

College Of Engineering

General Information

College of Engineering Administrative Staff	(251) 460-6140
Dean	John Steadman
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Associate Dean, Research and Graduate Affairs	Clive Woods
Director of Graduate Studies and Programs Chair, Doctoral/Science in Systems Engineering	Robert Cloutier

College of Engineering website
<https://www.southalabama.edu/colleges/engineering/>

Degree Programs Offered - The College of Engineering offers programs of study leading to the following degrees:

- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Mechanical Engineering
- Master of Science in Chemical Engineering
- Master of Science in Civil Engineering
- Master of Science in Electrical Engineering
- Master of Science in Mechanical Engineering
- Doctor of Science in Systems Engineering

Mission Statement

The mission of the College of Engineering is to provide students with quality accessible undergraduate and graduate engineering education, to prepare graduates for professional careers and lifelong learning, to promote the creation and dissemination of knowledge, to serve society through professional practice and community outreach and to act as a catalyst for economic and technological development of the Gulf Coast region, the State of Alabama and the Nation.

Honors Program In Engineering

To receive a designation of "Departmental Honors" students must have at least a 3.5 GPA at the time of graduation and complete a Honors Senior Project in their major. The Honors Senior Project requirement may be satisfied in either of two ways.

1. By completing an Honors Senior Project course that requires completion of a research project under the guidance of a faculty mentor.
2. By completing a special honors design project as part of the capstone engineering design requirement under the guidance of a faculty mentor.

It is required that there be both a written report and oral presentation of the results of the Honors Senior Project.

Students participating in "Departmental Honors" may also elect to take University Honors Seminar and participate in other University Honors Activities upon recommendation of their major advisor.

Undergraduate Admission

All students, whether domestic or international, are strongly encouraged to submit standardized test scores, either ACT or SAT.

Computer Ownership Policy

College of Engineering undergraduate students will be required to own a personal laptop computer that conforms to the current college minimum standards by the time they enter engineering level courses. This is a one machine per student requirement. For more information, consult the Laptop Policy at www.southalabama.edu/colleges/engineering/currentstudents/academicpolicies.html.

Requirements For Minors In Disciplines Other Than Engineering

Engineering students may complete a minor in disciplines other than engineering. Students desiring to do so must complete the published requirements for that discipline.

Choice Of Bulletin For Undergraduate Degree Requirements

After an absence of one calendar year or when transferring into an engineering program, students must use the Bulletin in effect at the time of readmission or transfer, or a later version. No student may use a Bulletin older than six years from the date of graduation.

Cooperative Education Program

The College of Engineering also offers an attractive five year cooperative Education Program. This program allows the student to gain valuable engineering experience as he or she pursues his or her degree. The freshman year is spent as a full time student at the university. During the sophomore and junior years the student alternates working full time with an excellent salary for one semester and taking full time course work the next semester. The student returns to school full time for the senior year.

This program offers many advantages for the student. Interested students should consult with either the Career Services Center or the College of Engineering

Master's Program

The College of Engineering offers programs leading to degrees of Master of Science in Chemical, Civil, Electrical and Mechanical Engineering.

The programs of study are designed to provide knowledge of modern engineering concepts and practices; to prepare the graduate for the practice of engineering at a higher level of proficiency than attainable with the bachelor's degree; and to prepare the graduate for further study toward the doctoral degree should the graduate so desire. The programs comprise course work and directed theoretical and experimental inquiry in thesis or project research.

Three plans of study are offered. The thesis option, the project option, and the course work only option. The thesis differs from the project in that the thesis is usually oriented toward original engineering research whereas the project is usually oriented toward engineering applications. The course work only option, while available to all graduate students, is particularly attractive to full time employed engineers that are interested in augmenting and enhancing their engineering skills as part time students. Courses are available in the evening to accommodate employed students.

Admission To Graduate Programs

The following criteria supplement the Graduate School criteria (see Categories of Admission) and are required for admission to all College of Engineering Master's Programs:

- I. Regular Admission
 - A. A B.S. degree in engineering in a relevant field from an ABET accredited program.
 - B. A grade-point average of 3.0 or greater (A=4.0) on all undergraduate work.
 - C. A minimum GRE Quantitative score of 151 and a minimum GRE Verbal score of 141.
 - D. For international students, a minimum score of 550 on the written Test of English as a Foreign Language (TOEFL) or a 79 score on the Internet-based TOEFL exam, or a minimum score of Band 6.5 on the International English Language Testing System (IELTS) test is required.
- II. Provisional Admission
 - A. A B.S. degree in engineering or in a field acceptable to the departmental Graduate Admissions Committee is required. Depending on the student's background additional undergraduate preparatory courses may be required. These courses will not count toward the Master's degree.

