

Bachelor of Science in Engineering, B.S.E.

Requirements

The Bachelor of Science in Engineering (B.S.E.) requires a minimum of 128 s.h. of credit. Students must be enrolled in the UI College of Engineering for the last 30 s.h. of work toward the degree, or 45 of the last 60 s.h., or a total of 90 s.h. They must have a g.p.a. of at least 2.00 on all college work used to satisfy degree requirements as well as on all work undertaken at the University of Iowa.

Engineering students earn the B.S.E. degree in one of eight undergraduate programs of study (majors): biomedical engineering, chemical engineering, civil engineering, computer science and engineering, electrical engineering, environmental engineering, industrial engineering, or mechanical engineering. Each program's curriculum is divided into four major components: the common core, engineering topics, a focus area, and the General Education Component (GEC).

Core Requirements

The College of Engineering offers a common curriculum for all students in the eight engineering disciplines, thereby allowing students to change programs during the first semesters without a loss in course credit.

The core includes RHET:1030 Rhetoric, a first-year course in writing, speaking, and critical reading; ENGR:1100 Introduction to Engineering Problem Solving and ENGR:1300 Introduction to Engineering Computing, which cover a breadth of topics from engineering as a profession to team design projects to engineering computations and computer programming; and a series of mathematics, basic science, and fundamental engineering courses.

The fundamental engineering courses use the underlying principles learned in the mathematics and the basic sciences to understand and predict the behavior of idealized models of real components or systems encountered in engineering. Students should complete the core requirements according to the following plan.

First Semester

Code	Title	Hours
All of these:		
ENGR:1000	Engineering Success for First-Year Students (all majors)	1
ENGR:1100	Introduction to Engineering Problem Solving (all majors)	3
CHEM:1110	Principles of Chemistry I (all majors)	4
MATH:1550	Engineering Mathematics I: Single Variable Calculus (all majors)	4
RHET:1030	Rhetoric (all majors)	4

Second Semester

Code	Title	Hours
All of these:		
ENGR:1300	Introduction to Engineering Computing (all majors)	3
CHEM:1120	Principles of Chemistry II (biomedical, chemical, and environmental majors)	4
MATH:1560	Engineering Mathematics II: Multivariable Calculus (all majors)	4
MATH:2550	Engineering Mathematics III: Matrix Algebra (all majors)	2
PHYS:1611	Introductory Physics I (all majors)	4

Required Program Courses and Focus Area

The curriculum for each B.S.E. major is described in each program's departmental Catalog section; see biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, electrical and computer engineering, industrial and systems engineering, or mechanical engineering.

Each program has a number of focus areas that are designed to help students achieve exposure to and depth of study in an area that is complimentary to their major. The focus areas enable students to gain technical skills consistent with their career goals. Moreover, these electives may contribute to earning a minor and/or certificate.

General Education Component

The general education component promotes understanding of and appreciation for arts, community, culture, and learning through coursework. Students are required to complete 15 sh. of the general education component as outlined below:

- Engineering Be Creative: 3 s.h.
- Diversity and Inclusion: 3 s.h.
- Approved subjects: 9 s.h. (industrial engineering students are required to complete PSY:1001 Elementary Psychology)

Credit may be earned by examination; consult the College of Engineering.

Students who enter the College of Engineering with a B.A. or B.S. degree are considered to have satisfied the general education component requirement.

Students who enroll in a combined degree program in the College of Engineering and in the College of Liberal Arts and Sciences or in the Tippie College of Business are considered to have satisfied the College of Engineering's general education requirement once they have completed all requirements for the liberal arts and sciences degree or the business degree.

Combined and Dual Degrees

B.S.E. and Undergraduate Degrees

B.S.E./B.B.A.

The College of Engineering and the Tippie College of Business offer a combined degree program in which students earn two University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the Tippie College of Business and a Bachelor of Science in Engineering (B.S.E.) from the College of Engineering.

Students in the combined program must complete all requirements for both degrees, including all general education requirements. They must enroll in appropriate mathematics and engineering courses early in their course of study in order to complete the program in a timely way. Because courses in natural sciences, mathematics, humanities, and social sciences count toward the B.B.A. and the B.S.E., students may count a single course toward both degrees.

Students usually meet the degree requirements of both colleges in about five years; the time required depends on a student's choice of major study areas. Students should consult their advisors about whether the second-grade-only option is available to them. They are assigned two advisors, one in the Tippie College of Business Undergraduate Program Office and the other in their College of Engineering major department.

To enter the combined degree program, students must have approval from both colleges and must be admitted to both colleges. Interested students should contact the Student Development Center. For information about the B.B.A., including requirements for the degree, see the Bachelor of Business Administration, B.B.A. (Tippie College of Business) in the Catalog.

B.S.E./Liberal Arts and Sciences Degree

Students may earn two University of Iowa bachelor's degrees in a combined program in the College of Engineering and the College of Liberal Arts and Sciences. Successful candidates are awarded a B.S.E. (Bachelor of Science in Engineering) by the College of Engineering and a B.A. (Bachelor of Arts), B.S. (Bachelor of Science), B.F.A. (Bachelor of Fine Arts), or B.M. (Bachelor of Music) by the College of Liberal Arts and Sciences.

Students in combined degree programs must complete all requirements for both degrees, including the College of Liberal Arts and Sciences GE CLAS Core and the College of Engineering general education component.

Students in the combined program usually are able to meet the degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the combined degree program are assigned two faculty advisors, one in their major department in the College of Engineering and the other in their major department in the College of Liberal Arts and Sciences.

