Civil Engineering, dating from those early years when there were only civilian and military engineering, can now be appropriately defined as that branch of engineering most closely connected with the modification of the natural environment for human habitation and activity and with the construction and maintenance of the community's basic facilities. Environmental engineering is a contemporary specialty relating to the control and management of environmentally objectionable water, air pollution, and solid waste generation. The civil engineer designs and builds structures and foundations, highways and bridges, water supply and sanitation works, dams and tunnels, and the many other life support systems for the smooth and safe functioning of society. The breadth of civil engineering education offers an excellent background for many challenging careers in our technological age.

UNDERGRADUATE PROGRAM IN CIVIL ENGINEERING

The undergraduate civil engineering program at UAB embodies a curriculum of 128 semester credit hours, with a foundation of 33 hours of pre-engineering courses; additional science, mathematics, and humanities courses; a basic engineering core; a set of required civil engineering courses; and limited electives providing an opportunity for specialization in certain areas. The program is accredited by the Accreditation Board of Engineering and Technology (ABET) and its goals and objectives adhere to ABET's accreditation criteria. At the graduate level, a wide array of courses is available for specialization in structural engineering and environmental engineering.

Vision

The Department of Civil and Environmental Engineering of the University of Alabama at Birmingham will be a nationally and internationally recognized leader in civil and environmental engineering education and research.

Mission

The mission of the Department of Civil and Environmental Engineering is to provide high quality, innovative, and globally competitive engineering education that will prepare our students for their engineering career with state-of-the-art knowledge, and will give them the ability and motivation to acquire new knowledge for continued career success. Our mission also includes conducting basic and applied research to further enhance our engineering education and to support the needs of industry and governments of the Birmingham region, the State of Alabama, and the Nation.

Goals

- Provide high-quality civil and environmental engineering education;
- Prepare students to take their place in a globally-competitive environment;
- Educate engineers so they can compete in new and emerging technologies and markets by teaching them to think critically, plan strategically, communicate effectively, practice ethically, and to be adaptable to societal changes and life-long learning;
- Conduct basic and applied research with the ultimate goal of technology transfer for the betterment of mankind;
- Provide exemplary service to the University, the Birmingham metropolitan community, the State of Alabama, business and industrial organizations, and the engineering profession;
- Build relationships to specifically support the education and research needs of the Birmingham area and the State of Alabama; and
- Encourage the engineering, business, and industrial communities to stay abreast of changing technology by providing opportunities for life-long learning.
CIVIL AND ENVIRONMENTAL ENGINEERING
EDUCATIONAL OBJECTIVES

1. Prepare students to be proficient in mathematics through differential equations, probability and statistics, calculus-based physics, and general chemistry;

2. Prepare students to be competent in the fundamentals of design and analysis in the following four areas of civil engineering:
   - structural engineering,
   - environmental engineering,
   - transportation engineering, and
   - geotechnical engineering.

3. Provide the knowledge needed to conduct laboratory experiments and analyze/interpret data related to those four areas of civil engineering competency;

4. Prepare students to use computers appropriately for civil engineering applications;

5. Provide opportunities and experiences of the overall civil engineering project process including teamwork, communication, presentation, and technical writing, and understanding of professional practice issues.

BASIC GOALS AND COURSE SELECTION LOGIC FOR THE CIVIL ENGINEERING CURRICULUM

1. The program will assist each student in acquiring the following abilities:
   - the ability to analyze,
   - the ability to solve problems,
   - the ability to validate solutions,
   - the ability to diagnose problems,
   - the ability to perform independent study,
   - the ability to read and understand the technical literature,
   - the ability to communicate effectively in writing, and
   - the ability to communicate effectively orally.

2. The program will provide each student with a meaningful foundation in the following areas:
   - mathematics,
   - chemistry and physics,
   - relevant (non-civil) engineering topics,
   - civil engineering, and
   - project management, laboratory techniques, problem solving, and interdisciplinary team work.
GRADUATION REQUIREMENTS

In addition to satisfying all of the general UAB graduation requirements, the School of Engineering requires that all students make reasonable progress toward the completion of their academic program. Reasonable progress includes maintaining a GPA of at least 2.0 in all UAB courses attempted and in all UAB engineering courses attempted.

Excessive withdrawals may be interpreted as lack of progress. Students who are not making reasonable progress toward graduation will be placed on academic probation. Students who are on probation cannot graduate from the School of Engineering.

