

INNOVATE AND LEAD BOLD. FEARLESS. CONFIDENT.



2015 – 2016 Baja SAE Off-Road Vehicle

Baja SAE is a design competition that challenges students to work as a team to design, build, test and race an off-road vehicle that is capable of negotiating and surviving rough terrain. As in real-world situations, students work together as a team to discover and resolve technical challenges.

Table of Contents

Academic programs

| | |
|---|---|
| Chemical Engineering (BSCHE) | 2 |
| Civil and Environmental Engineering (BSCE) | 3 |
| Computer Science (CSEC, CSSC, CSDS & CSHP) | 4 |
| Electrical and Computer Engineering (BSEE & BSCompE) .. | 5 |
| General and Basic Engineering (BSEng) | 6 |
| Manufacturing and Engineering Technology (BSET) | 7 |
| Mechanical Engineering (BSME) | 8 |

Support programs and general information

| | |
|---|------------|
| iMakerSpace | 9 |
| Research | 9 |
| Clay N. Hixson Student Success Center | 10 |
| Formula SAE Car | 11 |
| Student Organizations and Competition Teams | 12 |
| Experiential Education Programs | 13 |
| Visit and Enroll | 14 |
| Get Connected | Back Cover |

*Engineering is the closest thing to
magic that exists in this world.*
– Elon Musk

*Cover photo: Chemical Engineering students
Natalie Whitaker and Fares Alfarhan*



Chemical Engineering

Chemical engineering applies the principles of chemistry, biology, physics and math to solve problems that involve the production or use of chemicals, fuels, drugs, food and many other products. Chemical engineers design processes and equipment for large-scale safe and sustainable manufacturing. They also plan and test methods of manufacturing products and by-product treatment, and supervise production.

Owing to our hands-on lab-integrated curriculum, chemical engineers from Tennessee Tech are in high demand. Employers want real-world training and say Tennessee Tech graduates are ready to hit the ground running. Our graduates work in a wide variety of fields. During the past decade our students have been employed by:

- Cummins Filtration
- General Electric
- Georgia Gulf
- Goodyear
- Proctor and Gamble
- Shaw Industries
- Tate and Lyle
- Y-12 National Security Complex
- Domtar

Chemical engineering student professional societies

- American Institute of Chemical Engineers
- Chemical Engineering Graduate Research Association
- Omega Chi Epsilon—Society for Chemical Engineers

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Civil and Environmental Engineering

Civil and environmental engineering is considered to be the oldest engineering field. It is a broad discipline that deals with the design, construction and maintenance of infrastructure. Examples include buildings, roads, airports, railroads, bridges, water and wastewater treatment plants, landfills and dams and canals. Civil and environmental engineering solves societal problems on a daily basis.

At Tennessee Tech, our focus is on transportation, construction materials, environment, water resources, structural engineering and structural mechanics.

Civil and environmental engineers have many different roles in industry and government. Because of their flexibility, civil and environmental engineering graduates have found jobs with companies like:

- Tennessee Department of Transportation
- Kimley-Horn and Associates
- TVA
- Mesa Associates, Inc.
- SSOE Group
- Sargent and Lundy

Civil and environmental engineering student professional societies

- American Society of Civil Engineers
- American Water Works Association
- Chi Epsilon—National Civil Engineering Honor Society
- Institute of Transportation Engineers

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Computer Science

Computer science focuses on both theory and practical applications of how software and other computing systems are used to solve problems in collaborative and innovative ways.

Problem-solving ability, analytical thinking, collaboration and effective communication skills are important outcomes of the computer science degree, with students gaining exposure to important topics such as cybersecurity, data science, high performance computing, computer networks, operating systems, databases and software engineering.

A computer science graduate is prepared to work in many different industries including aerospace, banking, telecommunications, entertainment, financial services, health care, retail and various technology service providers. Nationally, computer science is regularly named among the highest paid salaries for college graduates. Our graduates have gone on to careers at companies such as:

- ADTRAN
- Amazon
- Dell
- Dynetics
- Google
- Jackson National Life
- Microsoft
- Netflix
- ORNL
- Relatient
- SAIC
- TVA
- Urban Science

Computer science student professional societies

- Association for Computing Machinery and ACM Women
- CyberEagles CyberSecurity Club
- TTU Functional Programming Club
- Institute of Electrical and Electronics Engineers

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Electrical and Computer Engineering

Electrical engineers design, develop, build and test electrical and electronic devices such as embedded microprocessor systems. Electrical engineering majors learn the physics of electricity and magnetism, mathematics of circuits and systems, and analysis and design. They design and create economical and safe products that enhance the quality of life.