- B. A minimum grade-point average of 2.5 (A=4.0) on all undergraduate work including a minimum grade-point average of 2.5 over the last 64 course hours of undergraduate work is required. Alternatively, a minimum grade-point average of 2.75 over the last 64 course hours of undergraduate work is required.
- C. For international students, a minimum score of 525 on the written Test of English as a Foreign Language (TOEFL) or a 71 score on the Internet-based TOEFL exam, or a minimum score of Band 6.0 on the International English Language Testing System (IELTS) test is required.

III. Non-degree Admission

- A. Non-degree admissions are accepted in accordance with Graduate School requirements. Each applicant will be reviewed by the Admissions Committee of the appropriate department which may reserve the right to evaluate additional credentials, such as, but not limited to, course work taken, letters of recommendation, etc. At the beginning of the first semester, international students, except those who have earned a bachelor's or graduate degree at an accredited United States institution of higher learning, are given a foreign language test by the University. Students with deficiencies in English skills as assessed by the test will be required to take and successfully complete special English Communication ESL courses tailored to Engineering. These courses will be in addition to other requirements for the degree

The above are minimum requirements for admission. Specific requirements for admission differ for each department. For details, see the Master of Science in Chemical Engineering, Master of Science in Civil Engineering, Master of Science in Electrical Engineering and Master of Science in Mechanical Engineering program requirements.

Change Of Status From Provisional To Regular Standing Within The Master's Programs

The following requirements are in addition to the Graduate School requirements for change of status:

Students required to complete additional undergraduate course work in partial fulfillment of the requirements to advance from Provisional Admission to Regular Admission must obtain a minimum grade-point average of at least 3.00 on the total of all such required courses with a grade of at least "C" in each course.

Doctor Of Science In Systems Engineering

The Doctor of Science (D.Sc.) in systems engineering offers the students a holistic approach to the design and understanding of complex systems. NASA defines systems engineering as "a holistic, integrative discipline, wherein the contributions of structural engineers, electrical engineers, mechanism designers, power engineers, human factors engineers, and many more disciplines are evaluated and balanced, one against another, to produce a coherent whole that is not dominated by the perspective of a single discipline." The main objectives of the D.Sc. program are to 1) provide our graduates with the ability to approach all systems (engineered, environmental, coastal, etc.) with the ability to understand the entire system lifecycle in a manner that meets the needs of industry, and 2) prepare our graduates for leadership positions requiring applied research and critical thinking. This program is appropriate for students who want to pursue research-based careers in industry, government, or academia. The program requires coursework across multiple engineering disciplines, and specific, validated systems research resulting in a publicly defended doctoral thesis.

Requirements For Admission: (With Master's Degree)

In addition to meeting Graduate School requirements, the requirements for admission to the D.Sc. Program are as follows:

1. A written statement of the applicant's professional goals and commitment to completing the degree requirements. (Statement of Purpose).
2. Three letters of recommendation from individuals familiar with the student's academic and technical abilities.
3. An M.S. degree in a discipline related to engineering (e.g. civil, computer, chemical, electrical, industrial, mechanical).
4. A grade point average of 3.0 or greater (on a scale of 4.0) on all graduate coursework.
5. A minimum score of 151 in the Verbal portion and a minimum score of 151 in the Quantitative portion of the Graduate Record Examination (GRE). If the applicant has a current P.E. license, or has an M.S. degree in a discipline related to engineering (e.g. civil, computer, chemical, electrical, industrial, mechanical), may request the GRE requirement be waived.
6. For international students whose native language is not English, a minimum score of 79 on the Internet-based TOEFL, 213 on the computer-based TOEFL, or a minimum score of band 6.5 on the IELTS are required.
7. Transcripts from all colleges and universities attended.

Admission may be granted by the Director of Graduate Studies, in special cases where a holistic evaluation of the credentials is appropriate.

Requirements For Regular Admission (With Bachelor'S Degree)

Those students who have not yet obtained a Master's degree may apply to the D.Sc. program.

In addition to meeting Graduate School requirements, the requirements for acceptance without a Master's degree are as follows:

1. A B.S. degree in a discipline related to engineering (e.g. civil, computer, chemical, electrical, industrial, mechanical, etc.). [The D.Sc. admission committee reserves the right to review the coursework at the B.S. level before making an admission decision, particularly if the degree is from a non-US university or a university with non-accredited programs]
2. A grade point average of 3.0 or greater (on a scale of 4.0) on all undergraduate coursework.
3. A grade of B or higher for all graduate courses to be considered as transfer credits from previous institutions attended. Only graduate credits that have not been applied to another degree can be considered for transfer.
4. Transcripts from all colleges and universities attended.
5. A minimum score of 151 in the Verbal portion and a minimum score of 151 in the Quantitative portion of the Graduate Record Examination (GRE).
6. For international students whose native language is not English, a minimum score of 79 on the Internet-based TOEFL, 213 on the computer-based TOEFL, or a minimum score of band 6.5 on the IELTS is required.

