College of Engineering

Department of Aerospace Engineering and Mechanics
Department of Chemical and Biological Engineering
Department of Civil, Construction and Environmental Engineering
Department of Computer Science
Department of Electrical and Computer Engineering
Department of Mechanical Engineering
Department of Metallurgical and Materials Engineering

Degrees and Programs Offered
The College of Engineering offers undergraduate programs leading to the bachelor of science degree in:

- aerospace engineering
- chemical engineering
- civil engineering
- computer science
- construction engineering
- electrical engineering
- mechanical engineering
- metallurgical engineering

An option in computer engineering is available in the electrical engineering program. The College offers graduate programs leading to the master of science degree in:

- aerospace engineering
- chemical engineering
- civil engineering
- computer science
- electrical engineering
- environmental engineering
- engineering science & mechanics
- mechanical engineering
- metallurgical engineering

The College offers programs leading to the doctor of philosophy degree in the fields of:

- chemical engineering
- civil engineering
- computer science
- electrical engineering
- engineering science & mechanics
- mechanical engineering
- metallurgical engineering

A PhD in the area of materials science is offered in collaboration with The University of Alabama at Birmingham and The University of Alabama in Huntsville. Students should consult The University of Alabama graduate catalog for information concerning the graduate degree programs.

Minors in Engineering for Non-engineering Majors
Two types of minors in the College of Engineering are available to students enrolled in other divisions of the University. The minors require a minimum of 18 hours in engineering courses.

- The Type 1 minor is a specialized program in any of the College’s engineering disciplines. Course requirements and advising are available from the appropriate department head, who will appoint an adviser for a student desiring this type of minor.
- The Type 2 minor is a general minor in engineering that requires a minimum of 18 hours in courses chosen from a list available from the associate dean for academic programs. The associate dean will appoint an adviser for a student pursuing a Type 2 minor.

Freshman Engineering Program
The Freshman Engineering Program at The University of Alabama offers a first-year experience designed to both motivate and engage our students. All engineering majors take a common first-year program with these goals:

- introduce students to the field of engineering
- ensure students have the skill sets necessary to successfully complete second-year engineering courses
- illustrate the relevance of mathematics and science to the field of engineering

If you, as a current or prospective student, have questions about the Freshman Engineering Program at The University of Alabama, please visit eng.ua.edu/fep; call 205-348-0750; or write to Freshman Engineering Program, College of Engineering, 290 Hardaway Hall, The University of Alabama, Box 870285, Tuscaloosa, AL 35487-0285.

Degree Requirements
The requirements specified in this catalog are intended for all students who begin their college careers during or after the fall of 2012. Students who have begun their careers prior to fall 2012 may choose to complete the requirements outlined in this catalog, but if they do so they must complete all of the requirements listed herein. Students may not choose some requirements from this catalog and some from previous catalogs. If a student does not complete requirements for the undergraduate degree within a period of seven years from the date of admission, the College of Engineering will modify the student’s program to bring it into compliance with current degree requirements.

Application for Degree
Each candidate for graduation must submit an application for degree to Engineering Student Services (290 Hardaway Hall). Students who expect to complete degree requirements in May can submit their degree applications beginning on October 1 of the previous year. Those who expect to finish their requirements after the Interim term, summer session or fall semester should submit their applications beginning the in March before the expected graduation. In all cases, an application for degree must be on file in Engineering Student Services no later than the time at which the degree candidate registers for his or her final semester in residence. Students who apply for their degrees after registration for the final semester will not receive their diplomas until the following term.

Graduation Standards
Each student who expects to earn a baccalaureate degree from the College of Engineering must meet the following minimum standards of academic achievement:

- successfully complete all courses specified in the degree program
- complete at least one-half of the work required within the discipline on this campus
- earn at least a C average (2.0 on a 4.0 scale) for all work attempted
- earn at least a C average (2.0 on a 4.0 scale) for all work attempted on this campus
- earn at least a C average (2.0 on a 4.0 scale) for all work attempted in his or her professional courses
- earn at least a C average (2.0 on a 4.0 scale) for all work attempted in his or her professional courses on this campus
- meet any additional academic requirements of the program offering the degree

The College of Engineering follows the admission and retention standards set by the University and reserves the right to change policies, procedures, degree requirements, schedules, courses offered and other standards in light of circumstances that may arise after the publication of this catalog.

