WHAT IS CIVIL ENGINEERING?

From the roads and bridges on which we travel to the clean water, air, 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
- 555 undergraduate and 126 graduate students enrolled in fall 2019
- 25 full-time faculty members
- Don Arkle, ’77, Chief Engineer, Alabama Dept. of Transportation
- Melissa Herkt, ’77, retired president and COO of Emerson
- Jeff Stone, ’79, executive vice president of Brasfield & Gorrie

UNDERGRADUATE CURRICULUM

Bachelor of Civil Engineering
The following specializations are possible as part of the Bachelor of Civil Engineering degree program:

Construction Engineering
Construction engineers plan, oversee, and manage the construction efforts associated with building new or rehabilitating existing buildings, bridges, roads, and other facilities.

Environmental Engineering
Environmental engineers apply scientific and engineering principles to assess, manage, and design sustainable environmental systems for the protection of human and ecological health.

Geotechnical Engineering
Geotechnical engineers deal with the analysis, design and construction of earth and earth-supported structures. They may also work in the area of geoenvironmental engineering, which focuses on application of geotechnical and geological principles to problems related to the protection of human health and the environment.

Pavements and Materials Engineering
Pavements and materials engineers design, build, and maintain pavement infrastructure for highways, airports, parking lots and port facilities. This includes design and characterization of the constituent materials, pavement construction, integration and application of materials in engineered pavement structures, and management of pavement infrastructure.

Site Engineering and Land Development
This specialization addresses site planning and land development for a variety of settings: commercial, industrial, municipal, recreational and residential.

Structural Engineering
Structural engineers design new structures—such as buildings, bridges and stadiums—to withstand loads and natural hazards, such as hurricanes, tornadoes and earthquakes. They also evaluate and improve the capabilities of existing structures. While architects are concerned with the arrangement and appearance of spaces, structural engineers are responsible for stability, strength and stiffness.

Transportation Engineering
Transportation engineers forecast, design, analyze and manage transportation systems to support the safe, efficient and environmentally-friendly movement of people and materials. They may engage in general transportation network design and planning, facilities planning, site evaluation, transportation management systems, needs projections and analysis, and cost analysis.

Water Resources Engineering
Water resources engineers design, evaluate, maintain, and operate the water systems in natural and built environments. They conceive and design new water infrastructure for collecting, storing, moving, conserving, and controlling surface water, pressurized water, and groundwater. This includes water quality control, water cycle management, management of human and industrial water requirements, water delivery, and flood control.

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. Thirty credit hours of graduate course work are required, including four to six hours of Research and Thesis (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 30 semester hours of graduate-level courses other than CIVL 7990, which may include three-semester hours of CIVL 7980 (Engineering Project).

Doctor of Philosophy (Ph.D.) – doctoral candidates complete and defend a research dissertation that includes a minimum of ten hours of research and dissertation (CIVL 8990). 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 and Environmental Engineering provides opportunities to perform cutting-edge research through:

- Advanced Structural Engineering Laboratory
- Alabama Technology Transfer Center
- Asphalt and Materials Laboratories
- Concrete Materials Laboratory
- Environmental Engineering Laboratories
- Geotechnical Engineering Laboratories
- Highway Research Center
- Hydraulic Engineering Laboratories
- National Center for Asphalt Technology (NCAT)

TEAMS AND ORGANIZATIONS

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

- American Society of Civil Engineers
- American Concrete Institute
- Chi Epsilon, national civil engineering honor society
- Institute of Transportation Engineers

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. Our graduates are employed at highly reputable and successful companies and corporations, with many serving in top managerial and executive positions. These organizations include Brasfield & Gorrie; Hoar Construction; the Alabama, Florida and Georgia departments of transportation; LBYD; CH2M/Jacobs; U.S. Army Corps of Engineers; Terracon; Hayward Baker; Walter P. Moore; Kimley-Horn; BL Harbert; Southern Company and subsidiaries such as Alabama Power, Georgia Power and Gulf Power; the U.S. Nuclear Regulatory Commission; Wood (formerly Amec Foster Wheeler); Building and Earth Sciences; TTL; and many more.

SCHOLARSHIPS

The College of Engineering and the Department of Civil and Environmental 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 AUSOM.

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

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