Departments Of Instruction

[Chemical and Biomolecular Engineering](#)
[Civil, Coastal, and Environmental Engineering](#)
[Electrical and Computer Engineering](#)
[Mechanical Engineering](#)
[Systems Engineering](#)

Degree Requirements

Undergraduate

Admission to the University of South Alabama constitutes admission to the College of Engineering for those students wishing to major in engineering. Incoming students should specify a particular discipline in the College as a major as soon as practical in order to receive proper counseling and pursue their engineering course work. Transfer students must declare a major and have all transfer credit evaluated by the Admissions Office. The department chair will approve transfer credit for engineering degree credit except where substitutions are involved; substitutions require the approval of the dean. Transfer students are encouraged to have departmental evaluations accomplished prior to their first registration for classes.

Entering freshmen students not adequately prepared to enter the degree program may be required to take additional preparatory course work. Such preparatory work will not be counted toward the major degree program.

Students must have the prerequisites for the courses in which they enroll; students who enroll without prerequisites are subject to administrative withdrawal. Prerequisites are satisfied by courses taken either at South Alabama or by acceptable transfer credit. Students not exempted from EH 101 will be required to take it as a prerequisite to EH 102.

Today's society is permeated by an extensive technology that affects the lives of everyone. The engineering function in this modern society-while basically unchanged from the goal of using natural resources for the betterment of mankind-has more far-reaching and immediate consequences than ever before through the social, economic, environmental, and political reactions that follow technological developments.

The engineering profession has recognized that to fulfill the social as well as technical responsibilities incumbent upon today's engineer, engineering graduates must not only be technically competent, but must also be as broadly educated as possible within the allotted educational time period. To this end, the College of Engineering strives to prepare its students ultimately to assume their responsibilities by providing technically sound programs of instruction that incorporate a strong component in the humanities and social sciences. Graduates are prepared to take industrial positions, to assume positions with government, or to pursue graduate studies.

Engineering students may also qualify as premedical students should they desire to apply for admission to medical school. Students interested in medical careers should consult with the Dean of the College of Medicine.

Professional Component Standing For Undergraduate Programs

It is important that students make adequate progress in departmental majors within the College of Engineering, so each department establishes a list of courses that must be satisfactorily completed with a minimum grade before the student is allowed to proceed with more advanced courses. Professional Component Standing (PCS) within a department indicates that these courses have been satisfactorily completed. Six courses are required for PCS in every department, so they are collectively required for every student. The PCS requirements for all College of Engineering students are shown in the following table:

College of Engineering PCS Requirements			
Course Number	Course Title	Credit Hours	Minimum Grade
EH 101	English Composition I	3	C
EH 102	English Composition II	3	C
CH 131	General Chemistry I + Lab	4	C
MA 125	Calculus I	4	C
MA 126	Calculus II	4	C
PH 201	Calculus-Based Physics I + Lab	4	C

In addition, all departments in the College of Engineering require Departmental Professional Component Standing for most 300- and 400-level courses. PCS is awarded by the appropriate department chair when the student completes the College of Engineering PCS requirements and the departmental PCS requirements. See the departmental policy statements for additional details.

Requirements For A Bachelor Degree

To become a candidate for a Bachelor of Science degree in one of the five major disciplines within the College of Engineering, the student must satisfy the general requirements of the University as set forth in "Academic Policies and Procedures," and must have satisfactorily completed the program of instruction specified by the major department. In addition to these requirements, the Engineering student must have at least a GPA of 2.00 or C-level competency in all subjects taken in the student's major department at the University of South Alabama.

Engineering students are required to take and make a "good faith" effort to pass the Fundamentals of Engineering (FE) examination prior to their anticipated date of graduation. Students should be aware of the deadline established by the National Council of Examiners for Engineering and Surveying (NCEES) for submission of examination application materials. Failure to meet the deadline could result in delayed graduation.

A transfer student must complete at least 25 percent of the credit hours required for the degree from upper-division courses with at least 16 hours in the upper level of the student's major department at the University of South Alabama.

Engineering students with less than 15 credit hours are required to take EG 101. Requirements for EG 101 can be waived by the student's advisor once it is demonstrated that a particular student has been exposed to material covered in this course and most likely is not going to be benefited by such a course. An appropriate math, science or engineering course must be substituted if the student does not take EG 101.

