The course offerings and requirements of the University of Tennessee are continually under examination and revision. This student guide presents the offerings and requirements in effect at the time of publication, but there is no guarantee that they will not be changed or revoked. Current information may be obtained from the following sources:

**Admission Requirements:** admissions.utk.edu.

**Course Offerings and Degree Requirements:** *See Undergraduate Catalog, catalog.utk.edu.*

**ABET:** The university’s engineering programs are fully accredited by the ABET Engineering Accreditation Program.

*Refer to the engineering and campus resources sections on pages 3 and 4 of this book for a more comprehensive list of resources and contact information at the University of Tennessee.

CREDITS: Tickle College of Engineering Communications Office
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Contacts

ACADEMIC DEPARTMENTS
Bioystems Engineering & Soil Science
Daniele Carrier, Dept. Head .......................... 865-974-7266 / bess@utk.edu
Daniel Yoder, Professor, Advisor .......................... 865-974-7176 / dyoder@utk.edu
101 Biosystems Eng & Env Science Building

Chemical & Biomolecular Engineering
Bamin Khomami, Dept. Head .......................... 865-974-2421 / cbbe@utk.edu
Kern Cline, Senior Advisor ............................. 865-974-2351 / kcline4@utk.edu
419 Dougherty Building

Civil & Environmental Engineering
Chris Cox, Dept. Head .................................. 865-974-2503 / cee@utk.edu
Jeremy Mobley, Advisor ................................. 865-974-0724 / jmobley7@utk.edu
125 John D. Tickle Engineering Building

Electrical Engineering & Computer Science
Greg Peterson, Dept. Head ............................. 865-974-3461 / eecs-info@utk.edu
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Joanna Rathbone, Advisor .............................. 865-974-9147 / jrrathbone@utk.edu
410 Min H. Kao Building

Industrial and Systems Engineering
John Kobza, Dept. Head ............................... 865-974-3333 / isedept@utk.edu
Rachel Duncan, Advisor .............................. 865-974-7651 / rduncanf6@utk.edu
525 John D. Tickle Engineering Building

Materials Science & Engineering
Veerle Kappens, Dept. Head .......................... 865-974-5336 / mae@utk.edu
Nathan Swain, Advisor ................................. 865-974-8202 / hwsun@utk.edu
414 Farris Hall

Mechanical, Aerospace, and Biomedical Engineering
Kivanc Eskin, Interim Dept. Head .................... 865-974-5115 / mabinfo@utk.edu
Jennifer Hartwig, Senior Advisor .................... 865-974-7243 / jhartwig@utk.edu
Roger Gray, Senior Advisor .......................... 865-974-7665 / rgray17@utk.edu
414 Dougherty Building

Nuclear Engineering
J. Wesley Hines, Dept. Head ........................... 865-974-2525 / utne@utk.edu
Amanda Lovelace, Advisor .......................... 865-974-8240 / alovea64@utk.edu
301 Nuclear Engineering Building

ADMINISTRATIVE CONTACTS
Associate Dean for Academic and Student Affairs
Ozlem Kilic .............................................. 865-974-2454 / okilic@utk.edu
101 Perkins Hall

Engineering Advising Office
Margie Russell, Director .............................. 865-974-4008 / engradvising@utk.edu
Lisa Byrd, Assistant Director; Tucker Adkins, Advisor; Kate Burford, Advisor; 116A Perkins Hall

Engineering Fundamentals Division
Richard Bennett, Director ............................ 865-974-9810 / rbennet2@utk.edu
207 Perkins Hall

Engineering Honors
Kevin Kit, Director .................................... 865-974-9810 / kkit@utk.edu
322 Perkins Hall

Engineering Professional Practice
Todd Reeves, Director ................................. 865-974-5233 / coop@utk.edu
110 Perkins Hall

Engineering Diversity Programs
Travis Griffin, Fred D. Brown Jr. Director .... 865-974-0625 / travisg@utk.edu
301 Perkins Hall
Resources

Tutoring

Chemistry Help Sessions
513 Bueltel Hall
865-974-3413

Student Disability Services
100 Dunford Hall
865-974-6087

Educational Advancement Program
Greve Hall Room 302
821 Volunteer Blvd.
865-974-7900

Engineering Fundamentals Help Sessions
108 Perkins Hall
865-974-9810

The Math Place (Math Tutoring)
Hodges Library North Commons
865-974-2461

Office of Multicultural Student Life
1800 Melrose Ave. Black Cultural Center
865-974-6861

Writing Center
212 Humanities & Social Sciences Building
865-974-2611

Student Success Center
Greve Hall Room 324
821 Volunteer Boulevard
865-974-6641
Find additional tutoring locations at studentsuccess.utk.edu

Additional Resources

Campus Information
865-974-1000

Center for Global Engagement / Study Abroad
1620 Melrose Avenue
865-974-3177

Tutoring Information

Computer and Laptop Help
The Commons
2nd Floor Hodges Library
865-974-9900 (CIT HelpDesk)

Engineering Diversity Programs
301 Perkins Hall
865-974-0625

Financial Aid and Scholarships
Hodges Library Ground Floor
865-974-1111

International House
1623 Melrose Avenue
865-974-4453

Office of National Scholarships and Fellowships
317 Greve Hall
865-974-3518

Office of Undergraduate Research
109 Melrose Hall, 1616 Melrose Avenue
865-974-8560

One Stop Shop
Financial Aid, Scholarships, Transcripts, Grades, General Questions
Hodges Library Ground Floor
865-974-1111

Parking Services
2121 Stephenson Drive
865-974-6031

Student Counseling Center
1800 Volunteer Boulevard
865-974-2196

Student Health Services Clinic
1800 Volunteer Boulevard
865-974-3135

Student Conduct and Community Standards
405 Student Services Building
865-974-3171

University Honors Program
130 Howard Baker Center
1640 Cumberland Avenue
865-974-7875

University Housing
2107 Andy Holt Avenue
865-974-2571

Veterans Resource Center
G020 Hodges Library
865-974-5420

VoCard (UT ID) Office
408 Student Services Building
865-974-3430

Contact information for individual colleges:

Agricultural Sciences & Natural Resources
125 Morgan Hall
Phone: 865-974-7303

Architecture & Design
103C Art & Architecture Building
Phone: 865-974-3232

Arts & Sciences
315 Ayres Hall
Phone: 865-974-4481

Business
542 Haslam Business Building
Phone: 865-974-5096

Communication & Information
202 Communications Building
Phone: 865-974-3603

Education, Health, & Human Sciences
332 Bailey Education Complex
Phone: 865-974-8194

Engineering
316A Perkins Hall
Phone: 865-974-4008

Nursing
203 Nursing Building
Phone: 865-974-7608

Social Work
303 Haslam Hall
Phone: 865-974-3351

Academic Advising

The Tickle College of Engineering is committed to the belief that academic advising engages students by teaching them how to become members of the higher education community, to think critically about their role and responsibilities as engineers, and to prepare them to be educated members of a global community.

Prior to advanced registration, all students who have earned fewer than 30 hours at UT Knoxville or are on Academic Probation, or have not declared a major within a specific college (undecided, pre-major, interest, undeclared) or are flagged as Off Track by UTrack system are required to meet with an advisor during each main term of the academic year (i.e., during fall and spring). All other students are required to consult with an advisor for a substantial conference during a designated term each year. Students whose ID numbers end in an even digit are required to meet with an advisor during fall semester. Students whose ID numbers end in an odd digit are required to meet with an advisor during spring semester. However, Engineering students are encouraged to consult regularly with their major advisor during each semester of the academic year, especially if they plan to participate in internship or co-op positions that might affect class scheduling.

Advising appointments are normally offered on 30-45-minute individual intervals. Hours of operation are from 8:00 a.m. to 5:00 p.m. (Eastern), Monday through Friday.

Academic Standing

The University of Tennessee, Knoxville, expects all students who enter to make progress toward graduation. To graduate from UT Knoxville, a student must earn a minimum cumulative grade point average (GPA) of 2.0. The university reviews students’ academic records at the end of each term to determine academic standing. The catalog contains additional requirements for specific programs.

Good Academic Standing

A student is in good academic standing when both the student’s term and cumulative GPAs are 2.0 or higher or, if after two consecutive terms, the student’s cumulative GPA is 2.0 or higher and at least one term GPA is also 2.0 or higher.

Academic Probation

A student will be placed on Academic Probation when (1) his/her cumulative GPA falls below the minimum acceptable level of 2.0 for one semester or (2) the semester GPA falls below the minimum acceptable level of 2.0 two consecutive terms of enrollment. During the semester that a student is placed on Academic Probation, and any other semesters in Academic Probation, a student must participate in a special directive advising program to help the student address concerns that are impacting his/her academic performance and to outline a plan for achieving academic success. While on Academic Probation, students must have met with an advisor prior to registering for all following terms, which includes summer term. This model of early intervention is designed to help students regroup and position themselves for academic success. Students on Academic Probation status during a term will automatically be dismissed at the end of that term if both:

- The cumulative GPA is below a 2.0, and
- The term GPA is below a 2.0

For first-time, first-year, and transfer students, the summer term prior to their first fall term will not be included in the dismissal decision. A student will no longer be on Academic Probation when his or her cumulative grade point average is 2.0 or higher and the term grade point average is 2.0 or higher. This policy is in place in recognition of the University of Tennessee, Knoxville’s minimum grade point average of 2.0 for graduation.
**Collaborative and Integrated Advising Community Supporting Student Success**

**Professional Advisor** — Assist students in the development of educational plans that are consistent with their aspirations, interests, and strengths; encourage students' holistic engagement (academically, socially, culturally, and professionally) with the college experience. Educate students about curricular requirements, academic standards/policies related to a chosen major. Guide students through career and professional development opportunities available. Assist students with course planning, academic forms, and technologies such as DARS, MyUTK, Grades First, and Handshake.

**Faculty** — Reinforce academic strategies to be successful in the major. Discuss faculty research in the major, preparation for graduate school interests, career opportunities in major field, collaborate with professional advisors on specific student issues. Discuss major specific course content, technical electives in the major, and concentrations and/or minors for the major.

**Career Counselor** — Guide students through self-exploration process that includes strengths, interests, abilities, and challenges relating those to the world of work and goals in higher education. Assisting students in developing educational plans that are consistent with academic and career goals. Refer to campus resources that support career exploration, experience learning, and leadership opportunities. Guide students through developing resume and interview skills.

**Transition Advisor** — Advising and creating new academic plans for students no longer meeting major requirements and are required to change majors/colleges. Advising new prospective and transfer students who are not admitted to the college of their choice. Advising students and creating new academic plans with students who want to change colleges/majors but are unclear as to their new academic/career goals.

**Success Center Coach** — Teach and support academic success strategies such as time management, prioritization of involvements, test taking skills, campus tutoring opportunities.

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**How is College Life Different from High School?**

<table>
<thead>
<tr>
<th>Personal Freedom in High School</th>
<th>Personal Freedom in College</th>
</tr>
</thead>
<tbody>
<tr>
<td>You may be able to join many clubs and activities while taking classes.</td>
<td>You must be selective in your participation choices to avoid overextending yourself.</td>
</tr>
<tr>
<td>Your time is usually structured by others.</td>
<td>You manage your own time.</td>
</tr>
<tr>
<td>Guiding principle: You will usually be told what your responsibilities are and corrected if your behavior is out of line.</td>
<td>Guiding Principle: You are old enough to take responsibility for what you do and don’t do, as well as for the consequences of your decisions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High School Classes</th>
<th>College Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>You spend 6 hours each day—30 hours a week—in class.</td>
<td>You spend 12 to 16 hours each week in class.</td>
</tr>
<tr>
<td>The school year is 36 weeks long; some classes extend over both semesters and some do not.</td>
<td>The academic year is divided into 2 separate 15 week semesters plus a week for exams. Summer School is in 3 sessions; First and Second are 4 weeks each and Full is all summer.</td>
</tr>
<tr>
<td>You are provided with textbooks at little or no expense.</td>
<td>You need to budget substantial funds for textbooks.</td>
</tr>
<tr>
<td>You are not responsible for knowing what it takes to graduate.</td>
<td>Graduation requirements are complex and differ for different majors and sometimes different catalog years. You are expected to know those that apply to you. Learn to run your DARS report.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High School Teachers</th>
<th>College Professors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers check your completed homework.</td>
<td>Professors may not always check completed homework, but they will assume you can perform the same tasks on tests.</td>
</tr>
<tr>
<td>Teachers remind you of your incomplete work.</td>
<td>Professors may not remind you of incomplete work.</td>
</tr>
<tr>
<td>Teachers approach you if they believe you need assistance.</td>
<td>Professors are open and helpful, but most expect you to initiate contact if you need assistance.</td>
</tr>
<tr>
<td>Teachers present material to help you understand the material in the textbook.</td>
<td>Professors may not follow textbooks. Instead to amplify the text, they may give illustrations, provide background information, or discuss research about the topic you are studying. They may expect you to relate the classes to the textbook readings.</td>
</tr>
<tr>
<td>Teachers often write information on the board to be copied in your notes.</td>
<td>Professors may lecture nonstop, expecting you to identify the important points in your notes. When professors write on the board it may be to amplify the lecture, not to summarize it. Good note taking skills are a must.</td>
</tr>
<tr>
<td>Teachers often take the time to remind you of assignment and due dates.</td>
<td>Professors expect you to read, save, and consult the course syllabus. It spells out exactly what is expected of you, when assignments are due, and how you will be graded.</td>
</tr>
</tbody>
</table>
### How is College Life Different from High School?