Computer engineering combines hardware and software components to design and build computing equipment, including interface hardware and computer chips. Students learn about computer science topics such as programming languages, software engineering and operating systems, among other things.

Electrical and computer engineering students also have the option to concentrate in mechatronics – the integration of electrical and mechanical systems in things such as robots and driverless cars.

Electrical and computer engineering graduates have been hired by:

- AEDC
- Apple
- AdTran
- AMD
- Dell
- DENSO
- Dynetics
- Eastman
- Intel
- NAVSEA
- Schneider Electric
- TVA

Electrical and computer engineering student professional societies

- Association for Computing Machinery and ACM Women
- Institute of Electrical and Electronics Engineers
- Eta Kappa Nu—International ECE honor society

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General and Basic Engineering

Tennessee Tech and East Tennessee State University have collaborated to offer a joint degree in general engineering. By its nature, general engineering is a broad, often interdisciplinary field. The Bachelor of Science in Engineering (TTU-ETSU B.S.E.) includes coursework related to engineering science, engineering design, and engineering management. Students earning the B.S.E. will be ready to work alongside many chemical, civil, electrical and industrial, and mechanical engineers. Because of the more flexible nature of general engineering, many B.S.E. students will be able to prepare for professional careers in medicine, law, or business.

Many first-year students will directly enter a discipline-specific program, such as chemical or electrical engineering. Other students may prefer to start in basic engineering so that they will have time to explore different majors and career options. First-year students in basic engineering will study calculus, chemistry and English composition. In addition, they will study humanities and fine arts or social and behavioral sciences. However, the engineering fundamentals—engineering graphics and the computer programming for engineers—are clearly the highlights of the first year.

Student professional societies specific to the College of Engineering

Open to students enrolled in the College of Engineering, regardless of academic concentration

- Engineers Without Borders
- National Society of Black Engineers
- Society of Hispanic Professional Engineers
- Society of Women Engineers
- Tau Beta Pi—The Engineering Honor Society
- Theta Tau—Professional Engineering Fraternity

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Manufacturing and Engineering Technology

Engineering technologists apply engineering knowledge combined with technical skills to support engineering activities. Their areas of interest and education are typically application oriented, while being somewhat less theoretical and mathematically oriented than their engineering counterparts. They typically concentrate their activities on the applied design, using current engineering practice. Engineering technologists play key roles on the engineering team; they are typically involved in product development, manufacturing, product assurance, sales and program management.

Engineering Technologists are employed in several industries. Tech's MET graduates successfully move through the ranks in industry to top leadership positions. Examples of positions held by MET graduates range from process engineer to production management and control managers.

A few of the companies that hired MET graduates are:

- Alcoa
- Apex Systems
- BMW
- Carrier
- DeZURICK
- Eureka Foundry
- Faber-Castell
- General Motors
- Martin Marietta
- Nissan
- ORNL
- Union Carbide
- Volkswagen

Manufacturing and engineering technology student professional societies

- American Foundry Society
- Moon Buggy Club
- Society of Manufacturing Engineers

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Mechanical Engineering

Mechanical Engineers are the most versatile engineers and work in more fields than you can imagine. A mechanical engineer might work in the automotive, aerospace, railway systems design and other transport and mobility industries; power generation, oil and gas, appliance and lifesaving medical devices industries; building services, computer, robot and consumer products and goods design industries. The list goes on.