Each student receiving 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 credit hours required within the discipline at USA
- Earn at least a C average (2.0 on a 4.0 scale) for all courses attempted at USA
- Earn at least a C average (2.0 on a 4.0 scale) for all courses in the major attempted at USA
- Must complete the capstone design sequence at USA
- Must take the Fundamentals of Engineering examination
- Meet all additional academic requirements of the program offering the degree

Graduate

Requirements For A Masters Degree

The thesis option includes 6 hours of credit for the thesis. The project option includes 3 hours of credit for the project. The course work option requires credit only for graduate courses. Specific degree requirements differ for each department. For details, see the Master of Science in Chemical Engineering, Master of Science in Civil Engineering, Master of Science in Electrical Engineering and Master of Science in Mechanical Engineering program descriptions.

Required study includes coursework in a specific engineering discipline and course work in supporting areas. Supporting areas include mathematics, natural sciences, basic medical sciences, computer sciences, statistics, and business, as well as engineering.

All students pursuing a thesis or project option are required to take a one semester hour course in research integrity as part of their engineering course work requirements. A maximum of six hours of directed study may be counted toward the degree. A maximum of six hours of thesis may be counted toward the degree.

All students must satisfactorily complete a comprehensive examination. Students failing this examination may try a second time not sooner than 12 weeks after the first attempt. Students failing the second time will be academically dismissed from the program. The thesis or project candidate must present a satisfactory oral defense of the written report. Should the student present an unsatisfactory defense, a second attempt will be allowed no sooner than 12 weeks after the first attempt. A second unsatisfactory defense will result in dismissal from the program.

An engineering senior at the University of South Alabama who has completed 96 semester hours with a GPA of 3.00 or better may, with approval of the Director of Graduate Studies, enroll in graduate engineering courses in accordance with Graduate School policies. See Graduate Study For Advanced Undergraduates.

Doctor Of Science (D.Sc.) Program In Systems Engineering

Degree Requirements:

Degree requirements for the D.Sc. Program in Systems Engineering include a minimum of 67 graduate credit hours, 24-30 credit hours of which may come from a STEM related M.S. degree with the approval of the student's committee. Only courses with a grade of A or B are eligible for transfer. A minimum of 36 graduate credit hours of the required 67 graduate credits must be University of South Alabama awarded credits. In addition to meeting graduate school requirements, the following requirements must be met:

1. Completion of fifteen (15) credit hours of core systems engineering courses. These include five required courses – 1) SE 601 - Systems Engineering Fundamentals, 2) SE 602 - Risk and Failure Analysis, 3) SE 603 - Integration, Test and Evaluation and 4) SE 609 Engineering Research Methods.
2. Completion of at least one additional elective in a Systems Engineering subject area will be required.
3. The balance of remaining credits after successful completion of core courses, approved electives (including SE 692 Directed Study courses), and transfer credits (if applicable) will be SE 699 Dissertation credits until a total of 67 credits is attained.
4. Completion of doctoral level research, a written dissertation presenting the research and findings, and a public defense of that research. The written dissertation and public defense must be approved and accepted by the dissertation committee.

General Education Requirements

Engineering students must comply with the University's general education requirements. In the area of Humanities and Fine Arts, engineering students are required to take a total of at least 9 semester hours with a minimum of 3 semester hours in literature and a minimum of 3 semester hours in the arts with the remaining hours from the Humanities and Fine Arts. In the area of History, Social, and Behavioral Sciences, engineering students are required to take at least 9 semester hours with a minimum of 3 semester hours in history and a minimum of 3 semester hours from among the other disciplines in the social and behavioral sciences.

General Education Requirements

Area I. Written Composition (6 HRS)

EH 101 (3)

EH 102 or EH 105H (3)

Area II. Humanities and Fine Arts (Total of 21 HRS)

Fine Arts elective

ARH 100, 103, 123

ARS 101

DRA 110

MUL 101

Literature elective

EH 215, 216, 225, 226, 235, 236

Humanities elective

AFR 101

AIS 105

CA 110 (3)**

LG 111, 112, 211, 212

LG 131, 132, 231, 232

LG 171, 172, 271, 272

LG 151, 152, 251, 252

LGS 101, 102, 201, 202

LGS 106, 107, 206, 207

LGS 121, 122, 221, 222

LGS 141, 142, 241, 242

PHL 110, 121, 131, 231, 240

Area III. Natural Sciences and Mathematics (14 HRS)

CH 131, 131L

PH 201

MA 125

Area IV. History, Behavioral and Social Sciences ***

History

HY 101, 102, 135, 136

Behavioral and Social Sciences AIS 201

IST 201

AN 100, 101

CA 100, 211

ECO 215, 216

GEO 114, 115

GS 101

IS 100

PSC 130

PSY 120, 121, 250

SY 109, 112

*Must complete 3 hours in literature and 3 hours in fine arts.

**Civil, Computer, Electrical and Mechanical Engineering majors are required to take CA 110 to fulfill the humanities requirement.

***Must complete 3 hours in history and at least 3 hours in social and behavioral sciences.