<table>
<thead>
<tr>
<th><strong>Studying in High School</strong></th>
<th><strong>Studying in College</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>You may study outside of class as little as 0 to 2 hours a week, and this may be mostly last minute test preparations.</td>
<td>You need to study at least 2 to 3 hours outside of class for each hour in class—every day.</td>
</tr>
<tr>
<td>You often need to read or hear presentations only once to learn all you need to learn about them.</td>
<td>You need to review class notes and text material regularly.</td>
</tr>
<tr>
<td>You are expected to read short assignments that are then discussed, and often re-taught, in class.</td>
<td>You are assigned substantial amounts of reading and problem solving which may not be directly addressed in class.</td>
</tr>
<tr>
<td><strong>Guiding principle:</strong> You will usually be told in class what you need to learn from assigned readings.</td>
<td><strong>Guiding Principle:</strong> It is up to you to read and understand the assigned materials; lecture and assignments proceed from the premise that you have already done so. You need to review class notes and text material regularly.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Tests in High School</strong></th>
<th><strong>Tests in College</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing is frequent and covers small amounts of material.</td>
<td>Testing is usually infrequent and may be cumulative, covering large amounts of material. You, not the professor, need to organize the materials to prepare for the test. A course may only have 2 or 3 tests in a semester.</td>
</tr>
<tr>
<td>Time to finish tests may be abundant.</td>
<td>Testing in college requires you to budget your time and finish in time allowed.</td>
</tr>
<tr>
<td>Testing may ask for large amounts of memorization of material.</td>
<td>Testing in college will be applied knowledge to new problems and not memorization.</td>
</tr>
<tr>
<td>Teachers frequently conduct review sessions, pointing out the most important concepts.</td>
<td>Professors rarely offer review sessions, and when they do, they expect you to be an active participant, one who comes prepared with questions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Grades in High School</strong></th>
<th><strong>Grades in College</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistently, good homework grades may help raise your overall grade when test grades are low.</td>
<td>Grades on tests and major papers usually provide most of the course grade.</td>
</tr>
<tr>
<td>Extra credit projects are often available to help you raise your grade.</td>
<td>Extra credit projects are often NOT available in college classes.</td>
</tr>
<tr>
<td>Initial test grades, especially when they are low, may not have an adverse effect on your final grade.</td>
<td>Watch out for your first tests. These are usually wake up calls to let you know what is expected. Seek tutoring support early and often in classes where low test grades happen. Tests may count different percentages toward your total grade — read your syllabus.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Tutoring in high school</strong></th>
<th><strong>Tutoring in college</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Students may only seek tutoring when failing.</td>
<td>Students seek tutoring from the beginning to help earn the best grades possible.</td>
</tr>
<tr>
<td>Tutoring is mainly with a teacher— one on one.</td>
<td>Tutoring in college may be with a professor or tutoring center staff or fellow student on campus. Often in small group or classroom setting.</td>
</tr>
</tbody>
</table>

---

### Center for Financial Wellness

**financialwellness.utk.edu**

The Financial Wellness Center, located inside the One Stop Student Services Office, helps students improve money management skills through one-on-one appointments, presentations, and online resources. Broaden your money management knowledge and learn the most current and relevant information possible to make the best financial decisions to meet your goals. Explore your own financial information in greater detail by using these powerful tools and calculators to forecast and assess your financial standing.

**Individual Appointments**

Start developing the skills you need to succeed with money via one-on-one meetings with peer guides, who can provide information on:

- Financial goal setting
- Creating a spending plan
- Saving
- Credit cards and scores
- Student loan types
- Student loan repayment options
- Banking basics

**What to Expect:** You and your peer guide will discuss your current financial situation, your goals, and the best strategy for follow up. To get the most out of your visit, it may help to bring specific figures or statements. Please note that peer guides provide education, information, and strategies only. Students interested in financial planning and investments are encouraged to consult a financial professional.

**Ready to Schedule Your Appointment?**

1. Log in to MyUTK with your netID and password.
2. Under the Academic Support, select Grades First.
3. Then select Appointments for Advising or Other Academic Help.
5. Select Financial Wellness again.
6. Select Location – Hodges Library.
7. Select Appointment Time.

**Services also include:**

- **CashCourse:**
  A website with comprehensive, noncommercial information to help inform your financial decisions

- **Net Price Calculator:**
  This calculator is intended to provide you with estimated financial aid and out-of-pocket costs based on the information you enter about yourself and your family.

- **Loan Calculator:**
  Many families use loans in addition to other funding sources to help finance educational expenses, but we recognize there is a lot to consider when using loans. Our team is committed to helping you identify the very best and most responsible financing plan to support your goals. These tools will help shed light on repaying your loans.
Tickle College of Engineering Undergraduate Scholarships

The Tickle College of Engineering annually awards an average of nearly $1,000,000 in scholarships to qualified undergraduate students. Students must be accepted into the University of Tennessee and the Tickle College of Engineering to apply for engineering scholarships. Students need not apply for specific scholarships as the Scholarship Committee will match qualified students with available awards. Please contact the One Stop Shop for the complete list of application requirements and deadlines, Hodges Library Ground Floor, 865-974-1111, onestop.utk.edu/your-money. The returning/transfer student scholarship application is on MyUTK. Application deadline is February 1. Scholarships are awarded each academic year in the spring for the upcoming fall semester. For more information contact the Academic and Student Affairs Office at 865-974-2454 or stop by 101 Perkins Hall.

Student Organizations and Honor Societies (tickle.utk.edu/student-organizations)

Student Organizations
• American Institute of Aeronautics and Astronautics
• American Institute of Chemical Engineers
• American Nuclear Society
• American Society of Agricultural and Biological Engineers
• American Society of Civil Engineers
• American Society of Mechanical Engineers
• Associated General Contractors of America
• Association of Computing Machinery
• Biomedical Engineering Society
• Tickle College of Engineering Ambassadors
• Engineering Mentor Program
• FIRST Alumni at UT Knoxville
• Hydrolunteers
• Institute of Electrical and Electronics Engineers
• Institute of Industrial & Systems Engineers
• Institute of Transportation Engineers
• Material Advantage

Honor Societies
• Alpha Nu Sigma, Nuclear Engineering Honor Society
• Chi Epsilon, Civil Engineering Honor Society
•Eta Kapp Nu, Electrical Engineering Honor Society
• Pi Tau Sigma, National Mechanical Engineering Honor Society
• Tau Beta Pi, National Engineering Honor Society

• National Society of Black Engineers
• Society of Automotive Engineers
• Society of Hispanic Professional Engineers
• Society of Women Engineers
• Systex: Women in EEC
• Theta Tau Professional Engineering Fraternity
• UTK Volunteers Without Borders
• Women in Industrial and Systems Engineering
• Women in Nuclear

Technology

tickle.utk.edu/ithelp/computers/

Laptops are required for all students, including incoming freshmen. VoTech, located within the Student Union on campus, sells Apple and PC computers, mobile devices, and accessories at reduced rates for students. The website is utvols.com/tc-276-voltech.aspx

FERPA STATEMENT

Family Education Rights and Privacy Act (FERPA)
The method with which the University of Tennessee governs the distribution of student information is based on the Family Educational Rights and Privacy Act of 1974 or FERPA. This Act, as amended, established the requirements governing the privacy of student educational records in regards to the release of those records and access to those records. This Act is also known as the Buckley Amendment.

The Act gives four basic rights to students:
• the right to review their education records;
• the right to seek to amend their education records;
• the right to limit disclosure of personally identifiable information (directory information);
• and the right to notify the Department of Education concerning an academic institution’s failure to comply with FERPA regulations.

FERPA provides for confidentiality of student records; however, it also provides for basic identification of people at the University of Tennessee without the consent of the individual. Release of information to third parties includes directory information, such as contained in the campus directory, in the online web-based people directory and in sports brochures. Students are notified of their FERPA rights and the procedures for limiting disclosure of directory information in HillTops, at Orientation for new students, and on the website of the University Registrar, registrar.utk.edu.

Office of Diversity Programs

Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP)
The Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) is a partnership between Tennessee State University, Lehigh-Owens College, Middle Tennessee State University, University of Memphis, University of Tennessee and Vanderbilt University. The program’s goal is to increase the number of under-represented minority students studying and graduating in Science, Technology, Engineering and Math (STEM). The objectives to support the goal of the alliance are to:
• Recruit under-represented minority students to pursue science or engineering as a career;
• Improve the quality of the learning environment for under-represented minority science and engineering students at all schools; and
• Ensure that a large number of undergraduate students are prepared to enter graduate school.

Programs/Services
• TLSAMP Seminars
• Collaborative Learning
• Drop-In Center
• Graduate School Preparations
• Mentoring
Cooperative Education / Career Development

Engineering Professional Practice
Todd Reeves, Director
110 Perkins Hall, Knoxville TN 37996-2030
Telephone: 865-974-5323
coop.utk.edu

Cooperative Education (Co-op) Program
Students have the opportunity to gain real world experience in their engineering field of study by working multiple semesters (normally three) with the same employer before they graduate. Typically a co-op student will alternate between semesters of work and school beginning in their sophomore year. The exact co-op rotation plan is created by the student in coordination with the Engineering Professional Practice office, their academic advisor, and the needs of their particular co-op employer. Making use of the summer semesters for work assignments or classes enable the co-op experience to have minimal impact on a student’s planned graduation date.

Internship Program and Benefits
The internship program differs from co-op in that the students will only work one paid assignment with an employer usually in the summer. While students can still gain valuable engineering experience in an internship, this shorter duration experience provides a subset of the total experience students obtain in the co-op program. Most employers recruit students for internship opportunities during a student’s junior year. Most engineering internships occur during the summer before the senior year.

Co-op and Internship Program Requirements
To participate fully in the Engineering Professional Practice program, students should register with the office during their freshman year. They will then have an opportunity to go through an in-depth orientation and advisement process, learn the steps to a successful job search, and be prepared to participate in our Engineering Expo each fall and spring semester to seek co-op and internship opportunities.

Most employers require a GPA of 3.0 or above. Before students go on their first assignment, they must complete 30 hours of course work and be in good academic standing.

You’re here. Where are you going?

You're here.
Exploring Majors and Careers
Career Strategies for the Arts/Sciences

Self-Assess
• Choosing a major/career
• Resumes and interviews
• Graduate/professional school planning

Explore Experience
• Exploring Majors and Careers
• Career Strategies for the Arts/Sciences

Experiences
• Internships
• Part-time jobs
• Service/Volunteer opportunities
• Research

Featured Resources
CandidCareer.com
careershift
GoinGlobal

Contact Info
Student Union Level 2 • 865-974-5435 • CAREER.UTK.EDU
<table>
<thead>
<tr>
<th>COMPETENCY</th>
<th>DEFINITION</th>
<th>What can I do?</th>
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| Critical Thinking/Problem Solving | Practice sound reasoning and analytical skills to make decisions and overcome problems | 1. Participate in undergraduate research programs within TCE and beyond  
2. Reflect on the skills developed through engineering fundamental courses                                                        |
| Oral/Written Communications     | Articulate thoughts and ideas clearly to a variety of audiences and employ effective public speaking skills | 1. Present your research findings in class or at a conference  
2. Join a student organization where you can hone your oral communication skills, such as the Speech and Debate Society or the TCE Engineering Ambassadors |
| Teamwork/Collaboration          | Build collaborative relationships with coworkers and be able to work well in a team environment | 1. Work with a team of fellow students and compete in the Steel Bridge Competition  
2. Participate in UT's EcoCAR 3 Team to gain hands-on experience working on a multidisciplinary collaboration |
| Digital Technology             | Leverage existing digital technologies ethically and efficiently to complete tasks; demonstrate effective adaptability to new technologies | 1. Use your LinkedIn Learning account to learn more about coding and various programming languages  
2. Take courses that will expand your knowledge of how to use MATLAB                                                                                                     |
| Leadership                     | Utilize the strengths of others to achieve common goals; use interpersonal skills to develop and motivate others | 1. Join one of 30 or more engineering student organizations and seek a leadership role  
2. Show initiative and provide leadership for group projects assigned in courses                                                                                           |
| Professionalism/Work Ethic      | Exhibit effective work habits such as punctuality, working productively, personal accountability, integrity, and ethical behavior | 1. Participate in events sponsored by professional associations within TCE, e.g., Society of Women Engineers, the Engineering Mentor Program, or the National Society of Black Engineers  
2. Intern or co-op with a company of interest to gain related experience and build professionalism                                                                            |
| Career Management              | Identify skills, strengths, knowledge, experiences, and areas of growth related to career goals; navigate job options and pursue opportunities | 1. Meet with the Engineering Career Consultant to update your resume and create career goals  
2. Attend the Engineering Expo or the STEM & Engineering Career Fair to network with companies and learn about opportunities                                                                 |
| Global/Intercultural Fluency   | Demonstrate openness, inclusiveness, sensitivity, and the ability to interact respectfully with all people; understand individuals’ differences | 1. Participate in an Engineering Faculty-Directed Study Abroad Program such as trips to London, Milan or Hamburg  
2. Go on a TCE Alternative Spring Break trip and participate in a local impact engineering project                                                                   |

Adapted from the NACE Career Readiness Competencies

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**Global Experiences**

The University of Tennessee has embarked on an ambitious plan to help students gain the international and intercultural knowledge they need to succeed in today's world. Engineering, like all professions, is becoming very globally oriented. It is important for you to take advantage of opportunities while you are a student in order to be Ready for the World. Apply for your passport now—the world awaits!

