College of Engineering

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College of Engineering Webpage (http://wichita.edu/engineering/)
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Modern technological developments in engineering have brought about considerable change in the College of Engineering's curriculum at Wichita State University. The curriculum provides graduates the skill-set, mindset and experience necessary to rapidly advance economic and technological prosperity, health and well-being. Consequently, WSU graduates are increasingly attractive to employers and graduate programs throughout the United States.

The College of Engineering is organized into seven degree-granting departments: aerospace engineering; applied engineering; biomedical engineering; electrical and computer engineering; industrial, systems and manufacturing engineering; mechanical engineering; and school of computing.

College of Engineering Policies

Admission

All entering students with a declared interest in engineering will be admitted to the College of Engineering in program status. Engineering students must complete:

ENGL 101/ ENGL 100, ENGL 102 and COMM 111, each with a grade of *C-* or better, within the first 48 credit hours.

Transfer students admission criteria can be found on the Admission Requirements (http://catalog.wichita.edu/undergraduate/admission/undergraduate-admission/) section of the catalog.

Probation and Dismissal

Students are expected to make satisfactory progress in their studies. The College of Engineering adheres to current WSU probation and dismissal policies found in the Academic Standing section (http://catalog.wichita.edu/undergraduate/academic-information/academic-progress/academic-standing/) of the Undergraduate Catalog with the following exceptions: students will also be placed on academic probation if their engineering major grade point average is less than 2.000.

In addition to meeting academic standards, students are expected to follow the Student Code of Conduct which can be found online in section 8.05 of the WSU Policies and Procedures Manual (https://www.wichita.edu/about/policy/), and to meet the professional standards governing any organization in which the student is participating as an intern, exchange student or other capacity.

Students who fail to meet these standards are required to work closely with an advisor to explore options and conditions for future readmission.

Students on academic probation may not enroll for more than 14 credit hours in a 16-week term, 6 credit hours in an eight-week term, or 3 credit hours in a four-week term. Exceptions may be made on the recommendation of the student's department advisor and the approval of the student's department chairperson.

Student resources are available in the Engineering Student Success Center, A119 P2, and through departmental academic advisors.

Academic Advising and Enrollment

Students in the College of Engineering are required to receive academic advising from their academic or faculty advisor before enrolling each semester. Engineering students are strongly urged to register early for courses during published registration dates to avoid closed classes. Late registration or adding engineering courses will be allowed only during the first week of a regular semester or the first three days of a summer session.

Students in the College of Engineering may not enroll in more than 21 credit hours per semester during the academic year. Summer session enrollments are limited to a maximum of 5 credit hours for each four-week session or 10 credit hours during the eight-week session. Students who have completed at least 24 credit hours at WSU with a WSU grade point average of 3.000 or higher may petition their department chairperson for permission to enroll in additional hours.

Students who are employed full or part time should, in consultation with their academic advisor, reduce their enrollment to a level appropriate to their work load.

Only students admitted to the College of Engineering or the Graduate School will be allowed to enroll in engineering courses. The dean's office will consider petitions for exceptions to the preceding statement for qualified nonengineering students with legitimate reasons for enrolling in engineering courses.

Transfer Credit

Students transferring credits for engineering courses taken at other institutions must submit official transcripts to the Office of Undergraduate Admissions prior to being admitted to WSU. Transfer course evaluations may require the student to provide course descriptions and syllabi to the College of Engineering for evaluation.

Degree-bound WSU students should speak with a departmental academic or faculty advisor before enrolling in courses at another institution.

Degrees and Certificates Offered

Undergraduate

The Bachelor of Science degree programs in aerospace engineering, biomedical engineering, computer engineering, electrical engineering, industrial engineering, product design and manufacturing engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org). The Bachelor of Science degree program in computer science is accredited by the Computing Accreditation Commission of ABET (http://www.abet.org). The Bachelor of Science degree in engineering technology is accredited by the Engineering Technology Accreditation Commission of ABET (http://www.abet.org). The Bachelor of Science degree in cybersecurity is also offered.

Graduate

A Master of Science (MS) is offered in aerospace engineering, biomedical engineering, electrical and computer engineering, industrial engineering, materials engineering, mechanical engineering, computing, computer science and data science. A Master of Engineering Management (MEM) program is offered in the industrial, systems and manufacturing engineering department. A Doctor of Philosophy (PhD) also is offered by the aerospace; biomedical; electrical and computer; industrial, systems and manufacturing; and mechanical engineering departments and the school of computing.

Typical fields of specialization include: aerodynamics, fluid mechanics, propulsion, structures, solid mechanics, composites, dynamics and control, communication theory, computer networking, signal

processing, software engineering, control theory, digital systems, energy and power systems, thermodynamics, heat transfer, engineering materials, engineering design and kinematics, operations research, management science, manufacturing processes and human factors.

See the Wichita State University Graduate Catalog for more information about the graduate programs.

Certificates

The College of Engineering offers undergraduate certificates in applied data analysis, assistive technology and accessible design, biomaterials engineering, cybersecurity essentials, cyber physical systems, data and web security, energy and environment, facilities management, fundamentals of information technology, human factors in security and technology, sustainable energy systems, sustainable materials and design, and sustainable water resources.

