Civil and Materials 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 2026, along with a 6-percent increase in civil engineering jobs, a 5-percent rise in environmental engineering positions, and 400 new materials 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.

**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 403 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.

**Programs for Working Professionals**

The UIC civil and materials 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.

**UIC’s Academic Strengths**

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

**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.

**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-Neibit 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.”
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, Frontrunner 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 Frontrunner 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.”