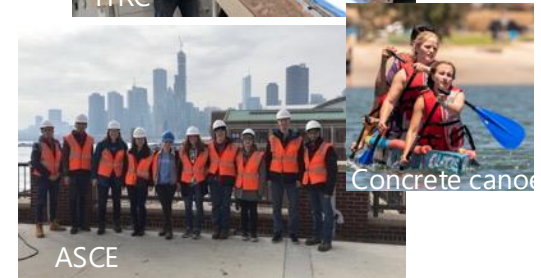
NSF Innovation Engine: Great Lakes ReNEW
Lampert - \$200k Y1-2 (up to \$160M total, 50+ orgs)

NSF SAI: Stormwater Resilience in Urban Areas
Lampert - \$750k (Senior Personnel: Stephens)

Student highlights – Student Organizations

- **Student organizations** involving CAEE students include:
 - American Society of Civil Engineering (ASCE)
 - Construction Management Association of America (CMAA)
 - Society for Environmental Engineers and Scientists (SEES)
 - Chi Epsilon - Civil Engineering Honor Society
 - Structural Engineers Association of Illinois (SEAOI)
 - American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
 - Architectural Engineering Institute (AEI)
 - Institute of Transportation Engineers (ITE)
 - Women in Transportation (WIT)
 - Engineers Without Borders (EWB)
 - Engineers for a Sustainable World (ESW)
 - Illinois Tech Railroad Club (ITRC)

10TH ANNUAL
CAEE CAREER FAIR



Student highlights – Student organizations: ASCE

ASCE | STUDENT SYMPOSIUM

*Western Great Lakes
April 4–6, 2024*



Student Highlights – Scholarships

- IIT CAEE students won 4 2024 ASCE IL scholarships

Structural
Engineering
Institute



Samantha Muller
(BS ARCE)

Geo-Institute



Prasant Kafle
(BS CE, ME CM)



German Laiton
Hernandez
(BS CE)

Transportation &
Development
Institute



Maritza Torres
(BS CE)



<https://www.isasce.org/scholarships/>

- IIT students won 5 of 5 (!) 2023 ASHRAE IL Chapter scholarships



Samantha Muller
(BS ARCE)



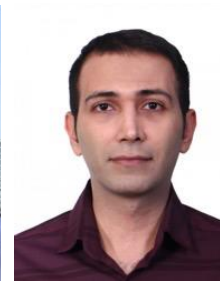
Aditya Singh
(PhD ENVE)



Saman Haratian
(PhD ARCE)



Jongki Lee
(PhD ARCE)



Saeed Farhoodi
(PhD ARCE)



<https://illinoisashrae.org/Scholarship>

Student highlights – Profiles

Living Your Values as an Engineer



Jonathan Ellison (CE '24)

"I don't just feel accepted as an older learner, I'm actually valued."

Merging Architectural Engineering and Computer Science



Samantha Muller (ARCE '26, CS Minor)

"There are not many colleges that offer an architectural engineering bachelor's degree, and Illinois Tech is consistently ranked one of the best."

Intersecting Architectural Engineering and Public Health



Insung Kang (PhD ARCE '22)
Assistant Professor, UT-Arlington

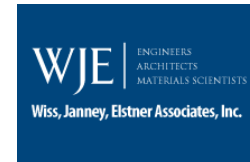
"I saw that a lot of students were given ample opportunities for hands-on projects, internships, and research that are crucial for understanding real-world applications of their studies."

<https://www.iit.edu/news/living-your-values-engineer>

<https://www.iit.edu/student-experience/student-and-alumni-stories/merging-architectural-engineering-and-computer-science>

<https://www.iit.edu/student-experience/student-and-alumni-stories/intersecting-architectural-engineering-and-public-health>

Alumni highlights – Where do they work?



ADVISING & REGISTRATION

Courses, advising, and registration

- Most degrees can be taken **part-time** or **full-time**
 - Typical full-time load is 9 credit hours per semester
 - Can take more or less depending on your situation
- **Many** classes are taught in the **evening** and/or **available online**
 - View course schedules:
 - https://ssb.iit.edu/bnrprd/bwckschd.p_disp_dyn_sched
 - View program descriptions:
 - <https://www.iit.edu/caee/programs>
 - View course descriptions:
 - <http://bulletin.iit.edu/graduate/courses/cae/>
 - <http://bulletin.iit.edu/graduate/courses/enve/>
 - View historical course offerings:
 - <https://www.iit.edu/caee/student-resources>
 - International students on F-1: maximum 1 class online per semester

Courses, advising, and registration

Academic Calendar Task	Deadline
Last Day to Add/Drop Classes	2 weeks into semester
Last Day to Withdrawal from Classes	11 weeks into semester
Request an Incomplete Grade (form initiated by student)	Before final exams

<https://www.iit.edu/registrar/academic-calendar>

Program(s)	Primary Advisor	Email
Construction Engineering & Management Engineering Management	Ray Lemming	rlemming@iit.edu
Architectural Engineering Energy Systems Engineering Environmental Engineering Urban Systems Engineering	Dr. Brent Stephens	brent@iit.edu
Structural Engineering	Dr. Mehdi Modares	mmodares@iit.edu
Transportation Engineering Public Works	Dr. Zongzhi Li	lizz@iit.edu

<https://www.iit.edu/caee/student-resources/graduate-academic-advising>