CIVIL AND ENVIRONMENTAL ENGINEERING FACULTY

FULL-TIME FACULTY IN CIVIL AND ENVIRONMENTAL ENGINEERING:

Dr. Shen-en Chen, P.E., Assistant Professor (Structural Engineering, Engineering Mechanics, Geotechnical Engineering)
Dr. James Davidson, Associate Professor (Structural Engineering, Engineering Mechanics)
Dr. Norb Delatte, P.E., Associate Professor (Transportation Engineering, Construction Materials, Pavement Design)
Dr. Fouad H. Fouad, P.E., Professor and Chairman (Structural Engineering, Reinforced Concrete, Concrete Materials)
Dr. Steven Jones, Research Assistant Professor (Transportation Engineering, Traffic Engineering)
Dr. Melinda M. Lalor, Associate Professor (Environmental Engineering, Water Resources Engineering, Solid Waste Management)
Dr. Robert W. Peters, P.E. Associate Professor (Environmental Engineering, Water and Wastewater Treatment, Physics/Chemical Treatment, Soil and Ground Water Remediation, Sonication/Acoustic Cavitations, Advanced Oxidation Processes, Water Chemistry)
Dr. Tarek Rizk, P.E., Assistant Professor (Fiber Reinforced Composites, Construction Engineering, Structural Analysis and Design)
Dr. E.P. Segner, Jr., P.E., Professor Emeritus (Structural Engineering, Structural Mechanics, Engineering Mechanics)
Dr. Virginia Sisiopiku, Associate Professor (Transportation Engineering, Traffic Engineering)
Dr. Nasim Uddin, P.E., Assistant Professor (Structural Engineering, Structural Dynamics, Infrastructure Rehabilitation, Hazard Mitigation)
Dr. Jianmin Wang, P.E., Assistant Professor (Environmental Engineering, Water and Wastewater Treatment, Chemistry and Interfacial Phenomenon, Fate and Transport of Pollutants in Natural and Engineered)

FACULTY IN OTHER UAB DEPARTMENTS HAVING A JOINT APPOINTMENT IN CIVIL AND ENVIRONMENTAL ENGINEERING:

Dr. Joseph H. Appleton, Distinguished Service Professor (Structural Engineering, Structural Mechanics, Computer Methods in Design)
Dr. Heng Ban, Associate Professor (Materials and Mechanical Engineering, Pollution Control, Combustion, Thermal-Fluid Science)
Dr. H. Kenneth Dillon, Associate Professor (Environmental Health Sciences, Water Chemistry, Air Pollution)
Dr. Alan Eberhardt, Associate Professor (Solid Mechanics, Biomechanics Analytical and Numerical Methods)
Dr. Jay Goldman, Professor (School of Engineering, Industrial Engineering, Injury Control and Transportation Systems)
Dr. Reidar K. Oestenstad, Associate Professor (Environmental Health Sciences, Industrial Hygiene)
Dr. Loring Rue, Chief and Professor (Department of Surgery, School of Medicine - Section of Trauma, Burns, and Surgical Critical Care Injury and Crash Research Injury)
ADMISSION TO UNDERGRADUATE PROGRAMS

Applications for admission to undergraduate programs in the School of Engineering are handled by the Office of Admissions, Suite 260, Hill University Center, 1400 University Boulevard, Birmingham, AL 35294, telephone (205) 934-8221. This office is responsible for receiving and processing applications. All students admitted to the School of Engineering will be admitted to and advised by the School of Engineering Office of Academic Programs in the Hoehn Engineering Building, Suite 100, 1075 13th Street South, telephone (205) 934-8410.

Beginning Freshmen
Recent high school graduates with no previous college credit should take the American College Testing Program Examination (ACT) and have the results sent directly to UAB Admissions. The Scholastic Aptitude Test (SAT) is acceptable in lieu of the ACT.

High school graduates are admissible to the UAB School of Engineering if they have a composite ACT score of at least twenty-one (21) or a total of the mathematics and science reasoning scores of at least forty (40).

Students who do not meet the above requirements may be admitted to the School of Engineering as pre-engineering students if they have a combined math and science ACT score of 33 to 39 and a minimum GPA of 2.0/4.0. Students with a high school GPA below 2.0/4.0 or who have not met the above requirements will be admitted to general studies.

Students From Other Schools or Divisions Within UAB
UAB students may transfer to the School of Engineering if both of the following performance requirements have been met: (a) An overall GPA in college-level work of at least a 2.0 (4.0 scale): (b) A grade-point average of at least 2.2 (4.0 scale) in 12 hours of mathematics, natural science, and engineering courses. A “Change of School/Major Request” application can be completed at the Registrar’s Office, Room 207, Hill University Center, 1400 University Boulevard, Birmingham, AL 35294, telephone (205) 934-8222.

Students From Other Institutions (Universities, Colleges, Junior Colleges, Community Colleges)
Transfer applicants will be admitted to the School of Engineering if both of the following performance requirements have been met: (a) An overall GPA in college-level work of at least 2.0 (4.0 scale): (b) A grade-point average of at least 2.2 (4.0 scale) in 12 hours of mathematics, natural sciences, and engineering courses.