**UT Programs Abroad Office (PAO)**

The "PAO" provides students with information about their options for overseas study; research, work, volunteer projects, and travel. The PAO administers most of UT's international one-for-one student exchange programs, including ISEP. Attend an information session at the Programs Abroad Office (1620 Melrose Hall). Information sessions are held at 2:00 pm every Monday-Friday during the academic year. During the general information session, we discuss the programs available to you, what to look for in a program, how to use the resource center, using financial aid, transferring credits, programs requirements, and will answer your questions. If you are unable to attend an information session due to a conflict at 2:00 pm, please contact our office and we will be glad to schedule an appointment for you (865-974-3177 or vols abroad@utk.edu).

**Contact:**  
Center for Global Engagement, Programs Abroad Office  
1620 Melrose Avenue, Knoxville, TN 37996-3531  
Phone: 865-974-3177  
Fax: 865-974-2985  
Email: volsabroad@utk.edu

**Study Abroad for Engineering Students**

Engineering study abroad programs allow you to stay one semester or shorter in an English speaking or foreign language-based schools throughout the world. You can choose between individual trips or pre-arranged trips, where you would live and travel with a small group of UT students. Prior to applying for an Engineering Study Abroad Program, you should schedule an advising session with your Tickle College of Engineering advisor. You are eligible to apply for the Study Abroad Program after freshman year or after the first semester at UT, if you are a transfer student. Most programs require a minimum 2.5 to 2.75 GPA. For non-English language programs, it is required that you have minimum 4 semesters of equivalent foreign language (faculty-led programs are exceptions).

UT Study Abroad programs include 5 types of programs: UT faculty-led, Exchange, Direct, Third Party, and Academic Internships.

**Contact:**  
Judith Mallory, International Coordinator  
59 Perkins Hall  
Phone: 865-974-9234  
Email: jmallory@utk.edu  
Web: tickle.utk.edu/global/
Grades, Credit Hours, Grade Point Average

The unit of credit is the semester credit hour. One semester credit hour represents an amount of instruction that reasonably approximates 50 minutes per week of classroom-based direct instruction and a minimum of two hours per week of student work outside the classroom over a 15-week semester, or an equivalent amount of work in a lab session. Each semester credit hour represents an amount of instruction that is equivalent to 700 minutes of classroom-based direct instruction. The amount of time that is required to earn one semester credit hour in a laboratory, fieldwork, studio, or seminar-based course varies with the nature of the subject and the aims of the course; typically, a minimum of two or three hours of work in a laboratory, field, studio, or seminar-based setting is considered the equivalent of 50 minutes of classroom-based direct instruction. Semester credit hours earned in courses such as internships, research, theses, dissertation, etc., are based on the time expectations established by the academic program.

Each course at the university carries a number of credit hours specified in the course description. At the completion of each course, a student will be assigned a grade reflecting the student’s performance in the course. Passing grades carry a grade of C– or better. Each course, a student will be assigned a grade reflecting the student’s performance in the course. Passing grades carry a grade of C– or better. Each student who earns a grade of A, A–, B+, B, B–, C+, C, C–, or W will have that grade entered on the permanent record with the letter N prefix (for example, NF). At the end of the term, hours earned in the course will be removed from the student’s earned-hour total, but will be included in the calculation of the student’s cumulative grade point average, which will be included in the calculation of both the student’s HOPE grade point average and an in-state student’s HOPE grade point average.

Transfer students are held to the same program requirements and policies as UT students. For students who transfer to UT coursework in a course with ABC/N grading, only courses for which a grade of C or higher was earned will be eligible to meet program requirements.

Changes in Registration

For full term fall and spring classes, undergraduate students may add classes through the seventh calendar day counted from the beginning of the term. For single session fall and spring classes, undergraduate students may add classes through the seventh calendar day counted from the beginning of the session. Because of the nature of some classes, permission of the department may be required to add a class after the first day of the term or session. Students may also, as departmental policies permit, change class sections through the seventh calendar day counted from the beginning of the session. Students may drop classes, with no notation on the academic record, through the seventh calendar day of the term. From the eighth calendar day of the term until the 84th calendar day of the term, students may drop full term fall and spring classes and receive the notation of ‘W’ (Withdrawn) on the academic record.

After the 84th calendar day of the term, students may not drop full term fall and spring classes. From the 85th day of the term to the last day of classes, a student may completely withdraw from a fall or spring term subject to regulations listed in the catalog section ‘Total Withdrawal from the University.’

First Year Composition

First year composition courses are offered on a system of A, A–, B+, B, B–, C+, C, C–, I, N, W grading. All entering first year students, except international students, should enroll in a first year composition course during their first year unless they have been awarded equivalent credit through direct instruction. Students may drop classes, with no notation on the academic record, through the seventh calendar day of the session. From the seventh calendar day of the session until the 84th calendar day of the session, students may drop single session fall and spring classes and receive the notation of ‘W’ (Withdrawn) on the academic record. After the 84th calendar day of the session, students may not drop single session fall and spring classes.

International Students

Entering international students whose native language is not English are placed in English courses based on TOEFL scores. Advisors will assist students with English class placement.

ABC/N Grading System

ABC/N grading is an alternative to the standard A-F grading system for some courses. These grading symbols are identified in the course description. For a course offered on the ABC/N grading system:

- A student who earns a grade of A, A–, B+, B, B–, C+, C, or C– have that grade entered on the permanent record. These grades will be included in the calculation of both the student’s cumulative grade point average and an in-state student’s HOPE grade point average.
- A student who earns a grade of D, D–, F, or W will have that grade entered on the permanent record with the letter N prefix (for example, NF). At the end of the term, hours earned in the course will be removed from the student’s earned-hour total, but will be included in the calculation of the student’s cumulative grade point average, which will be included in the calculation of both the student’s HOPE grade point average and an in-state student’s HOPE grade point average.

Transfer students are held to the same program requirements and policies as UT students. For students who transfer to UT coursework in a course with ABC/N grading, only courses for which a grade of C or higher was earned will be eligible to meet program requirements.

Grade Replacement Policy for Three Lower Division (100-400) Level Courses

Students may replace up to three grades earned in undergraduate (100-400) level courses by repeating the course. All other grades will be included in computing the cumulative grade point average. For each course, only the grade of the highest grade earned can be used to raise the student’s HOPE GPA. Grades in no more than thirteen hours of course work may be replaced under this policy. Exception to the number of times a course may be repeated will be allowed only with prior written permission from the head of the department where the course is being offered and the student’s college academic advisor.

Grades that do not Influence Grade Point Average

The following grades carry no quality points and hours for which these grades are earned are not counted in computing a student’s grade point average.

- NC (No Credit) indicates failure to complete a course satisfactorily when taken on an S/NC basis.
- S (Satisfactory) is assigned for C or better work on the traditional grading scale.
- W (Withdrawal) is assigned in courses when a student has officially withdrawn from the university. It is also assigned when a student withdraws from a course before the 8th and 14th week of the academic term. Regulations concerning withdrawal from courses or the university appear under Add, Drop, Withdraw.

Satisfactory/No Credit Grading System

The purpose of this system is to encourage the student to venture beyond the limits of those courses in which the student usually does well and, motivated by intellectual curiosity, explore subject matter in which performance may be somewhat less outstanding than work in other subjects. To this end, the satisfactory/no credit (S/NC) grading has been developed for undergraduate courses (100-, 200-, 300-, and 400-level courses). Neither grade is counted in a student’s grade point average, but, like all other grades, is entered on the permanent record.

- S is given for C or better work on the traditional grading scale and NC is given for grades of C+, C–, D+, D, and F.
- The student only receives credit in the course if an S is received. At the discretion of the instructor, a student may repeat a course for S/NC if the student received a conventional grade (A, A–, B+, B, B–, C+, C, C–, D, D–, and F). If the student elects non-conventional grading, grades of A, A–, B+, B, B–, C+, C, C–, D, D–, or F are NS.
- The purpose of this grading system is to encourage and reward the student to explore subject matter in which the student usually does well, but, in the process, may discover areas of genuine interest and promise.

Transfer course grades may be replaced (see Transfer Admission Policy).

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Tickle College of Engineering

Student Guidebook 2020-2021 • catalog.utk.edu

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Biomedical Engineering mabe.utk.edu

What is Biomedical Engineering? Biomedical engineering is the application of engineering principles and methods to the solution of problems in the life sciences. This broad field spans applications at the molecular level (genetic engineering); at the cellular level (e.g., cell and tissue engineering); and in intact organisms, including humans in particular. Major practice areas include the design of biomedical measurement systems (e.g., intensive care monitoring stations); orthopedic devices (e.g., artificial joints); and artificial organs (e.g., artificial kidneys). Currently, there is much attention being given to computational biosciences, advanced medical imaging systems and advanced artificial organs (e.g., heart-assist and total artificial heart blood pumps, artificial livers). Among the most exciting new areas of biomedical engineering research is the newly defined discipline of cell and tissue engineering, which involves the modification of living cells and tissues to meet specific clinical needs (e.g., artificial skin).

In their professional roles, biomedical engineers must be knowledgeable in both the life sciences and the engineering sciences. In many career roles, biomedical engineers serve as intermediaries in bridging the gap between classically trained engineers and medical practitioners. Basic life science preparation includes the study of cell biology and human anatomy and physiology. The engineering preparation includes basic mechanics, electrical and electronic circuits, materials science, fluid dynamics, and pre-medical school topics. Required mathematics include calculus, differential equations, matrix methods and statistics.

The educational objectives of the biomedical engineering program are:
- Graduates will meet or exceed the expectations of employers of biomedical engineers, such as industry, government, academia or non-governmental organizations.
- Graduates will continue professional development by participating in structured professional activities and/or by obtaining professional registration or certification, post-graduate credits and/or advanced degrees.

Career Opportunities The demand for air transportation is projected to increase many-fold early this century. Our renewed quest in space will accelerate as full realization is made of spin-off benefits to society. These endeavors will increase employment opportunities for aerospace engineers in the future. Graduates at UT are actively sought by industry and government aerospace organizations nationwide. Major employers such as Boeing, Pratt and Whitney, NASA, General Electric, Honeywell, Lockheed-Martin, ATK and Arnold Engineering Development Center (which houses the largest wind tunnel test facilities in the world, located in Tullahoma, Tennessee) actively recruit our students. Many of our BS students choose to continue their education at graduate school.

What can I do with this engineering major? Aerospace Engineering mabe.utk.edu

What is Aerospace Engineering? Aerospace engineering uses the basic sciences and mathematics to develop the technology to design, develop, production, testing and applied research associated with aerospace vehicles. These vehicles include aircraft, spacecraft and missiles. Auxiliary and propulsion systems are also an integral part of this education. These include guidance, control, engines, jet, rocket, turbojet, turbofan and piston engine/propeller systems.

The educational objectives of the aerospace engineering program are:
- Graduates will meet or exceed the expectations of employers of aerospace engineers, such as industry, government, academia or non-governmental organizations.
- Graduates will continue professional development by participating in structured professional activities and/or by obtaining professional registration or certification, post-graduate credits and/or advanced degrees.

Chemical and Biomolecular Engineering cbe.utk.edu

What is Chemical and Biomolecular Engineering? Chemical and Biomolecular engineering deals with the development and implementation of products that require chemicals. Chemical and Biomolecular engineers play a very important role in the production of items we use every day such as foods, medicines, fuels and clothing. Some examples of chemical engineering include developing improved food processing techniques, producing medicines more affordably in large quantities, finding more efficient ways to refine petroleum, and constructing fibers that make clothing more comfortable and resistant to stains. As a chemical and biomolecular engineering student at UT, you will learn how to design processes and equipment for reacting chemicals that will improve the way many items critical to today’s modern society are created. You will study the concepts of heat transfer, mass transfer, kinetics, and fluid flow to solve problems that may lead to the development of new medications, computing devices, fuels, plastics, and polymers vital to enhancing the quality of life around the globe.

The objectives of the chemical and biomolecular engineering degree program are:
- Graduates of the chemical engineering program will meet or exceed the expectations of employers of chemical engineers.
- Qualified graduates will pursue graduate or advanced professional study if desired.
- Graduates will continue their professional growth through lifelong learning.
- Graduates will pursue career progression toward positions of technical or managerial leadership.

Career Opportunities As a chemical and biomolecular engineering program student, you will be able to pursue a career in many different areas such as pharmaceuticals, textiles, electronics, energy and biotechnology. Chemical and biomolecular engineers can be found anywhere, from large manufacturing plants to small medical research laboratories. Many of our students also choose to continue their education at graduate or medical school.