See the graduate catalog for additional information regarding graduate certificates.

Graduation Requirements

All engineering students who are pursuing bachelor's degrees must meet four sets of course requirements for graduation:

1. WSU general education requirements (http://catalog.wichita.edu/undergraduate/academic-information/general-education-program/),
2. College of Engineering requirements,
3. Departmental requirements, and
4. Graduation GPA requirements.

College of Engineering Requirements

1. Ethics: PHIL 385 is a required course for engineering students, while PHIL 354 is required for students in applied computing, computer engineering and computer science.
2. Engineering+ (http://catalog.wichita.edu/undergraduate/engineering/engineering-program/): In response to the recommendation of the National Academy of Engineering report on the future needs for engineering graduates, the College of Engineering implemented the Engineering+ program. All students must complete the Engineering+ program requirements including at least three of the following seven activities: undergraduate research, cooperative education or internship, global learning or study abroad, service learning, leadership, entrepreneurship and innovation, and multidisciplinary education. This program will make the educational experience more meaningful to the student and the student more desirable to local and national industries. More details about the program can be found on Engineering+ Program page of the catalog.

Departmental Requirements

1. Mathematics and natural sciences: Each program requires a minimum number of credit hours under the mathematics and natural sciences category. Refer to individual program requirements for more details.
2. Department requirements: Each department has specific courses that must be completed. These courses and their prerequisites are in the departmental sections of the catalog and are listed on the departmental check sheets.
3. Technical electives: Additional courses required, but not specified, by the department. Each should be chosen in consultation with a departmental academic or faculty advisor.

All programs are designed to meet ABET criteria and satisfy WSU general education requirements. All courses should be selected with the assistance of departmental academic or faculty advisors. The recommended sequence of courses for all departments is outlined later in this section. Each sequence has been planned so that students can complete the program and meet all requirements in the minimum time.

Graduation GPA Requirements

Students must file an online application for degree (AFD) card two semesters preceding their final semester.

Graduation grade point average requirements: The candidate for a degree must attain a 2.000 grade point average in each of the following categories:

1. All college and university work attempted (overall grade point average);
2. All work attempted at WSU (institutional grade point average); and
3. All work in the student's major, which includes technical electives.

Students are not allowed credit toward graduation for *D* grade work in excess of one-quarter of their total hours.

Inter-College Double Major

An inter-college double major allows a student to complete an academic degree and major in one of the professional colleges (Barton School of Business, College of Education, College of Engineering, College of Fine Arts, College of Health Professions) along with a major in Fairmount College of Liberal Arts and Sciences. For details see Inter-College Double Major (http://catalog.wichita.edu/undergraduate/academic-information/types-programs-courses/doublesecond-major-degree/).

Cooperative Education Program

The College of Engineering offers a cooperative education program in conjunction with the Office of Applied and Experiential Learning.

The co-op plan is a voluntary program in which the student works part time (parallel program) or alternates paid preprofessional work periods with classroom periods during the junior and senior years.

To be eligible for the co-op program, a student must have completed 24 credit hours (9 within the College of Engineering) and be able to demonstrate by academic performance during the freshman year, the potential to complete the degree program satisfactorily. Generally, this means earning a grade point average of 2.500 or higher. Also the student's character and personality must be acceptable to the cooperating employer. Transfer students with the above qualifications should contact the engineering career specialist at the beginning of their first semester at WSU. To continue in the program, a student must maintain a satisfactory academic standing.

Students interested in participating in the program should contact the College of Engineering career specialist, who will provide the necessary information on what steps need to be taken to enroll.

Courses in the College of Engineering

- Applied Computing (AC) (http://catalog.wichita.edu/undergraduate/courses/ac/)
- Applied Engineering (APEN) (http://catalog.wichita.edu/undergraduate/courses/apen/)
- Applied Learning: Engineering (ALEN) (http://catalog.wichita.edu/undergraduate/courses/alen-applied-learning-engineering/)
- Aerospace Engineering (AE) (http://catalog.wichita.edu/undergraduate/courses/ae/)
- Biomedical Engineering (BME) (http://catalog.wichita.edu/undergraduate/courses/bme/)

- Computer Science (CS) (http://catalog.wichita.edu/undergraduate/courses/cs/)
- Electrical and Computer Engineering (ECE) (http://catalog.wichita.edu/undergraduate/courses/ece/)
- Engineering (ENGR) (http://catalog.wichita.edu/undergraduate/courses/engr/)
- First-Year Seminar APEN (FYAP) (http://catalog.wichita.edu/undergraduate/courses/fyap-first-year-seminar-apen/)
- First-Year Seminar ENGR (FYEG) (http://catalog.wichita.edu/undergraduate/courses/fyeg/)
- Industrial and Manufacturing Engineering (IME) (http://catalog.wichita.edu/undergraduate/courses/ime/)
- Mechanical Engineering (ME) (http://catalog.wichita.edu/undergraduate/courses/me/)