MINORS IN CIVIL AND ENVIRONMENTAL ENGINEERING

Three minors are available through the CEE Department:
1) Civil Engineering
2) Environmental Engineering
3) Applied Mechanics
Please contact the CEE Department or refer to the undergraduate for additional details.

DEPARTMENTAL HONORS PROGRAM IN CIVIL AND ENVIRONMENTAL ENGINEERING

The Civil and Environmental Engineering (CEE) Honors Program presents an opportunity for highly motivated undergraduate students to develop research skills in preparation for graduate school and professional work.

Please check with the Department Chair or Undergraduate Advisor for additional information and admission requirements to the Honors program.

DEPARTMENTAL CERTIFICATES PROGRAM IN CIVIL AND ENVIRONMENTAL ENGINEERING

The CEE Department offers an opportunity for specialization in one of the following areas: Structural, environmental, transportation, and geotechnical engineering. Additional coursework will be required to satisfy the certificate requirements.

For additional information visit our Web Site at http://main.uab.edu/soeng/show.asp?durki=49363&site=2515&return=49306
CIVIL AND ENVIRONMENTAL ENGINEERING (CEE) PROGRAM OF STUDY (128 hr.)

First Year

<table>
<thead>
<tr>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>SEM HRS</th>
<th>PREREQUISITE</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 115</td>
<td>General Chemistry I &amp; Lab</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 116</td>
<td>General Chemistry II &amp; Lab</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 125</td>
<td>Calculus I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 126</td>
<td>Calculus II</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PH 221</td>
<td>General Physics I &amp; Lab</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EG 100</td>
<td>Introduction to Engineering</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EH 101</td>
<td>English Composition I</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EH 102</td>
<td>English Composition II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 102</td>
<td>Engineering Graphics</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES 120</td>
<td>Geology for Engineers</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>SEM HRS</th>
<th>PREREQUISITE</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 227</td>
<td>Calculus III</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PH 222</td>
<td>Physics II &amp; Lab</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 210</td>
<td>Statics</td>
<td>3</td>
<td>CE 215</td>
<td>D</td>
</tr>
<tr>
<td>CE 215</td>
<td>Dynamics</td>
<td>3</td>
<td>CE 210</td>
<td>D</td>
</tr>
<tr>
<td>MA 252</td>
<td>Differential Equations</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 234</td>
<td>Engineering Computations</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 134</td>
<td>Into to Thermodynamics</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 125</td>
<td>Core Curriculum Requirement</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 126</td>
<td>Core Curriculum Requirement</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HFA/SBS</td>
<td>Core Curriculum Requirement</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HFA/SBS Core Curriculum Requirement

First Year Total Hours 33 Second Year Total Hours 31

Third Year

<table>
<thead>
<tr>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>SEM HRS</th>
<th>PREREQUISITE</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 220</td>
<td>Mechanics of Solids</td>
<td>3</td>
<td>CE 430 or 480</td>
<td>D</td>
</tr>
<tr>
<td>CE 221</td>
<td>Mechanics of Solids Lab</td>
<td>1</td>
<td>CE 345</td>
<td></td>
</tr>
<tr>
<td>CE 222</td>
<td>CE Materials Lab</td>
<td>1</td>
<td>EH 300</td>
<td></td>
</tr>
<tr>
<td>CE 230</td>
<td>Plane Surveying &amp; Lab</td>
<td>3</td>
<td>ME 395</td>
<td></td>
</tr>
<tr>
<td>CE 236</td>
<td>Environmental Engineering</td>
<td>3</td>
<td>CE 4XX</td>
<td></td>
</tr>
<tr>
<td>CE 332</td>
<td>Soils Engineering &amp; Lab</td>
<td>4</td>
<td>CE 450</td>
<td></td>
</tr>
<tr>
<td>CE 337</td>
<td>Hydraulics</td>
<td>3</td>
<td>CE 455</td>
<td></td>
</tr>
<tr>
<td>CE 344</td>
<td>CE Analysis</td>
<td>3</td>
<td>HFA/SBS</td>
<td></td>
</tr>
<tr>
<td>CE 360</td>
<td>Structural Analysis</td>
<td>3</td>
<td>CE 4XX</td>
<td></td>
</tr>
<tr>
<td>HFA/SBS</td>
<td>Core Curriculum Requirement</td>
<td>3</td>
<td>CE 497</td>
<td></td>
</tr>
<tr>
<td>HFA/SBS</td>
<td>Core Curriculum Requirement</td>
<td>3</td>
<td>CE 499</td>
<td></td>
</tr>
<tr>
<td>EE 312</td>
<td>Electrical Systems</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fourth Year

<table>
<thead>
<tr>
<th>COURSE</th>
<th>COURSE TITLE</th>
<th>SEM HRS</th>
<th>PREREQUISITE</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 430</td>
<td>Water Supply &amp; Drainage or</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 435</td>
<td>Water &amp; Wastewater Treatment</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 497</td>
<td>Transportation Engineering</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 499</td>
<td>Engineering Economics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 4XX</td>
<td>CE Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 4XX</td>
<td>CE Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 312</td>
<td>Electrical Systems</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Third Year Total Hours 33 Fourth Year Total Hours 31

1See the UAB Undergraduate Program Catalog for General Studies requirements.