Career Information What can I do with this engineering major? Biosystems Engineering bioeng.ee.utk.edu

What is Biosystems Engineering? Today's tightly-focused engineering specialties did not probably amaze the great engineers of the past. Many of them were successful precisely because they understood a diverse range of engineering concepts and could integrate that knowledge in new and starting ways. Biosystems engineering is the most "integrative" engineering discipline available today. It combines elements from environmental, mechanical, civil, electrical and other engineering disciplines to produce the broadest possible engineering skill set. This engineering background is complemented with a focus on biologically-based systems-critical for solving problems involving people and the environment. Finally, biosystems engineering adds the peripheral skills needed to be successful in an engineering career-intensive design projects; computer and graphics training; presentation skills; engineering economics; and practical teamwork.

With this broad foundation, upper-level biosystems engineering students are uniquely positioned to focus on almost any area of engineering. Potential areas include biofuels; environmental systems; machine design and optimization; soil and water conservation; instrumentation and sensors; bio-reactors, food processing; waste treatment; or any of a host of other possibilities.

The BESS department’s program objectives: Recent graduates are able to:
- Be successful in securing employment in the profession or a position in graduate or professional school.
- Continue developing as professionals.
- Demonstrate success in their chosen career paths.

Career Opportunities As a biosystems engineer, you can choose from an unusually diverse range of job opportunities. You will be well prepared to lead a team as a project engineer because of your broad engineering background. You could also choose to design products or processes in a variety of agricultural, manufacturing and service industries. You might consider working as a consultant, in product marketing, or for a management services firm. Governmental and educational and research institutions also employ many biosystems engineers, or you may want to enhance your career by entering graduate or medical school. You will be particularly qualified to work at the interface of technology and living systems—whether in food and fiber production, environmental issues or in a biological context.

Career Information
Civil and Environmental Engineering

What is Civil and Environmental Engineering?

Civil and environmental engineers plan, design, construct, and operate infrastructure that is essential to economic vitality and our modern way of life. They enhance our quality of life and provide valuable service to communities by protecting the health and safety of the public and by preserving our environment.

The roots of the department of Civil and Environmental Engineering at the University of Tennessee date back to 1838, making it one of the first Civil Engineering programs established in the Southeast. The department offers six proficiency areas, each preparing students for impactful and exciting careers.

- **Environmental Engineers** protect human health by providing safe drinking water to communities; designing processes and facilities for environmentally sustainable waste disposal; protecting air quality through emissions control technology; remediating contaminated sites; and quantifying and managing risks to human health and the environment caused by pollution.

- **Construction Engineering and Management** is the process of delivering engineering projects safely, on time, and on budget through management of financial, material, and human resources on the job site.

- **Geotechnical and Materials Engineers** evaluate site-specific geological conditions to recommend foundation systems and soil modifications to enable successful civil engineering projects. They work on projects involving buildings, bridges, pavement systems, roadways, pipelines, tunnels, dams, and landfills.

- **Structural Engineers** design structural systems for buildings, bridges, and other structures using concrete, steel, wood, masonry, composites, and newly emerging materials. They ensure that infrastructure is reliant to natural disasters such as hurricanes and earthquakes.

- **Transportation Engineers** plan, design, and operate transportation systems that move people and goods through our society. Transportation engineers utilize policy, economics, and advanced technology to deliver engineering projects safely, on time, and on budget through management of financial, material, and human resources on the job site.

- **Water Resource Engineers** evaluate the availability of water for urban, industrial, and agricultural activities; protect and restore rivers, streams, and aquatic ecosystems; control flooding; protect water quality in the environment; and manage the water cycle in urban environments through deployment of green infrastructure.

During your careers, our nation’s aging infrastructure will be extensively upgraded using new materials, the latest technology, emerging construction techniques and innovative financing mechanisms. Autonomous vehicles will transform our transportation system and create opportunity to reshape our communities. As the need for surface parking decreases there will be opportunities to reintroduce nature into our urban areas, to better manage our water resources, and to grow our food closer to where we live. As a civil and environmental engineer, you will be at the center of this infrastructure revolution.

We will prepare you to enter this exciting field at the University of Tennessee, Knoxville. Our program features hands-on learning through laboratories, real-world project-based learning, flexibility to develop technical expertise in areas that interest you, development of your communication and professional skills and opportunities for co-ops and internships, undergraduate research, study abroad, and leadership development. You’ll enter the work place ready to make an impact

Career Opportunities

Civil and environmental engineers are employed by engineering and construction firms, industry, all levels of government, utilities, academia, among others. Typical career paths provide opportunities to work outside, to oversee a project from start to finish, to contribute to landmark infrastructure projects, to work internationally, to grow in leadership responsibilities, and to collaborate with clients, stakeholders, and the public to improve our communities.

Civil engineers often own their own businesses or volunteer their skills in developing countries. More than anything, civil and environmental engineering is a great profession for people who want to make a difference.

Career Information

What can I do with this engineering major?

Computer Engineering

What is Computer Engineering?

Computer engineering deals with the design of computer systems and the programming side of computer science. Often, a student can study electrical engineering to cultivate a background in computer engineering. However, with the increasing needs of both industry and technology that drive our future, computer engineering has now become a discipline by itself. Typically, a computer engineering curriculum provides a background in three broad areas—hardware, software, and hardware-software integration. Students will also have the opportunity to explore fundamental topics such as microprocessors, computer architecture, digital signal processing, operating systems, communications, and other related material. In addition, the program includes core engineering subjects that are common to all engineering disciplines.

The program educational objectives of the computer engineering program include:

- Will apply the knowledge of the fundamentals of engineering, science and mathematics in the practice of electrical/computer engineering or in advanced professional studies; will identify, formulate and solve electrical/computer engineering problems.
- Will analyze and design complex devices and systems containing hardware and software components with consideration of economic, ethical, safety, environmental, and social issues; will be able to use modern engineering techniques, skills and tools.
- Will communicate effectively, function on multi-disciplinary teams, and engage in lifelong learning.

Career Opportunities

Computer hardware engineers are expected to have favorable job opportunities. Employment of computer hardware engineers is projected to increase faster than the average for all occupations, reflecting rapid employment growth in the computer and office equipment industry, which employs the greatest number of computer engineers. Consulting opportunities for computer hardware engineers should grow as businesses need help managing, upgrading and customizing increasingly complex systems. Growth in embedded systems, a technology that uses computers to control software-intensive products. These include, for example, automotive components, financial systems, consumer appliances (cell phones, personal computers), communication infrastructure devices (routers, switches), scientific research facilities (space stations, telescopes, reactors) and weapon systems.

Computer Science

What is Computer Science?

At one pole is computer science, primarily concerned with theory, design, and implementation of software. It is a true engineering discipline, even though the product is as intangible as a computer program. At the other pole is computer engineering, primarily concerned with firmware (the microcode that controls processors) and hardware (the processors themselves, as well as entire computers). It is not possible to draw a clear line between the two disciplines; many practitioners function to at least some extent as both computer engineers and computer scientists.

Computer Science is the study of software and hardware systems, and theory of computation. Students must be able to integrate material and concepts from these areas. So, for example, students use analysis of algorithms to select or design software to solve a problem on a computer with parallel architecture. Another example would be selecting or writing the software for a network router, combining optimization theory, graph algorithms, networking, knowledge of the hardware and professional software methods. The emphasis is on foundations and the ability to learn new developments in the field.

Career Opportunities

Career Opportunities in many fields exist for our graduates. Most generally, they are prepared to work in laboratories that develop software intensive products. These include, for example, automotive components, financial systems, consumer appliances (cell phones, personal computers), communication infrastructure devices (routers, switches), scientific research facilities (space stations, telescopes, reactors) and weapon systems.
What is Electrical Engineering?

Electrical engineering impacts every aspect of modern life, from medical implants and pacemakers to fiber-optic communication systems that span international boundaries. Electrical engineering involves the design, implementation, and application of the physical laws governing electric, magnetic, and electromagnetic fields to the analysis and design of electrical circuits, devices, and systems. Graduates with a BS degree in electrical engineering are well-prepared to continue their education through graduate and professional programs. Graduates are also prepared to enter the workforce in a wide range of industries, including telecommunications, aerospace, electronics, and energy, among others.

Students in the program gain hands-on experience with the latest technologies. The department provides one-on-one advising to support students during the job search. We are committed to helping students find full-time jobs, part-time jobs, and graduate education.

Students with a BS degree in electrical engineering may pursue careers as:

- Power system analysts
- Power system engineers
- Power system designers
- Electric circuit designers
- Electrical engineers
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- Electric circuit designs...
The discipline of a rigorous technical program along with education in the humanities and social sciences provides a good foundation for a rich and rewarding career in a dynamic marketplace.

The objectives of the mechanical engineering degree program are:

- Graduates will meet or exceed the expectations of employers of mechanical engineers, such as industry, government, academia or non-governmental organizations.
- Graduates will continue professional development by participating in structured professional activities and/or by obtaining professional registration or certification, post-graduate credits, and/or advanced degrees.

Career Opportunities

Because of the broad-based education received in mechanical engineering, mechanical engineers play a vital role in a wide variety of industries (e.g., aerospace, automotive, electronics, power utilities, chemical, petroleum, textile, manufacturing); federal agencies (e.g., NASA, DOE, DOD, FAA); and consulting firms and national laboratories (e.g., DRNL, Sandia). In these different sectors, mechanical engineers are involved in analysis and design of systems and products; manufacturing, automation and control of production and processes; heating, ventilation, and air conditioning systems; and research. Mechanical engineers are also found at every level of management.

Mechanical engineers have been and will continue to be in great demand in all of the areas listed above.

Nuclear Engineering

ne.utk.edu

What is Nuclear Engineering?

Nuclear engineering is the engineering discipline that focuses on the application of sub-atomic processes for the benefit of mankind and our environment. Radiological engineering is a special concentration within nuclear engineering that deals with the design and safe utilization of radiation in industry and medicine. Some examples of nuclear and radiological engineering are listed below:

- Production of electric power with essentially no air pollution
- Processes for the diagnosis and treatment of diseases such as cancer
- Activation analysis for identifying materials including environmental pollutants
- Radiography inspection of welds in bridges and boilers
- Food preservation and sterilization of medical supplies
- Radioisotope gauges for use in manufacturing processes
- Nuclear measurement techniques for oil well logging and airport security
- Radioactive tracer elements for use in medical research
- Generation of radioisotope power for deep space exploration

The educational objectives for the department are to:

- provide students with a diverse general education in the humanities, ethics, and social sciences to complement their technological education in order to understand and appreciate the importance of each in society and in personal development;
- foster a genuine desire for life-long learning in students.

Career Opportunities

Nuclear engineering is a very broad and diverse engineering discipline, spanning from materials science and radiocchemistry to nuclear security, space propulsion, and power systems. Nuclear engineering graduates find careers in a wide variety of fields, including the electric utility industry (e.g., Southern Nuclear Company, TVA, Duke Energy, Entergy), private industry (e.g., General Electric, Westinghouse, Honeywell, Emerson), and governmental laboratories (e.g., DOE’s Oak Ridge National Laboratory and NASA’s Johnson Space Flight Center).

Nuclear engineering graduates also work as health physicists and radiation safety officers at hospitals and other health-related facilities. The current job market for nuclear engineers is strong and diverse.
### Aerospace Engineering Catalog 2020

#### Prerequisites and Corequisites

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>ME 321 (3)</td>
<td>Linear Algebra</td>
<td>3</td>
<td>ME 202 with C or better</td>
</tr>
<tr>
<td>Fall</td>
<td>ME 331 (3)</td>
<td>Statics</td>
<td>3</td>
<td>ME 202 with C or better</td>
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<td>Fall</td>
<td>ME 344 (3)</td>
<td>Thermodynamics</td>
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<td>ME 231 and Math 241 or 247</td>
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<tr>
<td>Fall</td>
<td>ME 363 or 367 (3)</td>
<td>Fluid Mechanics</td>
<td>3</td>
<td>Math 231 or 237 and Math 200, 251/257</td>
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<tr>
<td>Fall</td>
<td>BME 345 (3)</td>
<td>Biomedical Engineering</td>
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<td>ME 321 and Math 241 or 247</td>
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<tr>
<td>Fall</td>
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<td>Biomedical Engineering</td>
<td>3</td>
<td>Math 231 or 237</td>
</tr>
<tr>
<td>Fall</td>
<td>AE 449 (3)</td>
<td>Advanced Design</td>
<td>3</td>
<td>ME/BME/ME majors</td>
</tr>
<tr>
<td>Fall</td>
<td>AE 450 (3)</td>
<td>Gas Dynamics</td>
<td>3</td>
<td>ME 331</td>
</tr>
<tr>
<td>Fall</td>
<td>AE 422 (3)</td>
<td>Control Systems</td>
<td>3</td>
<td>ME 344</td>
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<tr>
<td>Fall</td>
<td>ECE 301 (3)</td>
<td>Electrical and Computer Engineering</td>
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<td>Math 241 or 247</td>
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<td>Gen Ed (3)</td>
<td>General Education</td>
<td>3</td>
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<tr>
<td>Fall</td>
<td>BME Elective (3)</td>
<td>Biomedical Engineering Elective</td>
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<tr>
<td>Fall</td>
<td>AE 210 (2)</td>
<td>Introduction to Aerospace Engineering</td>
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<td>Math 200 and Math 231</td>
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<tr>
<td>Fall</td>
<td>EF 230 (2)</td>
<td>English Composition</td>
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<tr>
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<td>ME 202 (2)</td>
<td>Mechanical Engineering</td>
<td>2</td>
<td>ME 231 and Math 241 or 247</td>
</tr>
<tr>
<td>Spring</td>
<td>ME 331 (3)</td>
<td>Biomechanics</td>
<td>3</td>
<td>ME 202 and ME 231</td>
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<tr>
<td>Spring</td>
<td>ME 391 or 397 (3)</td>
<td>Advanced Biomedical Engineering</td>
<td>3</td>
<td>ME 321 and Math 241 or 247</td>
</tr>
<tr>
<td>Spring</td>
<td>AE 424 (3)</td>
<td>Advanced Design</td>
<td>3</td>
<td>ME/BME/ME majors</td>
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<tr>
<td>Spring</td>
<td>AE 450 (3)</td>
<td>Gas Dynamics</td>
<td>3</td>
<td>ME 331</td>
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<tr>
<td>Spring</td>
<td>AE 210 (2)</td>
<td>Introduction to Aerospace Engineering</td>
<td>2</td>
<td>Math 200 and Math 231</td>
</tr>
</tbody>
</table>

#### Grading

**Aerospace Engineering** is a highly technical field that requires a strong foundation in mathematics and science. Students must maintain a minimum GPA of 2.0 in all departmental courses counted toward the degree. Students with an overall GPA less than 2.0 will not be admitted to upper-division. Students who have not progressed to upper-division full status are required to demonstrate their ability to perform satisfactorily in upper-division by attaining a minimum GPA of 2.0 in the first 12 hours of 300-level required engineering courses. Award of upper-division full status is dependent upon this performance. Students with an overall GPA less than 2.0 will not be admitted to upper-division.

