

# CATERPILLAR COLLEGE OF ENGINEERING AND TECHNOLOGY

## Mission and Objectives

Our mission is to educate and graduate well-integrated individuals who possess the technical and social competence and confidence to succeed in professional practice and advanced education, to be life-long learners, and to exercise responsible citizenship. To accomplish this mission we have established the following objectives:

Our graduates should have:

1. sufficient knowledge and understanding of the appropriate scientific and mathematical fundamentals upon which to develop their professional skills;
2. skill in integrating knowledge and applying this understanding to professionally define problems and produce effective solutions;
3. effective written, oral, and graphic communication skills;
4. awareness and understanding of diverse cultures and social conditions, past and present, in which their professional and personal endeavors will take place;
5. commitment to continuing professional growth and the ethical development of their chosen discipline.

Objectives of the undergraduate curricula focus on the attainment of professional competence, the achievement of intellectual maturity and personal growth, and the development of social responsibility. All the College's programs seek to facilitate creative communication between technologists, engineers, and scientists and those educated in the liberal arts and other disciplines. The College's courses provide the basic bodies of knowledge with which the methods and philosophies of engineering and engineering technology are developed. The education stresses professionalism both for today and for the future.

## Curricula

The Caterpillar College of Engineering and Technology offers undergraduate programs of study leading to baccalaureate degrees as follows:

- **Civil Engineering** B.S. in Civil Engineering (<https://catalog.bradley.edu/undergraduate/programs/civil-engineering-major/>)
- **Construction** B.S. in Construction (<https://catalog.bradley.edu/undergraduate/programs/construction-major/>)
- **Electrical Engineering** B.S. in Electrical Engineering (available with a computer option or a robotics & controls concentration)
- **Industrial Engineering** B.S. in Industrial Engineering (<https://catalog.bradley.edu/undergraduate/programs/industrial-engineering-major/>) (available with optional Engineering Management (<https://catalog.bradley.edu/undergraduate/programs/industrial-engineering-engineering-management-concentration/>) or Supply Chain Analytics (<https://catalog.bradley.edu/undergraduate/programs/industrial-engineering-supply-chain-analytics-concentration/>) concentrations)

- **Manufacturing Engineering** B.S. in Manufacturing Engineering (<https://catalog.bradley.edu/undergraduate/programs/manufacturing-engineering-major/>) (available with Lean Manufacturing (<https://catalog.bradley.edu/undergraduate/programs/manufacturing-engineering-lean-manufacturing-concentration/>) or Process Engineering (<https://catalog.bradley.edu/undergraduate/programs/manufacturing-engineering-process-engineering-concentration/>) concentrations)
- **Manufacturing Engineering Technology** B.S. in Manufacturing Engineering Technology (<https://catalog.bradley.edu/undergraduate/programs/manufacturing-engineering-technology-major/>)
- **Mechanical Engineering** B.S. in Mechanical Engineering (<https://catalog.bradley.edu/undergraduate/programs/mechanical-engineering-major/>) (available with Biomedical Engineering (<https://catalog.bradley.edu/undergraduate/programs/mechanical-engineering-biomedical-concentration/>), Chemical Engineering (<https://catalog.bradley.edu/undergraduate/programs/mechanical-engineering-chemical-engineering-concentration/>), Energy (<https://catalog.bradley.edu/undergraduate/programs/mechanical-engineering-energy-concentration/>) or Robotics & Autonomous Vehicles (<https://catalog.bradley.edu/undergraduate/programs/mechanical-engineering-robotics-autonomous-vehicles-concentration/>) concentration)

The College also offers the following undergraduate minors:

- Electrical and Computer Engineering (<https://catalog.bradley.edu/undergraduate/programs/electrical-and-computer-engineering-minor/>)
- Construction (<https://catalog.bradley.edu/undergraduate/programs/construction-minor-civil-engineering-majors/>)
- Quality Engineering (<https://catalog.bradley.edu/undergraduate/programs/quality-engineering-minor/>)

Additionally, students obtaining baccalaureate degrees can choose to pursue graduate degrees with the follow 4+1 programs:

- B.S. in Civil Engineering + M.S. in Civil Engineering (<https://catalog.bradley.edu/undergraduate/programs/bachelor-science-civil-engineeringmaster-science-civil-engineering-bscsmcse-41-program/>)
- B.S. in Construction + M.S. in Civil Engineering (<https://catalog.bradley.edu/undergraduate/programs/bachelor-science-constructionmaster-science-civil-engineering-bscsmcse-41-program/>)
- B.S. in Electrical Engineering + M.S. in Electrical Engineering

Entertainment Engineering (<https://catalog.bradley.edu/undergraduate/programs/entertainment-engineering-secondary-major/>) integrates the science of engineering with the artistry of theatre. This degree equips students to pursue employment in film, television, theater, theme parks, concert venues, touring productions, cruise ships, and distinctive entertainment experiences such as Cirque du Soleil. This is a complementary major with any engineering degree.

## Special Academic Programs Cooperative Education

The College participates with employers in an optional Cooperative Education Program. Students alternate periods of full-time study with full-time employment. The program provides academic- or career-related work experiences. To be eligible, the student must have sophomore

standing and a 2.0 minimum overall grade point average at Bradley. Students must have authorization to work in the United States.