UNDERGRADUATE CIVIL AND ENVIRONMENTAL ENGINEERING COURSES
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Corequisite</th>
<th>Credits</th>
<th>Requirement</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 345</td>
<td>Transportation Engineering</td>
<td>CE 230</td>
<td>R 3</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>CE 360</td>
<td>Structural Analysis</td>
<td>CE 220</td>
<td>R 3</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>CE 420</td>
<td>Advanced Mechanics</td>
<td>CE 220</td>
<td>E 3</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>CE 421</td>
<td>Transportation Seminar</td>
<td>E 1</td>
<td></td>
<td>WN</td>
<td></td>
</tr>
<tr>
<td>CE 426</td>
<td>Foundation Engineering</td>
<td>CE 332</td>
<td>E 3</td>
<td>ND</td>
<td>D</td>
</tr>
<tr>
<td>CE 430</td>
<td>Water Supply and Drainage Design</td>
<td>CE 337</td>
<td>R 3</td>
<td>D/N</td>
<td></td>
</tr>
<tr>
<td>CE 433</td>
<td>Solid and Hazardous Wastes</td>
<td>E 3</td>
<td></td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>CE 437</td>
<td>Env. Experimental Design &amp; Field Sampling</td>
<td>CE 344</td>
<td>E 3</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>CE 437L</td>
<td>Env. Experimental Design &amp; Field Sampling Lab</td>
<td>CE 437 concurrently</td>
<td>E 3</td>
<td>WN</td>
<td></td>
</tr>
<tr>
<td>CE 441</td>
<td>CEE Honors Seminar.</td>
<td></td>
<td>E 1</td>
<td>N</td>
<td>D</td>
</tr>
<tr>
<td>CE 443</td>
<td>Pavement Design and Construction</td>
<td>CE 345</td>
<td>E 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 450</td>
<td>Structural Steel Design</td>
<td>CE 360</td>
<td>R 3</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>CE 454</td>
<td>Design of Masonry Structures</td>
<td>CE 360</td>
<td>E 3</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>CE 455</td>
<td>Reinforced Concrete Design</td>
<td>CE 222, CE 360</td>
<td>R 3</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>CE 460</td>
<td>Structural Mechanics</td>
<td>CE 360</td>
<td>E 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 461</td>
<td>Introduction to Finite Element Methods</td>
<td>CE 220</td>
<td>E 3</td>
<td>N/D</td>
<td></td>
</tr>
<tr>
<td>CE 462</td>
<td>Advanced Structural Analysis</td>
<td></td>
<td>E 3</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>CE 464</td>
<td>Structural Dynamics I</td>
<td>CE 215, CE 360</td>
<td>E 3</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>CE 467</td>
<td>Wind and Seismic Loads</td>
<td>CE 360</td>
<td>E 3</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>CE 480</td>
<td>Intro to Water and Wastewater Treatment</td>
<td>CE 236</td>
<td>E 3</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>CE 485</td>
<td>Engineering Hydrology</td>
<td>CE 236</td>
<td>E 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 497</td>
<td>Engineered Construction</td>
<td>Sr. Standing in CEE</td>
<td>R 2</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>CE 499</td>
<td>CE Senior Design Project</td>
<td>Last Term Before Graduation</td>
<td>R 3</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

* R=Required, E=Elective, S=Substitute

DMT = December Miniterm
WN = Weekend
DW = Dawning
ND = Noon Day

**Science, Mathematics, or Engineering Elective**

If a science course is desired, the elective must be a course numbered above the highest level required course in that science discipline in the Civil Engineering curriculum, except for CH 371, CH 372, CH 373, CH 374, CH379, and CH 470, which may not be counted. In a science discipline that has no required course in the Civil Engineering curriculum, the course must be from courses numbered 200 level or above. See current undergraduate catalog for specific recommended elective courses.

If an Advanced Mathematics Elective is desired, it must be selected from the following list: MA 260, MA 330, MA 440, MA 441, MA 442, MA 444, MA 445, MA 453, MA 454, MA 455, MA 456, MA 463, MA 464, MA 468, MA 469, MA 480, MA 481, MA 485.

Any UAB engineering course not included as a requirement in the Civil Engineering curriculum may be selected.

**Civil Engineering Elective**

Any UAB Civil Engineering course not included as a requirement in the Civil Engineering curriculum may be selected.

Check out the School of Engineering web site at [http://www.eng.uab.edu](http://www.eng.uab.edu)