### Biomedical Engineering Catalog 2020

#### Prerequisites and Corequisites

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<th>Semester</th>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>Fall</td>
<td>BME 363 or 367 (3)</td>
<td>Biomedical Engineering</td>
<td>3</td>
<td>Math 231 or 237</td>
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<tr>
<td>Fall</td>
<td>BME 474 (3)</td>
<td>Advanced Biomedical Engineering</td>
<td>3</td>
<td>ME 321 and Math 241 or 247</td>
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<tr>
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<td>Biomedical Engineering Elective</td>
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<tr>
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<td>AE 210 (2)</td>
<td>Introduction to Aerospace Engineering</td>
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#### Grading

**Biomedical Engineering** is a highly technical field that requires a strong foundation in mathematics and science. Students must maintain a minimum GPA of 2.0 in all departmental courses counted toward the degree. Students with an overall GPA less than 2.0 will not be admitted to upper-division. Students who have not progressed to upper-division full status are required to demonstrate their ability to perform satisfactorily in upper-division by attaining a minimum GPA of 2.0 in the first 12 hours of 300-level required engineering courses. Award of upper-division full status is dependent upon this performance. Students with an overall GPA less than 2.0 will not be admitted to upper-division.

### Student Guidebook 2020-2021

- **Fall**: 17 hours
- **Spring**: 18 hours

#### Transfer Students

Students who have completed EF 152/158, CHEM 120 or 128, MATH 231, ME 202, ME 231, and ME 321 with a grade of C or better and have an overall GPA between 2.0 and 2.4 may apply for provisional status. Students must maintain a minimum grade point average of 2.0 in all coursework to continue in the program. Transfer students must also meet the same requirements as regular students. All prerequisites must be completed with a grade of C or better. Transfer courses with grades below a C will not be accepted to fulfill any degree requirements.

#### Provisional Status Progression

Students who have completed EF 152/158, CHEM 120 or 128, MATH 231, ME 202, ME 231, and ME 321 with a grade of C or better and have an overall GPA between 2.0 and 2.4 may apply for provisional status. To graduate, the student must meet the same requirements as regular students. All prerequisites must be completed with a grade of C or better. Transfer courses with grades below a C will not be accepted to fulfill any degree requirements.

#### Provisional Status Completion

Students who have completed EF 152/158, CHEM 120 or 128, MATH 231, ME 202, ME 231, and ME 321 with a grade of C or better and have an overall GPA between 2.0 and 2.4 may apply for provisional status. To graduate, the student must meet the same requirements as regular students. All prerequisites must be completed with a grade of C or better. Transfer courses with grades below a C will not be accepted to fulfill any degree requirements.

#### Transfer Credit

Transfer courses with grades below a C will not be accepted to fulfill any degree requirements.

#### Upper-division Progression

Students who have completed EF 152/158, CHEM 120 or 128, MATH 231, ME 202, ME 231, and ME 321 with a grade of C or better and have an overall GPA between 2.0 and 2.4 may apply for provisional status. To graduate, the student must meet the same requirements as regular students. All prerequisites must be completed with a grade of C or better. Transfer courses with grades below a C will not be accepted to fulfill any degree requirements.

#### Upper-division Completion

Students who have completed EF 152/158, CHEM 120 or 128, MATH 231, ME 202, ME 231, and ME 321 with a grade of C or better and have an overall GPA between 2.0 and 2.4 may apply for provisional status. To graduate, the student must meet the same requirements as regular students. All prerequisites must be completed with a grade of C or better. Transfer courses with grades below a C will not be accepted to fulfill any degree requirements.

#### General Education Requirements

Students must earn a minimum grade point average of 2.0 in all departmental courses counted toward the degree. Students not meeting the required departmental GPA may be dropped from their major.

Students also have opportunities for an Honors Concentration and/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.
Engineering Majors

Biosystems Engineering Catalog 2020

Fall 16 hours
Math 141 or 147 (4) FA, SP
Prep for Math ACT 25 or 27, SAT 660
Chem 105 (5) (SA) SP
Coreq: Math 241 or higher
Chen 132L (4) FA, SP
Prep for Math 132
Engr. 105 (1) FA, SP
English 101 or 118

Spring 17 hours
Math 142 or 148 (4) FA, SP
Prep for Math ACT 25 or 27, SAT 660
Chem 260 or 268 (3) FA, SP, SU
Coreq: EF 152 or 158

Prereq- AE 341/347 with C

BSE 416/418 or CE 495/498 (3) SP

Minimum level- junior
Coreq- BSE 400 and 404
Prereq- Three of BSE 411/417, 416/418, or CE 495, 498, 431, 451/457

Cultures & Civilizations

Arts & Humanities

BSE 231 (3) FA
Stats 251 (3) FA, SP, SU

Coreq- EF 152 or 158
Prereq- BSE 221

Gen Ed (3) FA, SP, SU
Chem 360 or 368 (3) FA, SP, SU
Coreq- EF 152 or 158 and
Prereq- EF 152 or 158 (4)

Gen Ed (3) FA, SP, SU
Arts Humanities

BSE 424 (3) SP
Gen Ed (3) FA, SP, SU
Social Sciences

BSE 424 (3) SP
Coreq- EF 152 or 158
Prereq- EF 152 or 158 (4)

BSE 400 (2) FA

1) achieve at least a 2.0 GPA in all BSE courses; 2) only one BSE course with a grade of D+ or D may be used toward graduation; 3) no BSE course with a grade of D- may be used for graduation; 4) achieve at least a 2.0 GPA in the required math courses.

Students also have opportunities for an Honors Concentration. See the Undergraduate Catalog for details and requirements.

*Technical Electives- Note that some elective courses require prerequisites. See individual course descriptions for specific information. BSE 525, 529, CEE 681, 683A, 683B, 545, 414, 424, 432, 434, 452, 462, 474, CE 585, 430, 440; CHEM 200 or 208, 360 or 368; ENVE 511, 512, 513, 515, 516, 525, 526, 527, 530, 532, 533, 544, 558, 561, 574; EES 304, 434, 442, 444, 454; Geog 411; Geol 485, 1C 304, Math 300, 411, 431; ME 363 or 367, 368, 369, 370, 405, 451, 465.

BSE Graduation requirements: a) achieve at least a 2.0 GPA in all BSE courses; b) only one BSE course with a grade of D+ or D may be used toward graduation; c) no BSE course with a grade of D- may be used for graduation; d) achieve at least a 2.0 GPA in the required math courses.

Tickle College of Engineering
Biosystems Engineering Catalog 2020
Pre- Professional Concentration

Fall 16 hours
Math 141 or 147 (4) FA, SP
Prep for Math ACT 25 or 27, SAT 660
Chem 105 (5) (SA) SP
Coreq: Math 241 or higher
Chen 132L (4) FA, SP
Prep for Math 132
Engr. 105 (1) FA, SP
English 101 or 118

Spring 17 hours
Math 142 or 148 (4) FA, SP
Prep for Math ACT 25 or 27, SAT 660
Chem 260 or 268 (3) FA, SP, SU
Coreq: EF 152 or 158

Prereq- AE 341/347 with C

BSE 416/418 or CE 495/498 (3) SP

Minimum level- junior
Coreq- BSE 400 and 404
Prereq- Three of BSE 411/417, 416/418, or CE 495, 498, 431/437, 451/457

Cultures & Civilizations

Arts & Humanities

BSE 231 (3) FA
Stats 251 (3) FA, SP, SU

Coreq- EF 152 or 158
Prereq- BSE 221

Gen Ed (3) FA, SP, SU
Chem 360 or 368 (3) FA, SP, SU
Coreq- EF 152 or 158 and
Prereq- EF 152 or 158 (4)

Gen Ed (3) FA, SP, SU
Social Sciences

BSE 424 (3) SP
Gen Ed (3) FA, SP, SU
Arts Humanities

BSE 424 (3) SP
Coreq- EF 152 or 158
Prereq- EF 152 or 158 (4)

BSE 400 (2) FA

1) achieve at least a 2.0 GPA in all BSE courses; 2) only one BSE course with a grade of D+ or D may be used toward graduation; 3) no BSE course with a grade of D- may be used for graduation; 4) achieve at least a 2.0 GPA in the required math courses.

Students also have opportunities for an Honors Concentration. See the Undergraduate Catalog for details and requirements.
<table>
<thead>
<tr>
<th>Fall</th>
<th>15 hours</th>
<th>Math 141 or 147 (4) FA, SP, SU</th>
<th>Gen. Ed. (3) FA, SP, SU</th>
<th>Math 141 or 147 (4) FA, SP, SU</th>
<th>CS 302 (4) FA, SP, SU</th>
<th>Arts and Humanities (3) FA, SP, SU</th>
<th>Sciences (3) FA, SP, SU</th>
<th>Math 141 or 147 (4) FA, SP, SU</th>
<th>Senior Elective* (3) FA, SP, SU</th>
<th>Culture (3) FA, SP, SU</th>
<th>English 101/118 or 131 (3) FA, SP, SU</th>
<th>CS 311 or 317 (3) FA, SP, SU</th>
<th>Math 141 or 147 (4) FA, SP, SU</th>
<th>ECE 202 (3) FA, SP, SU</th>
<th>Math 141 or 147 (4) FA, SP, SU</th>
<th>CS 401 (2) FA, SP, SU</th>
<th>CS Upper Division Elective** (3) FA, SP, SU</th>
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<tbody>
<tr>
<td>Spring</td>
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<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>Gen. Ed. (3) FA, SP, SU</td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>CS 302 (4) FA, SP, SU</td>
<td>Arts and Humanities (3) FA, SP, SU</td>
<td>Sciences (3) FA, SP, SU</td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
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<td>Culture (3) FA, SP, SU</td>
<td>English 101/118 or 131 (3) FA, SP, SU</td>
<td>CS 311 or 317 (3) FA, SP, SU</td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>ECE 202 (3) FA, SP, SU</td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>CS 401 (2) FA, SP, SU</td>
<td>CS Upper Division Elective** (3) FA, SP, SU</td>
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Prerequisites: Students who have had high school computer science and/or who have had significant programming experience (e.g., summer research projects, etc.) are invited to apply during the summer to the ECE Department for permission to take a sophomore year course that is normally reserved for sophomores. Please visit catalog.utk.edu for details and requirements.

Progression: The department requires at least a C in every computer engineering, computer science, electrical engineering, and mathematics course used for the undergraduate degree.

