Civil and Environmental Engineering at Rutgers

Civil engineers design and create virtually all infrastructures, from bridges and highways to airports and water treatment facilities. Within the field, there can be a wide range of specialization: structural engineers may be involved in designing buildings to withstand earthquakes and hurricanes; transportation engineers may design highways; geotechnical engineers may be involved with creating tunnels and improving grounds; water resource engineers may be involved in designing dams to preserve our drinking water and prevent flooding; and construction engineers may be there to build it all in the most efficient and economical way.

At Rutgers, students tackle issues of global importance, including the sustainability of infrastructures, the impact of transportation on the environment, deploying emerging concepts and technologies in the construction of new facilities, and much more. Our faculty members are leading innovators with recent technological advances that include a robot that examines bridge surfaces using sophisticated tools and a 3-D geospatial mapping instrument.

Civil engineers design and create virtually all infrastructures, from bridges and highways to airports and water treatment facilities. Within the field, there can be a wide range of specialization: structural engineers may be involved in designing buildings to withstand earthquakes and hurricanes; transportation engineers may design highways; geotechnical engineers may be involved with creating tunnels and improving grounds; water resource engineers may be involved in designing dams to preserve our drinking water and prevent flooding; and construction engineers may be there to build it all in the most efficient and economical way.

At Rutgers, students tackle issues of global importance, including the sustainability of infrastructures, the impact of transportation on the environment, deploying emerging concepts and technologies in the construction of new facilities, and much more. Our faculty members are leading innovators with recent technological advances that include a robot that examines bridge surfaces using sophisticated tools and a 3-D geospatial mapping instrument.

CEE Highlights

- CEE faculty provides leadership on several prominent national projects.
- Student groups Engineers Without Borders and Bridges to Prosperity address community challenges both at home in Camden and overseas with teams traveling to Kenya, Guatemala, Bolivia, and Thailand.
- Students and faculty work directly with Rutgers Center for Advanced Infrastructure and Transportation, a University Transportation Center supported for more than twenty years by the US Department of Transportation.

Civil and Environmental Engineering Degrees Offered and Curricular Options

BS
Options:
- Structural Engineering, Geotechnical Engineering, Transportation Engineering, Water Resources and Environmental Engineering, and Construction Management

BS/BA Dual Degree
BS/MS Five-year Dual Degree Program
BS/MBA Five-year Dual Degree Program
MS/PhD

» WHAT CAN YOU DO WITH AN ISE DEGREE?

- Structural engineer
- Transportation engineer
- Geotechnical engineer
- Water resources engineer
- Environmental engineer
- Construction management engineer

“The professors are very helpful inside and outside the classroom. Whether it’s help with a homework problem or help finding an internship, they are always available to students.”

Yarissa Subervi

For more information, visit cee.rutgers.edu
Working with the Federal Highway Administration, CEE researchers are developing a revolutionary robot that can diagnose and manage the health of bridges by automating data collection and simultaneously deploying multiple nondestructive evaluation technologies such as high resolution imaging, electromagnetic, electrical, and acoustic tools.

Hands-On Experience

Undergraduate experiences include laboratory studies of new classes of civil engineering materials and structural elements, field investigations of performance bridges and pavements, assessment of traffic congestion, evaluation of environmental impacts and mitigation, and more.

Research Opportunities

- Infrastructure evaluation and monitoring
- Intelligent transportation systems
- Transportation design and planning
- Geotechnical and geoenvironmental engineering
- Pavement engineering
- Railroad engineering
- Construction management
- Water resources management
- Air pollution monitoring and control

Program Highlights

To develop the required knowledge and skills, CEE students take courses on analysis and design of concrete and steel structures, planning of water supply and waste-water treatment facilities, planning of all modes of transportation systems, analysis and design of foundation systems that support all civil structures, planning and execution of construction projects, protection of environment and more. Students are then required to demonstrate their gained knowledge in senior design projects, where they develop designs and plans for real world structures, facilities, and systems.

Students in their senior year have the opportunity to concentrate on a specific interest area:

- **Structural Engineering**
  - Structural engineers analyze, design, and plan structural infrastructure and building components to be safe and functional. This course of study teaches the fundamentals of steel structure design by introducing students to real life design problems and addressing industry standards in approaching the design process.

- **Geotechnical Engineering**
  - Geotechnical engineers study the behavior of earth materials and earth masses, such as slopes, embankments and dams, under regular design loads and during extreme events, like earthquakes or storms, and design of foundations for all engineering structures, including bridges and buildings.

- **Transportation Engineering**
  - This course provides students with the tools and methods to understand, analyze, plan, operate, and control complex transportation systems. Different transportation systems or components of these systems are studied using available transportation modeling techniques.

- **Water Resources and Environmental Engineering**
  - Water resources engineers work to ensure water safety as it relates to drinking water, flood prevention, irrigation, and wastewater systems. Design principles are studied for various water and wastewater engineering systems including water supply and distribution, wastewater collection and disposal, water treatment, and wastewater treatment.

- **Construction Management**
  - Student learning includes quantitative management techniques in overseeing construction projects as they relate to planning, scheduling, and estimating. Construction managers use technical and managerial skills to see a building project to completion—on time, on budget, and safely built.

For more information, visit cee.rutgers.edu