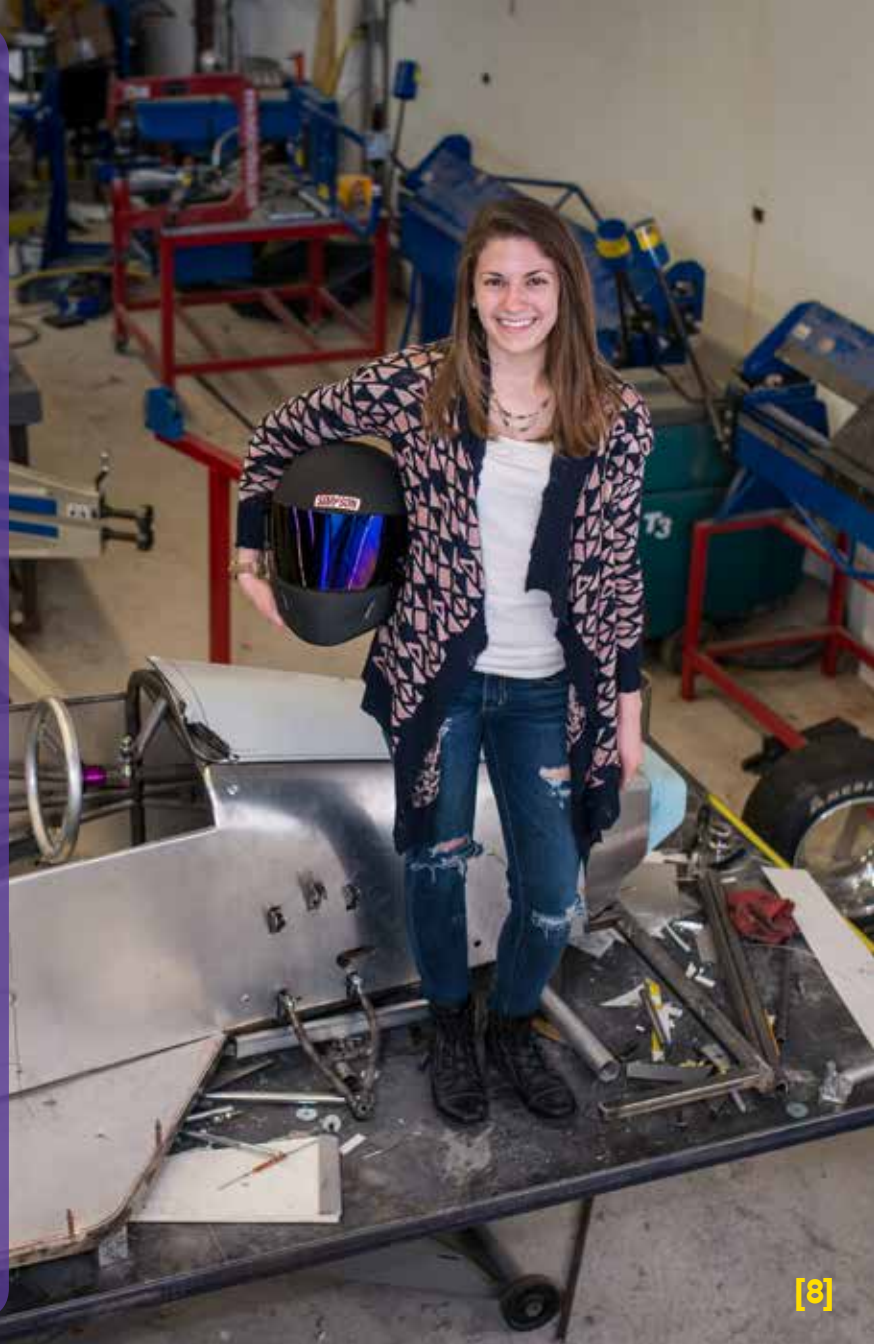
Mechanical engineering students work in team settings to improve the quality of human life. Companies that hire Tennessee Tech mechanical engineering graduates are:

- ADTRAN
- Boeing
- Bridgestone
- Bristol Compressors
- Cummins, Inc.
- Caterpillar
- DENSO
- Flowserve
- General Motors
- Honda
- John Deere
- Mahle Filter Systems
- NASA
- Nissan Motor Corp.
- ORNL
- Schneider Electric
- Trane
- Volkswagen
- Whirlpool

Mechanical engineering student professional societies

- American Society of Mechanical Engineers (ASME International)
- Society of Automotive Engineers (SAE International), Baja and Formula SAE
- American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
- Autonomous Robotics Club (ARC)
- Pi Tau Sigma - International Mechanical Engineering Honor Society

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iMakerSpace

Located on the 3rd floor of Volpe Library, the iMakerSpace serves as a university-wide student-centered space under the leadership of the Colleges of Engineering and Business. The iMakerSpace serves as a focal point on campus to provide training, service, partnership, research and evaluation in Innovation and Entrepreneurship (I&E) to all disciplines. iMakerSpace encourages interdisciplinary teams and provides support and training to extend I&E activities into research and the classroom.

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Research

Why participate in undergraduate research?