Students also have opportunities for an Honors Concentration and/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.
# Engineering Majors

## Department of Electrical Engineering and Computer Science
### Electrical- Power & Energy Systems Concentration

#### Fall 15 hours
- **ECE 151** or **ECE 157** (4) FA, SP
- **ECE 325** with grade of C or better
- **Industrial Elective** (3) FA, SP
- **Prerequisites:** Math 141 or 147
- **Corequisite:** Math 132 or 141 or 147

#### Fall 15 hours
- **ECE 153** or **ECE 159** (4) FA, SP
- **ECE 351** with grade of C or better
- **Power Elective** (3) FA, SP
- **Prerequisites:** ECE 201 or 202

#### Fall 15 hours
- **ECE 105** (1) FA, SP
- **Cultures and Civilizations**
- **Prerequisites:** ECE 151 or 157

#### Fall 15 hours
- **ECE 201** (3) FA, SP
- **Social Science**
- **Prerequisites:** Math 141 or 147

#### Fall 15 hours
- **Math 141 or 147** (4) FA, SP
- **Arts & Humanities**
- **Prerequisites:** Math 119

#### Fall 15 hours
- **ECE 415 or 421** (3) FA, SP
- **Technical Elective** (3) FA, SP
- **Prerequisites:** ECE 202

#### Fall 15 hours
- **ECE 481** or **ECE 482** (3) FA, SP
- **Power Elective** (3) FA, SP
- **Prerequisites:** Math 141 or 147

#### Fall 15 hours
- **ECE 415** or **ECE 421** (3) FA, SP
- **Technical Elective** (3) FA, SP
- **Prerequisites:** ECE 202

#### Fall 15 hours
- **ECE 401 or 407** (3) FA
- **Technical Elective** (3) FA, SP
- **Prerequisites:** ECE 202

#### Fall 15 hours
- **ECE 335** (3) FA, SP
- **Social Science**
- **Prerequisites:** ECE 202

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# Tickle College of Engineering

## Industrial Engineering Catalog 2020

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# Engineering Majors

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# Tickle College of Engineering

## Tickle College of Engineering

Students also have opportunities for an Honors Concentration and/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.
Nuclear Engineering Majors

Radiological Concentration

Fall
16 hours
Coreq- EF 151 or 157
Coreq- Math 142 or 148
NE 200 (2) FA
Prereq- NE 200 and NE 250
Prereq- Math ACT 28 or Math SAT 660 or 119
Prereq- EF 105 or CS 102
Prereq- CHEM 120 or 128*
Prereq- PHYS 231*
Prereq- NE 233 or 433 & PHYS 232
Prereq- NE 401 and 470
Prereq- NE 200, Math 231 or 237

Spring
15 hours
Social Science
Prereq- Math ACT 28 or Math SAT 660 or 119
Prereq- EF 105 or CS 102
Prereq- CHEM 120 or 128*
Prereq- PHYS 231*
Prereq- NE 233 or 433 & PHYS 232
Prereq- NE 401 and 470
Prereq- NE 200, Math 231 or 237

Fall
16 hours
Arts & Humanities
Prereq- Math ACT 28 or Math SAT 660 or 119
Prereq- EF 105 or CS 102
Prereq- CHEM 120 or 128*
Prereq- PHYS 231*
Prereq- NE 233 or 433 & PHYS 232
Prereq- NE 401 and 470
Prereq- NE 200, Math 231 or 237

Spring
15 hours
Technical Elective *(3) FA, SP, SU

Full Status Progression
A lower-division student may apply for progression to upper division after completing CHEM 120 or 128*, CHEM 130 or 138*, CHEM 132 & 133 or 138 (4) FA, SP, SU, with a grade of C or better in each, and an overall GPA of at least 2.5.

Provisional Status Progression
Students who have completed CHEM 120 or 128*, CHEM 130 or 138*, MATH 132/141/147*, MATH 142/148*, MATH 231/237, EF 151/157*, EF 152/158*, and PHYS 231*, with a grade of C or better in each course and an overall GPA between 2.0 and 2.5 may apply for provisional status. The granting of provisional status is dependent upon this performance. Students who have not progressed to upper-division will be dropped from departmental courses.

Students also have opportunities for an Honors Concentration and a five year BS/MS program. See the Undergraduate Catalog for details and requirements.

Students are strongly recommended to meet with their faculty advisor every semester.

Nuclear Graduation Requirements
Students also have opportunities for an Honors Concentration and a five year BS/MS program. See the Undergraduate Catalog for details and requirements.

Tickle College of Engineering

Nuclear Engineering Catalog 2020

Electrical & Computer Engineering

Student Guidebook 2020-2021 • catalog.utk.edu
Undergraduate Minors

Herbert College of Agriculture
- Agricultural leadership
- Animal science
- Biosystems engineering technology
- Entomology and plant pathology
- Environmental and soil sciences
- Food and agricultural business
- Forestry
- Honors food, agricultural, natural resource, and human sciences
- International agriculture and natural resources
- Natural resource and environmental economics
- Plant sciences
- Watershed
- Wildlife and fisheries science

Tickle College of Engineering
- Mechanical engineering
- Nuclear engineering and environmental management
- Nuclear safety
- Reliability & maintainability engineering

College of Arts and Sciences
- African studies
- Anthropology
- Arab studies
- Art history
- Art studio
- Astronomy
- Biological sciences
- Chemistry
- Chinese
- Cinema studies
- Classical archaeology
- Classical civilization
- Classics (Greek or Latin)
- Climate Change
- Economics
- English
- English technical communication
- Environmental studies
- French and Francophone studies
- Geography (Information Science) or Urban Studies
- Geology
- German
- Global studies
- Hebrew
- Italian
- Japanese
- Judaic studies
- Latin American and Caribbean studies
- Linguistics
- Mathematics (honors)
- Medieval and Renaissance studies
- Middle East studies
- Music (except composition, culture & theory)
- Music Business
- Neuroscience
- Philosophy
- Physics
- Physics — five-year BS/MS
- Political science
- Portuguese
- Psychology
- Religious studies
- Religious studies — religion and nonprofit leadership
- Russian and East European studies
- Russian literature in translation
- Spanish (Hispanic studies)
- Sociology (environmental issues and globalization)
- Statistics
- Sustainability
- Theatre
- VolsTeach math
- VolsTeach science
- Women, gender, and sexuality

Howard H. Baker Jr. Center for Public Policy
- Public policy analytics

College of Business
- Business administration
- Entrepreneurship
- Social entrepreneurship

College of Communication and Information
- Communication studies
- Information sciences
- Journalism & electronic media

College of Education, Health, and Human Sciences
- American Sign Language
- Art education
- Child and family studies
- Elementary education
- English as a second language education
- Leadership studies
- Leadership studies (honors)
- Mathematics education (grades 6-8)
- Nutrition
- Public health
- Restaurant and food service management
- Retail and consumer sciences
- Retail technology
- Science education (grades 6-8)
- Secondary education
- Tourism and hospitality management
- VolsTeach mathematics or science
- World language education

Haslam College of Business
- Business administration
- Entrepreneurship
- Social entrepreneurship

Tickle College of Engineering
- Aerospace engineering
- Biomedical engineering
- Computer science (not open to computer engineering)
- Concepts of cybersecurity (not for EEC5 majors)
- Cybersecurity (for EEC5 majors)
- Datacenter technology & management (for EEC5, IE, and ME majors)
- Engineering entrepreneurship
- Environmental engineering
- Honors engineering leadership

Materials science & engineering

Tickle College of Engineering
- Agricultural leadership
- Animal science
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- Entomology and plant pathology
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- Food and agricultural business
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- Honors food, agricultural, natural resource, and human sciences
- International agriculture and natural resources
- Natural resource and environmental economics
- Plant sciences
- Watershed
- Wildlife and fisheries science

College of Architecture and Design
- Architectural studies
- Design studies
- Industrial design
- Interior architecture studies

College of Communication and Information
- Communication studies
- Information sciences
- Journalism & electronic media

College of Education, Health, and Human Sciences
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- VolsTeach math
- VolsTeach science
- Women, gender, and sexuality

Howard H. Baker Jr. Center for Public Policy
- Public policy analytics

Pre-Health Information

All Pre-Health Advising takes place in the Arts & Sciences Advising Center, 313 Ayres Hall, 865-974-4481. Advisors are available in Arts and Sciences Advising Services to assist pre-medical students as they plan their programs. When a student declares a major, he/she should obtain an advisor in the department of the declared major, but should continue to consult with the pre-medical advisors in Arts and Sciences Advising Services about the pre-medical program. Students who are currently enrolled in another college, i.e., Engineering or Architecture, are required to take the following minimum courses for most medical schools:
- English 101-102
- Biology 150-160 or Honors 158-168, and Lab 159
- Chemistry 210-215 or Honors 128-138
- Chemistry 260-269 and 360-359 or Honors 268-269 and 368-359
- Physics 211-222 (Physics 231-232 for engineering students only)

The following courses are not required by medical schools, but their content is included on MCAT.
- Biology 240
- Biochemistry and Molecular Biology 401
- Psychology 110, Sociology 120

Note that many of these courses have prerequisites and that the courses listed above constitute the minimal requirements for most medical schools. Pre-medical students are strongly urged to consult with a health professions advisor on a regular basis in 313 Ayres Hall. Students will want to verify with the medical schools of interest for specific requirements beyond what is listed here.

Selection Criteria at UT Health Science Center

1. Successful completion of the pre-medical requirements with grades of C or better earned in each course.
2. Letters of evaluation from three faculty members who have a good awareness of the student’s ability.
3. Experience in/exposure to the health field.
4. Total academic performance, with attention given to course content and load, trends in performance, and general commitment to scholarship.
5. Satisfactory scores on the Medical College Admission Test (MCAT).
6. Personal interview with two members of the Committee on Admissions.

Applicants will be invited for interviews after their applications have been reviewed by the committee.

Committee on Admissions. (Competitively qualified applicants will be invited for interviews after their applications have been reviewed by the committee.)

Other criteria such as extracurricular activities; motivation and goals; research experience; the morals, character, and integrity of the individual; and any disciplinary or civil records that a person may have accrued.

Please note that high GPA and MCAT scores are not by themselves a sufficient basis for entrance into medical school. The committee on Admissions takes a close look at the total experience of the applicant in making its final decisions. In addition, the Committee on Admissions reserves the right to require additional course work from any applicant. Correspondence course work must be approved prior to scheduling.

Pre-Professional File

During the junior year, pre-med students should attend a pre-professional file meeting to learn about setting up the pre-professional file. Group meetings are scheduled weekly in Arts and Sciences Advising Services, 313 Ayres Hall. In the meeting, students are given information on pre-professional evaluations, AMCAS, and other aspects of the medical school application process. The most important aspect of the file is the letters of evaluation from faculty members who are familiar with the student’s aptitude, ability, and personal characteristics. Two of the evaluations should come from faculty members teaching in science-based disciplines. Students should make every effort to become well acquainted with their professors prior to requesting the evaluations. Once the file has been started, students should maintain contact with the health professions assistant to periodically check on the file and to provide updated contact information. For the purposes of AMCAS, the file prepared in Arts & Sciences is considered a letter packet, and the primary contact for the packet is the chair of the health professions, Shanna Pendergraft.

Alpha Epsilon Delta

Alpha Epsilon Delta (AED) is a pre-health honor society that seeks to provide information and opportunities for students with an interest in the health professions. The Tennessee Beta Chapter of AED is active at The University of Tennessee. AED activities include informational sessions on preparing to apply to professional schools, local speakers from the medical community, trips to Tennessee medical schools, health centers, and service activities. The schedule of meetings is available at aedutk.wixsite.com/aed-utk.

Requirements for membership include three terms of college (at least one at UTK), a cumulative GPA of 3.2, a science GPA of 3.2, and participation in AED sponsored events and meetings. Students interested in joining AED should apply for membership at the beginning of fall term. Applications are available in Arts and Sciences Advising Services, 313 Ayres Hall, and at the organizational Web site.

Any pre-health student, regardless of membership, may participate in the programs sponsored by AED. Pre-health students wishing to receive notification of pre-health activities and AED events should send an e-mail to asadvising@utk.edu to request to be added to the pre-health distribution list.

Distribution List

Pre-health students should contact Arts & Sciences Advising Services at asadvising@utk.edu at their earliest convenience to request to be added to the pre-health distribution list. Students on the distribution list are routinely updated about pre-health programming, announcements, and opportunities relevant to the health professions.
Cook Grand Challenge Honors Program

Admission

Admission as a first year student to the Cook Grand Challenge Honors Program and Honors Concentrations by invitation, which is extended by the engineering dean’s office to students meeting rigorous academic standards in their high school coursework.

Requirements

Coursework

• Four 100- or 200-level honors courses (14 hours minimum, at least two courses must be from Engineering Fundamentals, Physics, Math, Chemistry, or Biology, Statistics or MSE 207).

• Two upper-division honors courses ($300 or 400 level) in your major (6 hours minimum)

GPA

Maintain a 3.4 cumulative GPA. (Some programs also require an average 3.4 GPA in all courses in your major. Refer to the Undergraduate Catalog for details.)

Breadth

An honors student is expected to broaden their undergraduate experience beyond a prescribed curriculum. Cook Grand Challenge Honors Program/Honors Concentration students must satisfy two of the five National Academy of Engineering’s (NAE) Grand Challenge Scholars requirements listed below. One of these must be at an Intermediate level and the other at an Introductory level.

Additional Opportunity for Engineering Honors Students

The Grand Challenge Scholars Program is for students who wish to build a broad level of experience in all the NAE areas into their undergraduate program. It requires one extensive experience, two intermediate experiences, and two introductory experiences. A qualified research experience must be related to one of the 14 NAE Grand Challenges.

Cook Grand Challenge Honors Program

National Scholarships and Fellowships

The Office of National Scholarships and Fellowships (ONSF) exists to both inform and mentor students who wish to apply for nationally competitive scholarships and fellowships like the Truman, Rhodes, Marshall or Fulbright. We also assist outstanding undergraduates who wish to apply for Rotary Ambassadorial, Goldwater and Udall Scholarships.