Admission as a Freshman Student
A student who meets the criteria for admission to The University of Alabama as a freshman student is eligible for admission to the College of Engineering. Specific information about these criteria is available from The University of Alabama, Office of Undergraduate Admissions, Box 870132, Tuscaloosa, AL 35487-0132; (205) 348-5666 or toll-free 1-800-933-BAMA in the continental United States.

Entering freshmen may enroll in specific degree programs, or they may enroll as undecided engineering students. Differences in students' abilities and in the degree of their preparation make it necessary for each student to begin work in chemistry, mathematics and English at the level determined by placement tests offered by the departments of chemistry, English and mathematics. Grade points earned in preparatory courses are counted in the grade point average, but hours earned for such courses may not be applied to the requirements for a degree.

Common Freshman Year
All students in the College of Engineering have a common freshman-year experience. As part of this experience, all students must complete four hours of fundamental engineering courses. These four hours consist of:

Select one of the following:
Admission as a Transfer Student
A student seeking to transfer into the College of Engineering from another institution is required to have an official transcript sent directly to the UA Office of Undergraduate Admissions from each college or university previously attended. A grade point average of C (2.0 on a 4.0 scale) or better for all college-level work attempted is required for admission to the University and to the College. Transferred courses will be applied as appropriate to a student’s degree program. Courses where a grade of D was earned will not be applied if the course is a prerequisite to another course required for the student’s degree program. The authority to apply or to deny transferred credit rests with the college.

Transfers from Two-year Colleges
At most, 50 percent of the total number of hours required for an undergraduate degree in the College of Engineering may be taken at two-year colleges and applied toward graduation requirements. All courses for which credit is to be transferred must be of essentially the same quality as the equivalent courses at The University of Alabama.

Transfers from Senior Colleges and Universities
Courses transferred from institutions accredited by ABET will be accepted within the broad limits of the graduation requirements of the College and the University. Students seeking to transfer credit from institutions not accredited by ABET or by a regional or national accrediting agency may be granted transfer credit on a provisional basis. Consult the director of Engineering Student Services or the UA Office of Undergraduate Admissions for more information.

Transfers from Other UA Divisions
Students who have earned fewer than 45 semester hours may transfer to the College of Engineering if they satisfy The University of Alabama Scholastic Progress Standard (see the Academic Records and General Academic Policies section of this catalog). A student who has earned 45 or more semester hours must have cumulative grade point averages of at least 2.0 and an average of at least 2.0 (on a 4.0 scale) for a minimum of 12 semester hours at The University of Alabama. Credit that another division of the University previously accepted for transfer from another institution will be reevaluated by the College of Engineering when a student transfers into the College from within the University.

Auditing Courses
Students may register for courses as auditors with the approval of the departments offering the courses. The deadline for registering as a course auditor coincides with the deadline for adding courses at the beginning of each semester. The requirements that auditors are expected to meet in an audited course are left to the discretion of the instructor. Audited courses do not count toward degree requirements.

Course Substitution
Occasionally, a student may wish to substitute another course for a required course. All such requests should first be presented via written petition to the student’s adviser and department head, who will:

- weigh the merits of course substitution and determine if the content of the proposed course is appropriate as a substitute
- make a recommendation to the Associate Dean for Academic Programs, who will decide on course substitution recommendations

Double/Second Majors
Students seeking a double major must complete the Double/Second Major form located in the Office of Engineering Student Services (290 Hardaway Hall). The same academic standards apply to a double/second major as to any other course sequence for a College of Engineering degree. The College of Engineering departmental adviser, as well as the adviser outside the College of Engineering, must approve all courses for the double/second major.

Engineering Alternative to the Statewide General Studies Curriculum
Act 94-202, enacted by the Alabama legislature in 1994, provided equivalency for first- and second-year courses taught by colleges in the state of Alabama. In 1995, engineering educators presented an engineering alternative to the general studies curriculum (GSC) that modified the Act to specific needs of engineering colleges statewide. The engineering alternative was unanimously approved by the statewide Articulation and General Studies Committee in December 1995 and was made part of GSC. The details of the College of Engineering Core Curriculum/General Education Requirements are listed in the Academic Records and General Academic Policies section of this catalog.