## Internships

Engineering internships provide engineering and technology students in good academic standing (2.0 grade point average or better) an opportunity to participate in a full-time internship semester and/or summer away from campus providing career-related work experience. This internship is equivalent in work-time to a full-time cooperative education assignment. Interns will be monitored in the same way as EGT cooperative education students. Participating students will enroll in EGT 210 Sophomore Engineering Internship, EGT 310 Junior Engineering Internship, or EGT 410 Senior Engineering Internship for zero credit hours. While on a full-time internship assignment, students are considered to have full-time student status, making normal progress toward a degree in a recognized University program, and are entitled to all student privileges at the University. Also while on a full-time internship assignment, students may register for additional hours of classroom study upon departmental approval. Students must have authorization to work in the United States.

## Practicums

Undergraduate students enrolled in chemistry, civil engineering, computer science, construction, electrical engineering, industrial engineering, manufacturing engineering, manufacturing engineering technology, mechanical engineering, and physics have an opportunity for off-campus employment for 10-20 hours per week in the engineering practicum program. Students are assigned technically challenging projects with a near-term economic payback. Participating students will be enrolled in EGT 200 Sophomore Engineering Practicum, EGT 300 Junior Engineering Practicum, or EGT 400 Senior Engineering Practicum for zero credit hours. While participating in the practicum program, students may wish to enroll in fewer credit hours of academic courses. Such students are still considered by the University to have full-time status, making normal progress towards a degree in a recognized University program. However, students who wish to enroll in less than 12 semester hours of credit should consult the director of financial assistance about possible impact on financial aid and/or insurance benefits. Students must have authorization to work in the United States.

## Global Scholars

Students enrolled in the Caterpillar College of Engineering and Technology have an opportunity to earn the designation of Global Scholar in recognition of achievement in global technical studies. The EGT Global Scholars designation may be earned in conjunction with any baccalaureate degree earned within the Caterpillar College of Engineering and Technology.

Coursework for the Global Scholars Program has been designed to broaden student perspectives by providing enhanced preparation for careers in a global marketplace. Topics and issues taught on both the Bradley campus and in international environments will develop within students a capacity to assess international business opportunities and to understand business in the context of different cultures.

### The Global Scholars Program provides:

- Recognition on the student's transcript as having achieved the Global Scholars designation
- Opportunity to study abroad as early as a student's sophomore
- Seminars with experienced international business leaders

- Social interaction with guest speakers, Bradley alumni, and international students

## Program Requirements

1. Minimum GPA 2.50
2. Immersive cultural study-abroad experience, and 2-page reflective essay on their experience
3. Global Scholars Seminar - 1 hour
4. Total of 12 hours of relevant coursework in at least three of the following areas.
  - Courses offered in CCET (as approved by the CCET Executive Committee)
  - International Business (I B 204 Business in Chinese Culture/I B 205 Business in Indian Culture, I B 206 Introduction to International Business, I B 323 International Financial Management, I B 391 International Trade), Economics (ECO 355 Supply Chain Economics), Marketing (MTG 388 Global Supply Chain Management), and/or Accounting (ATG 461 International Accounting Issues/ATG 561 International Accounting Issues)
  - Global Perspectives (BCC)
  - World Cultures (BCC)
  - Fine Arts (BCC)
  - Humanities (BCC)
  - Courses designated as MI (BCC)
  - World Language

## Graduation Requirements

For graduation, students in the College must satisfy Bradley's all-University degree requirements as specified elsewhere in this catalog as well as the specific degree requirements of the program in which they major. The programs' requirements, which incorporate requirements of appropriate professional accrediting agencies, are listed in their respective curriculum sections of this catalog. Effective academic advisement is stressed in the College; students are required to consult regularly with their academic advisor to plan their course schedules. However, students are individually responsible for insuring that their program's requirements are met.

Specific college requirements are:

1. A minimum grade point average of 2.00 (C) must be earned in all courses taken in the Caterpillar College of Engineering and Technology. (See departmental program descriptions for additional requirements.)
2. All students majoring in programs in the Caterpillar College of Engineering and Technology are required to pass, while at Bradley, a minimum of one junior or senior level course in which writing of papers, essays, and the like is given substantial emphasis and critical evaluation.

Students who maintain continuous enrollment and who complete work toward the baccalaureate degree within five years from the date of entry may graduate under either the catalog in effect at the time of entrance or under the catalog in effect at the time of graduation. A change in major could mean meeting new requirements in force at the time of the change as a condition for acceptance into that major. Students whose work has been interrupted for one or more semesters may be held to requirements in effect at the time of their re-enrollment.

In addition to the undergraduate programs described in this catalog, the College offers graduate work leading to Master of Science degrees in

civil, electrical, industrial, mechanical, and manufacturing engineering. These graduate programs are described in detail in the Graduate Catalog.

## Admission and Transfer Requirements

General and special entrance requirements are listed in the admissions section of the catalog.

Community college transfer students entering the Caterpillar College of Engineering and Technology can complete their degree requirements in a time frame (normally two to three years) that depends on the major being sought and courses taken at the community college. Transfer students are urged to consult as early as possible with the Bradley department in which they will seek a major to make sure the transfer process is efficient. Because the fields of engineering and engineering technology are dynamic and rapidly changing, students transferring into the College from other programs in the University are usually expected to complete their major's graduation requirements as found at the time of transfer. A change of major may result in a change of requirements.

- Civil Engineering and Construction (<https://catalog.bradley.edu/undergraduate/engineering-technology/civil-engineering/>)
- Electrical and Computer Engineering (<https://catalog.bradley.edu/undergraduate/engineering-technology/electrical-computer-engineering/>)
- Industrial and Manufacturing Engineering and Technology (<https://catalog.bradley.edu/undergraduate/engineering-technology/industrial-engineering/>)
- Mechanical Engineering (<https://catalog.bradley.edu/undergraduate/engineering-technology/mechanical-engineering/>)