To enter the combined degree program, students must be admitted to both the College of Engineering and the College of Liberal Arts and Sciences and must have College of Engineering approval to enter the combined degree program.

Combined degree program applicants must meet the high school course or unit requirements for admission to each of the two colleges.

It is crucial that students enroll in the proper mathematics and engineering courses early in their course of study to expedite the completion of the program. The specific engineering courses taken by each student vary according to one's engineering major. Since courses in natural sciences, mathematics, humanities, and social sciences are accepted for credit by both colleges, students may be able to count a particular course toward both degrees.

Contact the Student Development Center for information about specific requirements. To learn about liberal arts and sciences majors, visit College of Liberal Arts and Sciences in the Catalog and select majors of interest in the departments.

B.S./B.S.E. Dual Degree with Northern Iowa

The 3+2 dual degree program leads to a B.S. in applied physics from the University of Northern Iowa (UNI) and a B.S.E. from the University of Iowa. It requires approximately three years of study at UNI followed by approximately two years of study at Iowa. There is no guarantee that students can complete the 3+2 degree in five years.

Students interested in the program are guaranteed admission to the University of Iowa portion of the program if they have a g.p.a. of at least 3.00 (B average) in all coursework and in the chemistry, mathematics, and physics courses required by the University of Northern Iowa physics department.

During the first three years of the program, students complete at least 90 s.h. of coursework at the University of Northern Iowa. They must successfully complete courses in each of the following areas: chemistry, mathematics through differential equations, physics to satisfy the applied physics major requirements, and courses to satisfy the general education requirements. Credit for courses passed with a grade of C or higher is transferred to the University of Iowa as credit for equivalent coursework.

At the University of Iowa, students complete the B.S.E. requirements that were current at the time of their admission to the UI College of Engineering. Coursework completed at the University of Iowa is transferred to the University of Northern Iowa and applied toward the requirements for that institution's B.S. in applied physics.

When transferring to Iowa from UNI, students must submit applications for admission, housing, and financial aid to the University of Iowa by the University's established deadlines.

B.S.E. and Graduate Degrees

B.S.E./M.S. Programs in Engineering

Engineering students may be eligible to enroll in one of the College of Engineering's combined B.S.E./M.S. programs, which allow students to begin working toward a master's degree in engineering while they are completing their bachelor's degree. The combined programs, which are offered by each of the college's departments, permit students to count certain courses toward both degrees, completing both programs in less time than they would need to complete them separately. See "Combined Programs" in each department's B.S.E. sections of the Catalog.

B.S.E. in Biomedical Engineering (Biomechanics and Biomaterials Track)/M.S. in Occupational and Environmental Health (Industrial Hygiene Subprogram)

B.S.E. students majoring in biomedical engineering in the biomechanics and biomaterials track who are interested in earning a Master of Science in occupational and environmental health with an industrial hygiene subprogram may apply to the combined B.S.E./M.S. program offered by the College of Engineering and the College of Public Health. The combined program permits students to count a limited amount of credit toward the requirements of both degrees, enabling them to begin the study of public health before they complete the bachelor's degree. See the M.S. in Occupational and Environmental Health—Undergrad to Grad information on the Department of Occupational and Environmental Health (College of Public Health) website.

B.S.E. in Civil Engineering/M.S. in Urban and Regional Planning

The College of Engineering and the School of Planning and Public Affairs offer the combined Bachelor of Science in Engineering in civil engineering/Master of Science in urban and regional planning. The program, which is completed in five years, is designed for students who wish to pursue a public or private sector career in planning, a field that encompasses the development of alternatives to improve the quality of life in cities and regions.

For additional information on the B.S.E. in civil engineering, see that section of the Catalog. For more information about the graduate degree, see the M.S. in urban and regional planning (Graduate College) in the Catalog. Contact Engineering Student Services for information about applying to the combined program.

B.S.E. in Computer Science and Engineering/M.C.S.

The College of Engineering and the Department of Computer Science (College of Liberal Arts and Sciences) offer a combined B.S.E. in computer science and engineering/Master of Computer Science for computer science and engineering undergraduate students.

The combined degree program allows students to count a limited amount of credit toward both degrees. For more information, see the Master of Computer Science, M.C.S. in the Catalog.

Honors

Honors in Engineering

Outstanding undergraduate students who demonstrate exceptional accomplishment through research, directed independent study, teaching internships, or other approved nondegree enrichment activities may graduate with honors in engineering. They must maintain a University of Iowa g.p.a. of at least 3.33, complete an honors project with a faculty member, and participate in a college-wide honors seminar with faculty members and other honors students. Successful completion of the honors requirements leads to a B.S.E. with

honors, which is noted on the student's transcript. See the College of Engineering Honors Program web page for details.

University of Iowa Honors Program

In addition to honors in engineering, undergraduate students have opportunities for honors study and activities through membership in the University of Iowa Honors Program. Visit Honors at Iowa to learn about the University's honors program.

Career Advancement

Engineering is a well-respected profession that is used as a foundation for a variety of careers in industry, medicine, law, government, and consulting. Engineering majors hold eight of the top ten spots on the list of top-paid majors for bachelor's degree graduates, according to the National Association of Colleges and Employers (NACE). On average, 93-98 percent of graduates are employed in their field of study or pursuing advanced education within seven months of graduation.

Engineering Career Services develops and promotes experiential education and professional opportunities for students in the College of Engineering. Professional staff coordinate the college's co-op and internship program, engage in employer outreach, and provide opportunities for students to network with employers, including an engineering career fair each semester and other programming related to career development.

Engineering Career Services also offers individual advising and class presentations on résumé and cover letter preparation, job and internship search strategies, interviewing skills, and job offer evaluation.