Free Electives
Most college courses may be counted as free electives. Any exceptions for College of Engineering students are the mathematics courses below MATH 125 Calculus I. ROTC credit may be applied with the approval of the student’s adviser and department head.

Mathematics
An entering student must enroll in the mathematics course determined by the student’s score on the mathematics placement test. A grade of C- or higher must be earned in each mathematics course that leads to another course in the sequence, preparing the student to enroll in calculus.

Online Courses
College of Engineering students may enroll in online courses through the College of Continuing Studies. An online course with the same course number as a regularly scheduled on-campus course fulfills the same degree requirements as an on-campus course. Further information about online courses is available through the College of Continuing Studies.

Pass/Fail Option
The pass/fail option cannot be exercised for courses that are to be applied to the requirements of an engineering or computer science degree. For further information about the pass/fail option see the Academic Records and General Academic Policies section of this catalog.

Prerequisites
The College of Engineering requires a grade of at least C- in each course that is a prerequisite to any course needed to meet a student’s degree requirements. If a grade lower than C- is received in a prerequisite course, that course must be repeated. A grade of C- or higher must be earned before the student enrolls in the subsequent course. In such cases, it is the student’s responsibility to make schedule changes through the drop/add process. Changes should be made before the beginning of the next term, and they must be made before the deadline for adding courses. Failure to make the changes on time will result in administrative withdrawal from the course. A student who is administratively withdrawn from a course after the deadline to add a course may not add another course in replacement.

Advising
The College of Engineering Academic Advising Center was established to provide advising support services to students that encourage success, independence and completion of an academic plan that incorporate students’ goals and interests. Students must be advised each semester prior to registering for courses and are assigned an adviser in the College of Engineering by their last name. The Advising Center is located in 290 Hardaway Hall. Additional information is available through the Advising Center website.

Repeating Courses
The repetition of courses is governed by the following restrictions:

- In computing the grade point average, a grade of I (incomplete) is included as hours attempted with zero grade points earned. A student on probation must remove I grades within two weeks of the beginning of classes during his or her next term in residence. Students not on probation must remove I grades within four weeks of the beginning of classes during the next term. If the I grade was earned in a required course and is not removed, the course must be repeated.
- A record of original and repeat enrollments appears on the student’s transcript.
- Each enrollment in a course is included in the cumulative hours attempted and in the computation of grade point averages. However, only the final enrollment may count as credit toward the degree.
- Courses completed with grades of A, B or C may not be repeated except on an audit basis.
- Enrollment for credit in a course that is at a lower level than a course the student has already completed for credit with a grade of A, B or C is prohibited. For example, a student with credit for with a grade of A, B or C may not enroll for credit in the following courses or similar courses:

- MATH 100 Intermediate Algebra
- MATH 110 Finite Mathematics
- MATH 112 Precalculus Algebra
- MATH 113 Precalculus Trigonometry
MATH 115  Precalc Algebra & Trig  3
MATH 121  Calculus & Applications  3

This policy also prohibits repeating a course for credit if equivalent transfer credit with a grade of Pass has already been awarded.

- Enrollment for credit in a course is not prohibited simply because credit was earned in a higher-numbered course. For example, a student with credit for or Department Approved GES Course may enroll for credit in the following courses:

GES 255  Engineering Statistics I  3

If students have questions about the interpretation of this policy, they should consult the associate dean for academic programs or the director of Engineering Student Services prior to enrollment.

Transfer Credit, Advanced Placement and Credit by Examination

The following policies apply to the transfer of credit by entering transfer students, to the transfer of credit that was earned while concurrently enrolled at The University of Alabama, to the transfer of credit earned as a transient student at another institution and to the transfer of credit from other divisions of The University of Alabama.

- In order for credit to be transferred, courses completed at other institutions must be equivalent as nearly as possible to courses taught at The University of Alabama.
- In the College of Engineering, grades of D will not be admissible if the grade was earned in a course that is a prerequisite to another course required for the student’s degree program.
- The maximum amount of credit transferable from two-year institutions is 64 semester hours.