ONSF will work with students to determine what fellowship would best fit their interests. Once students have decided to apply, we will assist them with the application process. To apply for most scholarships administered by our office, students need to begin the application process over a year before the scholarship period begins.

For more about each of the scholarships handled by the ONSF, visit at 317 Grele Hall or call 865-974-3518 to schedule an appointment. Visit online at onsf.utk.edu.

ORNL Summer Research and Internship

There exist numerous opportunities for undergraduates to supplement their academic learning with real world experience. The Chancellor’s Office and Oak Ridge National Laboratory (ORNL) each sponsor summer internship programs designed to promote research and creative activity among undergraduate students. The Department of Energy (DOE) also sponsors summer and semester length opportunities.

The role of the faculty mentor is paramount in these programs as they will provide guidance in the choice of a project and in the practice of professional approaches and methods. Projects proposed may be a student’s undergraduate thesis, a part of the faculty mentor’s research program, another research project or an ongoing project begun previously. The key is that the student be involved in actual scholarly work independent of a classroom setting.

For more information visit the website at www.ornl.gov.

For more honors and research information, contact:

Kevin Kilt
Engineering Honors Director
322 Perkins Hall
865-974-9784
kkilt@utk.edu

Office of Undergraduate Research

Marisa Moazen
109 Melrose Hall
865-974-8560
ugresearch.utk.edu

Cook Grand Challenge Honors Program

Breadth Requirement Experience Levels for Honors Concentration

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Extensive</th>
<th>Intermediate</th>
<th>Introductory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>Completion of a three-semester-long undergraduate research experience. Must result in a mentor-approved paper or poster which is presented at EUReCA, UT Honors Symposium, or other venue approved by the Honors director.</td>
<td>Completion of a two-semester-long undergraduate research experience. Must result in a mentor-approved paper or poster which is presented at EUReCA, UT Honors Symposium, or other venue approved by the Honors director.</td>
<td>Completion of a one-semester-long undergraduate research experience. Must result in a mentor-approved paper or poster which is presented at EUReCA, UT Honors Symposium, or other venue approved by the Honors director.</td>
</tr>
<tr>
<td>GPA</td>
<td>Maintain a 3.4 cumulative GPA. (Some programs also require an average 3.4 GPA in all courses in your major. Refer to the Undergraduate Catalog for details.)</td>
<td>Maintain a 3.4 cumulative GPA. (Some programs also require an average 3.4 GPA in all courses in your major. Refer to the Undergraduate Catalog for details.)</td>
<td>Maintain a 3.4 cumulative GPA. (Some programs also require an average 3.4 GPA in all courses in your major. Refer to the Undergraduate Catalog for details.)</td>
</tr>
</tbody>
</table>

Honors website: honors.tickle.utk.edu

Cook Grand Challenge Honors Program
Heath Integrated Business & Engineering Program

Tickle students participating in IBEP will:

- Receive a Heath IBEP program scholarship package
- Attend distinguished alumni and leadership seminars
- Combine in-depth strategy and decision making processes
- Tour manufacturing facilities
- Apply learning with joint business and engineering real-world and CAPSTONE projects
- Receive individual mentorship with executives

Admissions criteria:

- An admissions committee, made up of members from both the Haslam College of Business and the Tickle College of Engineering, will evaluate students during the spring of their first year.

Admissions considerations:

- Info sessions will be held during the fall and spring semesters
- No special math or science coursework is required

Learn more:

integrate.utk.edu
integrate@utk.edu

Advanced Placement

<table>
<thead>
<tr>
<th>Subject</th>
<th>AP Score</th>
<th>Credit Given</th>
</tr>
</thead>
<tbody>
<tr>
<td>American History</td>
<td>4 or 5</td>
<td>History 221-222</td>
</tr>
<tr>
<td>Biology</td>
<td>1</td>
<td>Biology 101</td>
</tr>
<tr>
<td>Biology</td>
<td>4</td>
<td>Biology 101-102</td>
</tr>
<tr>
<td>Biology</td>
<td>5</td>
<td>Biology 101-102 and 160</td>
</tr>
<tr>
<td>Calculus AB</td>
<td>3</td>
<td>Math 125</td>
</tr>
<tr>
<td>Calculus AB</td>
<td>4</td>
<td>Math 141</td>
</tr>
<tr>
<td>Calculus AB</td>
<td>5</td>
<td>Math 147</td>
</tr>
<tr>
<td>Calculus BC</td>
<td>3</td>
<td>Math 141</td>
</tr>
<tr>
<td>Calculus BC</td>
<td>4</td>
<td>Math 141-142</td>
</tr>
<tr>
<td>Calculus BC</td>
<td>5</td>
<td>Math 147-148</td>
</tr>
<tr>
<td>Chemistry</td>
<td>4 or 5</td>
<td>Chemistry 120-130</td>
</tr>
<tr>
<td>Chinese Language and Culture</td>
<td>4 or 5</td>
<td>Chinese 131-132</td>
</tr>
<tr>
<td>Computer Science Principles</td>
<td>4 or 5</td>
<td>Computer Science 100</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Students admitted for Fall 2020-2020</td>
</tr>
<tr>
<td>Economics - Microeconomics</td>
<td>3, 4, or 5</td>
<td>Economics 211</td>
</tr>
<tr>
<td>Economics - Macroeconomics</td>
<td>3, 4, or 5</td>
<td>Economics 213</td>
</tr>
<tr>
<td>English Language &amp; Composition</td>
<td>4 or 5</td>
<td>English 101</td>
</tr>
<tr>
<td>English Literature &amp; Composition</td>
<td>4 or 5</td>
<td><em>Students admitted fall 2016, credit for English 101</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Students admitted prior to fall 2016, credit for English 101-102</em></td>
</tr>
<tr>
<td>Environmental Science</td>
<td>3</td>
<td>Geology 201</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>4 or 5</td>
<td>Geology 201-202</td>
</tr>
<tr>
<td>European History</td>
<td>4 or 5</td>
<td>History 242</td>
</tr>
<tr>
<td>French Language and Culture</td>
<td>3</td>
<td>French 211-212</td>
</tr>
<tr>
<td>French Language and Culture</td>
<td>4 or 5</td>
<td>French 212-213</td>
</tr>
<tr>
<td>German Language and Culture</td>
<td>4 or 5</td>
<td>German 311-312</td>
</tr>
<tr>
<td>German Language and Culture</td>
<td>3</td>
<td>German 211-212</td>
</tr>
<tr>
<td>Government and Politics - Comparative Exam</td>
<td>2014 exams and prior, 3, 4, or 5; 2015 and later, 4 or 5</td>
<td>Political Science 102</td>
</tr>
<tr>
<td>Government and Politics - US Exam</td>
<td>2014 exams and prior, 3, 4, or 5; 2015 and later, 4 or 5</td>
<td>Political Science 101</td>
</tr>
<tr>
<td>Human Geography</td>
<td>4 or 5</td>
<td>Geography 121</td>
</tr>
<tr>
<td>Japanese Language and Culture</td>
<td>3 or 4</td>
<td>Japanese 251-252</td>
</tr>
<tr>
<td>Japanese Language and Culture</td>
<td>5</td>
<td>Japanese 251-252</td>
</tr>
<tr>
<td>Latin</td>
<td>3, 4, or 5</td>
<td>Classics 251-252</td>
</tr>
<tr>
<td>Music Theory – Aural Subscore</td>
<td>4</td>
<td>Music Theory 130</td>
</tr>
<tr>
<td>Music Theory – Aural Subscore</td>
<td>5</td>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td>Music Theory – Nonaural (written) Subscore</td>
<td>4</td>
<td>Music Theory 110</td>
</tr>
<tr>
<td>Music Theory – Nonaural (written) Subscore</td>
<td>5</td>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td>Physics I</td>
<td>4 or 5</td>
<td>Physics 221</td>
</tr>
<tr>
<td>Physics II</td>
<td>4 or 5</td>
<td>Physics 222</td>
</tr>
<tr>
<td>Physics C - E &amp; M</td>
<td>5</td>
<td>Physics 102 or 222, 231</td>
</tr>
<tr>
<td>Physics C - E &amp; M</td>
<td>4</td>
<td>Physics 101 or 161 or 221</td>
</tr>
<tr>
<td>Physics C - Mechanics</td>
<td>5</td>
<td>Psychology 110</td>
</tr>
<tr>
<td>Physics C - Mechanics</td>
<td>4</td>
<td>Spanish 211-212</td>
</tr>
<tr>
<td>Spanish Language or Literature</td>
<td>3</td>
<td>Spanish 212 and 311</td>
</tr>
<tr>
<td>Statistics</td>
<td>4 or 5</td>
<td>Statistics 201</td>
</tr>
<tr>
<td>World History: Modern</td>
<td>4 or 5</td>
<td>2020 exam-present, credit for History 262</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2019 exam and prior, credit for History 261-262</td>
</tr>
</tbody>
</table>
### International Baccalaureate (IB) Exam Credit

<table>
<thead>
<tr>
<th>Subject</th>
<th>IB Score</th>
<th>Credit Given</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology (higher level)</td>
<td>5+</td>
<td>Biology 101-102</td>
</tr>
<tr>
<td>Business &amp; Management (standard or higher)</td>
<td>5+</td>
<td>Management 201</td>
</tr>
<tr>
<td>Chemistry (higher level)</td>
<td>5+</td>
<td>Chemistry 120-130</td>
</tr>
<tr>
<td>Computer Science (higher level)</td>
<td>7</td>
<td>Computer Science 102</td>
</tr>
<tr>
<td>Economics (standard and higher level)</td>
<td>5+</td>
<td>Economics 211, 213</td>
</tr>
<tr>
<td>English (A1 exam)</td>
<td>5</td>
<td>English 101</td>
</tr>
<tr>
<td>English (A1 exam)</td>
<td>6+</td>
<td>English 101-102</td>
</tr>
<tr>
<td>English (A2 and B exam)</td>
<td>N/A</td>
<td>No credit</td>
</tr>
<tr>
<td>Environmental Systems and Societies (standard level)</td>
<td>4+</td>
<td>Geology 202</td>
</tr>
<tr>
<td>Film (higher level)</td>
<td>5+</td>
<td>Cinema Studies LD (3 credit hours)</td>
</tr>
<tr>
<td>French (standard level)</td>
<td>5+</td>
<td>French 212</td>
</tr>
<tr>
<td>French (higher level)</td>
<td>5+</td>
<td>French 212, 333</td>
</tr>
<tr>
<td>Geography (standard and higher level)</td>
<td>4+</td>
<td>Geography 121</td>
</tr>
<tr>
<td>German (standard level)</td>
<td>4</td>
<td>German 211-212</td>
</tr>
<tr>
<td>German (higher level)</td>
<td>4+</td>
<td>German 211-212 or German 311-312 or German 321-322</td>
</tr>
<tr>
<td>History (higher level)</td>
<td>4+</td>
<td>History LD-LD (3 credit hours)</td>
</tr>
<tr>
<td>Informational Technology in a Global Society</td>
<td>4+</td>
<td>Geography 111</td>
</tr>
<tr>
<td>Latin (standard level)</td>
<td>5+</td>
<td>Latin 251-252</td>
</tr>
<tr>
<td>Latin (higher level)</td>
<td>4+</td>
<td>Latin 251-252</td>
</tr>
<tr>
<td>Math (higher level)</td>
<td>4+</td>
<td>Mathematics 141-142 plus 4 hours LD Math Credit (3 credit hours)</td>
</tr>
<tr>
<td>Music (solo performance, music creating music group performance)</td>
<td>6+</td>
<td>Musicology 110</td>
</tr>
<tr>
<td>Philosophy (higher level)</td>
<td>4+</td>
<td>Philosophy 101</td>
</tr>
<tr>
<td>Physics (higher level)</td>
<td>4+</td>
<td>Physics 221</td>
</tr>
<tr>
<td>Physics (higher level 2)</td>
<td>4+</td>
<td>Physics 222</td>
</tr>
<tr>
<td>Physics DP (higher level)</td>
<td>4+</td>
<td>Physics 221-222</td>
</tr>
<tr>
<td>Psychology (standard or higher level)</td>
<td>4+</td>
<td>Psychology 110</td>
</tr>
<tr>
<td>Social and Cultural Anthropology</td>
<td>4+</td>
<td>Anthropology 130</td>
</tr>
<tr>
<td>Spanish (higher level)</td>
<td>4+</td>
<td>Spanish 211-212</td>
</tr>
<tr>
<td>Sports, Exercise &amp; Health Science (higher level)</td>
<td>5+</td>
<td>Kinesiology LD (3 credit hours)</td>
</tr>
<tr>
<td>Theatre (higher level)</td>
<td>4+</td>
<td>Theatre 100 and Theatre LD (3 credit hours)</td>
</tr>
<tr>
<td>Visual Arts (higher level)</td>
<td>5+</td>
<td>Art LD (3 credit hours)</td>
</tr>
<tr>
<td>World Religions (standard level)</td>
<td>4+</td>
<td>Religious Studies LD (3 credit hours)</td>
</tr>
</tbody>
</table>

### Placement Exams/Math

#### Freshman Math Placement

Based on ACT Math or SAT Math Placement Scores

<table>
<thead>
<tr>
<th>Math ACT</th>
<th>Math SAT</th>
<th>Math Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 to 27</td>
<td>590 to 650</td>
<td>Math 131 Calculus 1A infused with Pre Calculus</td>
</tr>
<tr>
<td>28 to 31</td>
<td>660 to 710</td>
<td>Math 141 Calculus 1</td>
</tr>
<tr>
<td>32 or higher</td>
<td>720 or higher</td>
<td>Math 147 Honors Calculus 1</td>
</tr>
</tbody>
</table>

Adjustments to Placement:
1. AP/IB/CLEP/Statewide Dual Credit Challenge Exam/Dual Enrollment credits in Math trump the ACT Math/SAT Math placements.
2. Take the online placement test through the UT Math Department website (www.math.utk.edu). There are two tests. Engineering students take the Level 4 (Math 141) test. The test may be repeated three times. Use the online remediation system to review and then (re)take the placement test. The system is adaptive to the math elements needed for success.

