WHAT IS CIVIL ENGINEERING?

From the roads and bridges on which we travel to the clean water and soil on which we depend, civil engineering is a vital component of our everyday lives. As part of the oldest and broadest of all engineering disciplines, civil engineers design and construct infrastructure such as airports, buildings, bridges, dams, roads and sanitation systems. These professionals can be found in rural and urban areas working for large and small companies, as well as local, state and federal governments.

Auburn’s civil engineering program is known for its comprehensive and challenging curriculum, strong and dedicated faculty, outstanding teaching and for the achievements of its graduates.

NOTABLE
- 540 undergraduate and 112 graduate students enrolled in fall 2014
- 20 full-time faculty members

CURRICULUM

Bachelor of Civil Engineering
The Department of Civil Engineering offers required and elective courses in the following specialty areas of civil engineering:

Construction Engineering and Management
Construction consumes more basic finished materials than any other industry. The construction of a highway, power plant, office building or concrete dam requires an in-depth understanding of economic principles, design fundamentals, material properties and management techniques.

Environmental Engineering
From properly disposing of waste to minimizing the damaging effects of human activities, environmental engineers help protect people and the environment. They are involved with issues such as air and water quality, excessive noise and vibration, harmful radiation, hazardous waste and solid waste management.

Geotechnical Engineering
Working with the earth to satisfy the needs of society, geotechnical engineers build from the ground down, creating foundations for structures such as bridges, buildings, roads and dams – working closely with environmental and hydraulic engineers to protect groundwater from pollution.

Hydraulic Engineering
Hydraulic engineering is the application of principles of fluid mechanics to urban drainage design, flood control and mitigation, water resources planning, sediment transport and the protection of restoration of surface and groundwater resources. Engineering hydrology quantifies the distribution and movement of water in the environment.

Pavements and Materials Engineering
Engineers in the pavements and materials area are responsible for roadway design, construction, maintenance and rehabilitation. Pavements – an integral component of any transportation infrastructure – combine essential elements of materials, geotechnical and structural engineering to produce facilities that connect our country from coast to coast.

Structural Engineering
All structures – including buildings, bridges, stadiums and industrial facilities – must be designed to efficiently resist the forces exerted by humans and nature. Structural engineers create new designs and evaluate and improve the load resisting capabilities of existing structures, such as buildings subjected to hurricane and earthquake damage. They must be knowledgeable about the behavior of various structural systems, the sources, magnitudes and frequencies of applied loads and material properties, design methods and governing design codes.

Transportation Engineering
Through the movement of people and goods, our transportation system greatly influences our quality of life. Transportation engineers plan, design, construct and operate systems for all modes of transit. Students address the topics of traffic safety, parking, highway capacity, traffic signalization, geometric design surveying and mapping and transportation models.

For information about academic programs and minors, visit www.eng.auburn.edu/programs

Graduate curriculum

Master of Science (M.S.) — requires the completion and defense of a thesis, including a minimum of six semester hours of Thesis (CIVL 7990 and 24 semester hours of graduate course work other than CIVL 7990. Candidates must pass an on-campus comprehensive oral examination covering course work and the thesis.

Master of Civil Engineering (M.C.E) — requires a minimum of 27 semester hours of graduate course work other than CIVL 7980, and three semester hours of Civil Engineering Project (CIVL 7980), culminating in a final written report approved by the student’s advisory committee. Candidates must pass an on-campus comprehensive oral examination covering course work and the project.
Doctor of Philosophy (Ph.D.) — doctoral candidates complete and defend a research dissertation that includes ten hours of CIVIL 8990 (research and dissertation). A written and oral general doctoral examination is required prior to becoming a candidate for the degree. The degree requires a minimum of 60 semester hours of graduate credit beyond the bachelor degree.

RESEARCH, LABORATORIES AND CENTERS

The Department of Civil Engineering provides opportunities to perform research in areas such as:

• National Center for Asphalt Technology (NCAT)
• Highway Research Center
• Alabama Technology Transfer Center
• Auburn University Environmental Institute
• Structural Engineering Laboratories
• Geotechnical Engineering Laboratories
• Environmental Engineering Laboratories
• Hydraulic Engineering Laboratories
• Concrete Materials Laboratory
• Asphalt and Materials Laboratories

TEAMS AND ORGANIZATIONS

Civil engineering students are encouraged to participate in various campus and departmental organizations, including:

• American Society of Civil Engineers (concrete canoe team)
• Chi Epsilon, national civil engineering honor society
• Cupola Engineering Ambassadors
• Engineering Student Council
• National Society of Black Engineers
• Society of Hispanic Engineers
• Society of Women Engineers
• Baja SAE
• Formula SAE

For more information, visit www.eng.auburn.edu/organizations

LIFE AFTER GRADUATION

Civil engineers conceive, plan, design, construct, operate, and maintain facilities and systems that serve the basic needs of society. These include buildings, bridges, water tanks, transmission lines, pipelines, highways, railways, airports, harbors, water and wastewater systems, dams and power plants. They also help protect the environment by working to prevent air, land and water pollution. Because civil engineers are involved in every aspect of creating and maintaining our society’s infrastructure, the job market for them is strong and stable. Civil engineers work for industrial and manufacturing firms; structural, environmental, geotechnical and transportation consulting firms; architectural and engineering firms; construction companies; local governments; state and federal agencies; departments of transportation; and industries such as oil, aircraft, shipbuilding, electric utility, communication, chemical and paper.

SCHOLARSHIPS

The College of Engineering and the Department of Civil Engineering provide scholarship opportunities to students at every stage of their academic career. To be eligible for scholarships at Auburn University, all students must apply through the AUSOM system. Freshmen must submit their applications before March 1.

For information about engineering scholarships, visit www.eng.auburn.edu/scholarships

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