Transfers from Other University of Alabama Divisions

Credit that another division of the University previously accepted for transfer from another institution will be reevaluated by the College of Engineering when a student transfers into the College from within the University.

Undergraduate Students in Graduate Courses

Undergraduate students may be permitted to enroll in graduate courses if they have senior standing and at least a B average for work attempted at The University of Alabama.

History and Objectives

Engineering instruction began at The University of Alabama in 1837. The College of Engineering was organized as a separate division of the University in 1909. As the original engineering college in the state of Alabama, our mission is to:

- provide high-quality undergraduate, graduate and continuing education in engineering and computer science to prepare our graduates for professional careers, leadership positions and a lifetime of learning
- conduct high-quality research programs that will assist in the economic development of the state and nation, advance the body of knowledge and improve the quality of human life
- serve individual practicing engineers and computer scientists; industry, government and educational entities and technical societies through professional expertise, active involvement and availability of facilities

To accomplish its mission, the College of Engineering offers students an outstanding faculty, accredited engineering and computer science programs and some of the most advanced facilities in the nation. Numerous research projects offer students opportunities to work with faculty in solving current societal problems and in developing technological resources for the future.

For more information about the College of Engineering and its programs and services, call or write: The University of Alabama, College of Engineering, Box 870200, Tuscaloosa, AL 35487-0200; (205) 348-6400; eng.ua.edu.

Accreditation

The following undergraduate engineering programs in UA’s College of Engineering are accredited by the Engineering Accreditation Commission of ABET:

- Aerospace Engineering
- Chemical Engineering
- Civil Engineering
- Construction Engineering
- Electrical Engineering
- Electrical Engineering – Computer Engineering Option
- Mechanical Engineering
- Metallurgical Engineering

The undergraduate Computer Science program in UA’s College of Engineering is accredited by the Computing Accreditation Commission of ABET.

Faculty

Dean
Karr, Charles L.

Associate Dean
Acoff, Viola L.
Fridley, Kenneth J.
Weist, John M.

Director
Nancy Holmes
Lawrence K. Hill
Naomi C. Powell
Mike Rhiney
Gregory L. Singleton

Chief Mechanician
Ken L. Dunn

Coordinator Student Recruitment
Lynsey Dill

Events Coordinator
Carol Sanders

Communication Specialist Senior
Adam Jones

Instructors
Carswell, Michael
Cooper, Steven M.
McCarty, Rachael V.
Monk, Bridgett J.
Stogner, Claude R.
Wood, Sandra A.

Professor Emeritus
Bailey, J. Earl
Ball, John E.
Bradt, Richard C.
Brown, Jack C.
Brown, Robert C., Jr.
Carden, A. Eugene
Carroll, Chester C.
Chen, Der-San
Clements, William C., Jr.
Doughty, Julian O.
Dudgeon, James E.
Evces, Charles, R.
Gambrell, Samuel C., Jr.
Hansen, John P.
Harrisberger, Lee
Haynes, Charles D.
Henry, Harold R.
Hill, James L.
Houts, Ronald C.
Jordan, William D.
Kallsen, Henry A.
Kavanaugh, Steve
McDuff, Odis P.
McKay, Gordon B.
Mjosund, Arne
Mott, Harold
Pimmel, Russell L.
Reinhard, Erwin A.
Schrodt, Verle N.
Walters, James V.
Wang, George C.
Webb, William E.
Webster, Dennis B.
Weeks, George E.
Wilson, Howard B., Jr.
Dean Emeritus
Barfield, Robert F.
Lear
Professor Emerita
Chen, Hui-Chuan "Hannah"
Associate Dean Emeritus
Griffin, Robert A.
Associate Professor Emeritus
Hollub, Raymond M.
Merritt, Thomas Wayne, Jr.
Planz, Edward J.
Associate Professor Emerita
McGowin, Martha
Reichhold–Shumaker Professor Emeritus
McKinley, Marvin D.
Research Professor Emeritus
Stefanescu, Doru M.
Assistant professors emeritae
Graham, C. Bryan
Jordan, Wendell E.