- Apply classroom learning to real-world applications.
- Work with faculty to develop potentially world-changing ideas
- Increase confidence and professionalism
- Enhance your résumé for future graduate work or career advancement
- Enhance your critical thinking skills

Research Centers

Center for Energy Systems Research
Center for Manufacturing Research
Center for the Management, Utilization and Protection of Water Resources
Cybersecurity Education, Research and Outreach Center

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umberland Rural STEM Initiative



College of Engineering
Student Success Center

TENNESSEE TECH

Makers on the Move ~ Bringing STEM Education to a School Near You!



ucr

Mathematics is the language of engineering, engineering technology and computer science. It serves as the basis for students to begin their academic career.

All engineering programs require four calculus courses.

Engineering technology programs require a minimum of Pre-Calculus and Calculus I. Computer Science requires at least 14 credits of Calculus I and above.

Your ACT or SAT Math score determines your starting point.

Other factors, such as Advanced Placement, International Baccalaureate and dual enrollment credits may also be used.

If you score:

MATH ACT 27 or higher
MATH SAT 610 or higher



start with Calculus I or higher.

MATH ACT 22-26
MATH SAT 560-609



start with Pre-Calculus.

Clay N. Hixson Student Success Center

Located in Clement Hall 208

Open Monday – Friday, 7 a.m. – 4:30 p.m.

The Clay N. Hixson Student Success Center offers

- Free Peer Tutoring
- Supplemental Instruction
- Academic Advising
- Professional Development Workshops
- Quiet Study Atmosphere
- Makers on the Move STEM Outreach
- Student Ambassador Program
- Student Awards and Recognition

Harry Ingle, Director

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The 2017–2018 Formula SAE Car

TN Tech Motorsports is a competitive Formula SAE team that designs, builds and races a small-scale Formula style racecar each year. Members of the team work together to create a business model and financial plan that reflects in the car's design and manufacture. TN Tech Motorsports challenges its members to practice professionalism, leadership and interdisciplinary skills to engineer a high quality and innovative product.

Student Organizations and Competition Teams

Make lifelong connections in professional student organizations.

Belonging to an organization has many advantages and offers the opportunity for leadership, networking, professional experience, friendships and fun. The College of Engineering has more than 30 clubs, organizations and competition teams to enhance your college experience.



The 2017–2018 NASA Human Exploration Rover Team

Each year the rover team designs, builds and races a simulated lunar roving vehicle in the annual Great Moonbuggy Race at NASA's Marshall Space Flight Center in Huntsville, Alabama. The event challenges students to design and build a human-powered vehicle to address engineering problems similar to those actually faced by the original NASA lunar rover team.



Experiential Education Programs

Experiential Advantages

- Realistic evaluation of career choice
- On-the-job learning experience
- Earn a degree and work experience
- Opportunity for permanent employment following graduation
- Better classroom understanding
- Supplemental income

Practical Work Experience

The Experiential Education Program (EEP) at Tennessee Tech available to all students. The program encompasses both academic internships and cooperative education (co-op) programs.

The program provides students with work experience in their fields. In most cases, students are paid for their work.

tntech.edu/career/students

Visit

One of the best ways to learn about Tennessee Tech is to visit the campus. While on campus, you will:

- Meet with an admissions counselor
- Take a walking tour with a current student
- Meet with an academic departmental representative
- Tour the residence halls
- Eat lunch on campus
- Get a free t-shirt

SCHEDULE A CAMPUS VISIT TODAY!
tntech.edu/visit

College of Engineering minimum requirements for admission

For new freshmen, the admissions decision is based on ACT/SAT scores, high school curriculum and your GPA. To receive unconditional admission for engineering, engineering technology or computer science, you must fall into one of the categories below*:

Freshmen

- 3.0 high school GPA** and
- 20 ACT Composite* and
- 22 ACT sub-score in Math

Transfer Students

- 2.0 GPA in last full-time semester (or last 12 hours for part-time) and
- 2.0 GPA overall

*This information is subject to change. Check the Admissions website for the latest requirements. tntech.edu/admissions

**With completion of a college preparatory high school curriculum.

Financial Aid Tips

To simplify the scholarship and financial aid process, follow these seven steps:

1. Take the ACT or SAT and have your scores sent to Tennessee Tech
2. Apply for admission tntech.edu/apply
3. Apply for scholarships by **Dec. 1**.
4. Submit additional documents for department of need-based scholarships upon request.
5. Apply for a federal PIN www.pin.ed.gov
6. Make a copy of your or your parents' federal tax form
7. Complete the Free Application for Federal Student Aid (FAFSA) as soon as possible after completing your federal income tax. You can apply online at www.fafsa.ed.gov

Office of Admissions



Box 5006
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P: (931) 372-3888 or (800) 225-8881



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College of Engineering



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