

Civil, Materials, and Environmental Engineering

MASTER OF SCIENCE DEGREE PROGRAMS

The world is building at an astounding pace.

The U.S. Bureau of Labor Statistics projects faster-than-average growth in the construction industry through 2029, along with 5,500 new civil engineering jobs and 1,700 additional environmental engineering positions.

UIC Engineering offers three master of science programs designed to prepare you for careers in creating, managing, and improving the built world around us.

MS IN CIVIL ENGINEERING

Civil engineering encompasses structural engineering and mechanics, environmental engineering, geotechnical engineering, transportation engineering, and more. Our degree program helps to define your knowledge and skills in the area that is most relevant to you. In this program, you can either combine your coursework with a master's thesis research project or complete your entire MS degree through coursework.

MS IN MATERIALS ENGINEERING

Materials—including metals, intermetallics, polymers, ceramics, composites, and electronic materials—are critical to modern industrial society. Our MS program develops your expertise in the design, manufacture, and characterization of materials for specific applications. In this program, you can either combine your coursework with a master's thesis research project or complete your entire MS degree through coursework.

MS IN CONSTRUCTION ENGINEERING AND MANAGEMENT

To meet the growing demand in the field for highly skilled construction engineering managers, UIC launched this new master's degree program—the only one of its kind at a public university in the greater Chicago area. Students learn about a wide range of topics, including construction regulations, quality control, professional ethics, risk management, project planning, and environmental sustainability.



Programs for Working Professionals

The UIC civil, materials, and environmental engineering department schedules its courses with working professionals in mind. Most of our programs can be taken either full-time or part-time, and faculty teach courses in the evening as often as possible to make life easier for students who are returning for a master's degree while holding a job.

International Programs

UIC's international partnership programs allow students from specific universities around the world to complete part of their higher education in our department, potentially culminating in an MS in Civil Engineering or MS in Materials Engineering from UIC.

Learn more at go.uic.edu/COEinternational.

UIC's Academic Strengths

- | | |
|---|---------------------------------|
| Construction Engineering and Management | Sustainability |
| Materials Engineering | Transportation Engineering |
| Structural Engineering | Water-Environmental Engineering |

Featured Courses

What will you take as an MS student at UIC? Explore your choices at cme.uic.edu (see the Courses page under the Graduate menu). Here are a few that have captured our current students' attention—and that have proved especially valuable in their careers after UIC.

CME 406 BRIDGE DESIGN

This course introduces students to the theory and procedures related to the design and analysis of modern bridges. The class covers construction practices for concrete and steel bridge structures, and students learn how to use the AASHTO Code.

CME 440 CITIES AND SUSTAINABLE INFRASTRUCTURE

Students learn how to plan integrated urban infrastructure based on the principles of sustainability and resilience. Topics include green building design, urban network design, environmental assessment, infrastructure economics, and sustainable systems for energy, water, and transportation.

CME 470 PHYSICAL AND MECHANICAL PROPERTIES OF MATERIALS

Subjects covered in this course include basic metallurgical phenomena, kinetics and phase stability, and diffusion and transformation rates. By the end of the semester, students are expected to have a fundamental grasp of the mechanical properties of materials, creep, fatigue, and fracture.

CME 508 URBAN TRAVEL FORECASTING

Where will people go, and how will they get there? This course introduces the theory and method of forecasting travelers' origin, route, mode, destination, departure time, and trip frequency in congested urban transportation networks.

A Step Ahead

Thanks to the strength of our curriculum and UIC's global connections, many MS students are able to get **internships** that help them level up their career planning.

Liang Zhao

Internship: Geotechnical and Geoenvironmental Engineering Laboratory

Location: Chicago, IL

Assignment: Understanding the processes that occur when pesticides contaminate soil and groundwater and developing remediation methods to improve the environment

His perspective: "The UIC civil and materials engineering department is where I met my advisor, Professor Krishna Reddy, who guided me in academia and prepared me to become a great researcher in the future. Ten years from now, I hope to be running my own lab and having a positive impact at the university where I work."



Onur Can

Internship: Fox-Nesbit Engineering

Location: New Orleans, LA

Assignment: Structural design of steel, reinforced concrete, wood, and masonry buildings. "It helped me to understand design principles, and it gave me practical knowledge about my profession."

His perspective: "There are many catastrophic events such as hurricanes and earthquakes in this world. I seek to design buildings that can resist these events and save human life."



After UIC, where to?

Companies that have hired graduates of the UIC MS in Civil Engineering, Materials Engineering, and Construction Engineering and Management programs include:

AECOM
Bechtel Civil Infrastructure
Benesch
Chicago Department of Transportation
Chicago Department of Water Management
Christopher B. Burke Engineering
Ciorba Group
Clark Dietz
CLEARResult
Commonwealth Edison
DLZ Corporation
DNV KEMA
Engineering Services Group
EXP
Federal Highway Administration
Ford Motor Company
Fox Nesbit Engineering
Fronrunner Systems

Gas Technology Institute
Geosyntec Consultants
GL Leading Technologies
Grumman/Butkus Associates
HNTB
Illinois Department of Transportation
Jacobs
KPMG
Metropolitan Water Reclamation District of Greater Chicago
Parsons
Patrick Engineering
Sargent & Lundy
Siemens
STV Group
Turner Construction
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
URS Corporation

Danielle da Silva

Water Resources Engineer, Ciorba Group

What does Danielle da Silva like about her job? "I'm always working on improving the daily quality of life in the Chicago area and Northwest Indiana communities," she said, whether that's reducing flooding or improving access to drinking water. She was prepared to do this work by the master's courses she chose at UIC—from the general, such as chemistry and physics, to the specialized, including hydraulics and geotechnical engineering.

UIC "taught me essentially everything I use in my day-to-day tasks," she said.

Becoming involved in two student organizations also gave her a broader view. "I liked the humanitarian part of Engineers Without Borders, which helped me to understand problems that other parts of the world are facing when it comes to infrastructure," she said, while "Women in Engineering was empowering and taught me that female students have the capability to contribute in meaningful ways." Today, that's exactly what she does.



Huzefa Dewaswala

Project Manager, Fronrunner Systems

Huzefa Dewaswala wants to change the world by providing it with more great buildings, each built to the highest possible standards. Within the next decade, he plans to be running his own successful construction company. Today, he is laying the groundwork through his role at Fronrunner Systems, managing project resources, scheduling, purchasing, installation plans, and billing for a company that "cares about me and my professional growth."

Dewaswala's upward trajectory is an outgrowth of his MS in Civil Engineering degree from UIC, where he was an active member of the American Society of Civil Engineers' Construction Institute and enjoyed coursework in sustainable cities and construction organization management.

"I highly recommend UIC to new applicants," he said. "Good academics, reputation, diversity, and location—good for job opportunities, as Chicago has plenty of them."



Admissions

Full details on how to apply—including requirements and deadlines—are at cme.uic.edu under the Graduate menu.

Interested in graduate study at UIC? Talk to us. Contact our civil, materials, and environmental engineering graduate team with questions or for an informal conversation.

Amid Khodadoust, PhD
Associate Professor and Director
of Graduate Studies
cmедgs@uic.edu

Hossein Ataei, PhD
Clinical Associate Professor and
Director of the Construction Engineering
and Management Program
cmедgs@uic.edu

Sara Arevalo
Graduate Program Coordinator
cmegrad@uic.edu