#### Engineering Math courses

Engineering students must be taking either Math 132 or Math 141 (or higher) to be eligible for Engineering Fundamentals 151 or 157.

<table>
<thead>
<tr>
<th>Math Courses based on ACT Math 25 to 27 or SAT Math 590 to 650:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 131 Calculus 1A Infused with pre-calculus 3 credit hours</td>
</tr>
<tr>
<td>Math 132 Calculus 1B Infused with pre-calculus 3 credit hours</td>
</tr>
<tr>
<td>Math 142/148 Cal II/Honors 4 credit hours</td>
</tr>
<tr>
<td>Math 241/247 Cal III/Honors 4 credit hours</td>
</tr>
<tr>
<td>Math 231/237 Diff. Eq./Honors 3 credit hours</td>
</tr>
<tr>
<td>Math 251/257 Matrix Algebra 1 Honors 3 credit hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Math Courses based on ACT Math 28 or higher/SAT Math 660 or higher:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 141/147 Cal I/Honors 4 credit hours</td>
</tr>
<tr>
<td>Math 142/148 Cal II/Honors 4 credit hours</td>
</tr>
<tr>
<td>Math 241/247 Cal III/Honors 4 credit hours</td>
</tr>
<tr>
<td>Math 231/237 Diff. Eq./Honors 3 credit hours</td>
</tr>
<tr>
<td>Math 251/257 Matrix/Honors 3 credit hours</td>
</tr>
</tbody>
</table>
First-Year Composition Placement
1. Regular Sequence: English 101 (Fall) + English 102 (Spring). Students may not take English 102 before passing English 101.
3. Honors Sequence: English 118 (Fall) + 200-level English course or English 355 (Spring). Students placed into 118 by ACT or SAT scores—see below. Not for Chancellor's Honors Program students. (Note: students who get a passing grade of B- or below in English 118 must take English 102 in Spring).
4. Chancellor's Honors Sequence: English 198 (Fall) + English 298 (Spring). Limited to students in the Chancellor's Honors Program.
5. AP Credit Sequence: Credit for AP 1 through AP 6 in the Language and Composition exam gives credit for English 101 only. Students must take English 102 and English 103 to complete the First-Year Composition requirement.
Note: CLEP credit is not accepted for the First-Year Composition requirement.

General Education Requirements
Arts and Humanities (2 courses)
Taking two courses from the list below satisfies this requirement.

- Approved Arts and Humanities (AH) Courses

1. Africana Studies
   - 194: Art in Oceanica and Pre-Columbian America
   - 225: Introduction to African Literature
   - 226: Introduction to Caribbean Literature
   - 231: Major Black Writers
   - 251: Whole World: Worlds, Fantasy, Sci-fi, and Dystopia in the Middle East
   - 270: Witches: Myth, Reality, Representation

2. Classical Studies
   - 200: Introduction to Drama
   - 251: Introduction to Poetry
   - 252: Introduction to Drama
   - 253: Introduction to Fiction
   - 254: Themes in Literature
   - 258: Honors: Introduction to Fiction
   - 259: Introduction to Film Studies
   - 260: Science Fiction and Fantasy
   - 289: Literature of the English Bible

3. German
   - 223: German Film Survey

4. Hebrew
   - 270: Witches: Myth, Reality, Representation

5. Greek
   - 200: Introduction to Drama

6. Japanese
   - 260: Introduction to the Study of Agriculture and Natural Resources

7. Korean
   - 200: Introduction to Drama

8. Latin
   - 281: Introduction to Film Studies

9. Italian
   - 200: Introduction to Drama

10. Portuguese
    - 281: Introduction to Film Studies

11. Russian
    - 200: Introduction to Drama

12. Spanish
    - 281: Introduction to Film Studies

13. Turkish
    - 200: Introduction to Drama

14. Vietnamese
    - 200: Introduction to Drama

International Students/Non-Native English Speakers

ACT Scores SAT Scores
At or above 18 English & At or above 29 English & Fall Placement 18 Composite 18 Composite 1101 McClung Tower 1101 McClung Tower
At or below 18 English & At or above 29 English & Fall Placement 18 Composite 18 Composite 1101 McClung Tower 1101 McClung Tower
English 19-28 & Composite 19-28 At or above 29 English & Fall Placement 29 Composite 29 Composite 1101 McClung Tower 1101 McClung Tower
Verbal 450-680 & Composite 850-1280

Placement Exam

All students planning to enroll in a French, German, Latin, or Spanish course who have completed at least two years of this language in high school and have not yet taken a college course in the language must take a UF placement exam before enrolling. This rule does not apply to students who have received AP credit in the language.

International Students/Non-Native English Speakers

General Education Requirements
Arts and Humanities (2 courses)
Taking two courses from the list below satisfies this requirement.

- Approved Arts and Humanities (AH) Courses

1. Africana Studies
   - 194: Art in Oceanica and Pre-Columbian America
   - 225: Introduction to African Literature
   - 226: Introduction to Caribbean Literature
   - 231: Major Black Writers
   - 251: Whole World: Worlds, Fantasy, Sci-fi, and Dystopia in the Middle East
   - 270: Witches: Myth, Reality, Representation

2. Classical Studies
   - 200: Introduction to Drama

3. German
   - 223: German Film Survey

4. Hebrew
   - 270: Witches: Myth, Reality, Representation

5. Greek
   - 200: Introduction to Drama

6. Japanese
   - 260: Introduction to the Study of Agriculture and Natural Resources

7. Korean
   - 200: Introduction to Drama

8. Latin
   - 281: Introduction to Film Studies

9. Italian
   - 200: Introduction to Drama

10. Portuguese
    - 281: Introduction to Film Studies

11. Russian
    - 200: Introduction to Drama

12. Spanish
    - 281: Introduction to Film Studies

13. Turkish
    - 200: Introduction to Drama

14. Vietnamese
    - 200: Introduction to Drama

International Students/Non-Native English Speakers

ACT Scores SAT Scores
At or above 18 English & At or above 29 English & Fall Placement 18 Composite 18 Composite 1101 McClung Tower 1101 McClung Tower
At or below 18 English & At or above 29 English & Fall Placement 18 Composite 18 Composite 1101 McClung Tower 1101 McClung Tower
English 19-28 & Composite 19-28 At or above 29 English & Fall Placement 29 Composite 29 Composite 1101 McClung Tower 1101 McClung Tower
Verbal 450-680 & Composite 850-1280

Placement Exam

All students planning to enroll in a French, German, Latin, or Spanish course who have completed at least two years of this language in high school and have not yet taken a college course in the language must take a UF placement exam before enrolling. This rule does not apply to students who have received AP credit in the language. The score on the exam will determine placement in the appropriate course. Ordinarily, a student will not be allowed to enroll in a course at a level above that determined by his/her placement exam score.

Transition Course

Some students who have had two years of the same language in high school and receive a placement score below the level required for admission into intermediate-level language courses may be placed in a 150 language course. These courses are designed to prepare students for enrollment in intermediate-level foreign language courses and count as elective credit. Students who receive credit for this course may not receive credit for any other 100-level course of the same language.
Courses

Approved Cultures and Civilizations (CC)

This requirement is satisfied by either

(2 courses)

Cultures and Civilizations

General Education Requirements

(3) taking a six-hour intensive foreign language course at the intermediate level.

(2) taking a two-course sequence

1. taking two courses from the following

- HIST 268: Honors History of World History
- HIST 267: Honors History of World History
- HIST 262: History of World Civilization
- HILA 256: Modern Latin America and Caribbean Studies
- HILA 255: Early Latin America and Caribbean Studies
- HIEU 248: Honors Development of Western Civilization
- HIEU 247: Honors Development of Western Civilization
- HIAA 255: Early Latin American and Caribbean Studies
- HIST 261: History of World Civilization
- HIST 262: History of World Civilization
- HIST 267: Honors History of World Civilization
- HIST 268: Honors History of World Civilization

Latin America and Caribbean Studies

- 251: Early Latin American and Caribbean History
- 252: Modern Latin American and Caribbean History

Medieval and Renaissance Studies

- 201: Medieval Civilization I
- 202: Medieval Civilization II

Modern Foreign Languages and Literatures

- 200: Topics in International Literatures and Cultures

Plant Sciences

- 115: Plants That Changed the World
- 491: International Study: History and Culture of International Gardens and Landscapes

Religious Studies

- 101: World Religions in History
- 102: Comparison of World Religions

Retail & Consumer Sciences

- 225: Fashion and Culture

Sociology

- 250: Introduction to Global Studies

University Honors

- 277: Special Topics in Cultures and Civilizations
- 278: Special Topics in Cultures and Civilizations

Intermediate Foreign Language Courses

American Sign Language

- 211 and 212: Intermediate American Sign Language I and II

Arabic

- 221 and 222: Intermediate Arabic I and II

Asian Studies

- 261 and 262: Intermediate Persian I and II

Chinese

- 231 and 232: Intermediate Chinese I and II

Classics

- 251 and 252: Intermediate Latin I and II
- 261: Intermediate Greek: Grammar Review and Readings
- 264: Intermediate Greek: Epic Poetry

French

- 211 and 212: Intermediate French I and II
- 217 and 218: Honors Intermediate French I and II

German

- 211 and 212: Intermediate German I and II

Hebrew

- 241 and 242: Intermediate Modern Hebrew I and II

Italian

- 211 and 212: Intermediate Italian I and II

Japanese

- 251 and 252: Intermediate Japanese I and II

Persian

- 261 and 262: Intermediate Persian I and II

Portuguese

- 211 and 212: Intermediate Portuguese

Religious Studies

- 221 and 222: Intermediate Biblical Hebrew I and II

Russian

- 201 and 202: Intermediate Russian

Spanish

- 211 and 212: Intermediate Spanish I and II
- 217 and 218: Honors Intermediate Spanish I and II

Intensive Intermediate Foreign Language Courses

(6 credit hours)

French

- French 223

German

- German 223

Italian

- Italian 223

Portuguese

- Portuguese 223

Spanish

- Spanish 223

For a complete listing of all approved courses, please reference the extensive list online in the Undergraduate Catalog, catalog.utk.edu.
General Education Requirements in Engineering

*General Education Requirements by Major
See catalog.utk.edu for the University of Tennessee General Education Requirements

Communication Through Writing:
- Aerospace - AE 449
- Biomedical - BME 449
- Biosystems - English 360
- Chemical - CBE 415
- Civil - CE 205
- Computer, Electrical - ECE 402
- Computer Science - CS 402
- Industrial - IE 350, 422
- Materials Science - MSE 304 or 405
- Mechanical - ME 449
- Nuclear - NE 401, 402, 427

Cultures and Civilizations:
Students may satisfy Cultures and Civilizations in one of two ways: intermediate proficiency in a foreign language, demonstrated by credit for the 200-level sequence in the foreign language, OR two completed courses from the Cultures and Civilizations list from the catalog. The Tickle College of Engineering does NOT require foreign language, but students are welcome to use intermediate proficiency in foreign language to satisfy this requirement.

Communicating Orally:
- Aerospace – AE 210
- Biomedical – Choose from list in catalog
- Biosystems – BSE 404
- Chemical – CBE 488 or 490
- Civil – CE 205
- Computer, Electrical – ECE 402
- Computer Science – CS 402
- Industrial – IE 422
- Materials Science – MSE 489
- Mechanical – ME 210
- Nuclear – NE 400

Degree Audit Report System (DARS)

What it is, what it does, and how to use it:
UT students have access to the Degree Audit Report System (DARS), which allows you to look at the credits you have on your academic history and see how they fit into the specific requirements of your major. While it defaults to your currently declared major, you can also use this system to look at any major or minor offered at UT to see how your courses would fit into those programs.
It is important for you to be able to run and interpret your DARS report because this system is the one the registrar uses to check whether or not you have met all the specific requirements for your major in order to graduate. So, it is your responsibility to learn how to use the system. These pages will give you the basics on how to access the system and run your report.

To access DARS:
Step 1
Log into my.utk.edu and then click on the DARS and uTrack link under the Academic Resources heading.

Step 2
Once in DARS, click on the “Run Audit” box to begin the process.

Step 3
Your declared degree program, along with any second majors or minors you are also doing, will now appear on the list of audits you have requested. To run the report, you would just click on the button that says “Run Declared Programs.”

By the way: If you wish to look at a different program, then all you have to do is give the DARS system the appropriate information about that major and then run that report instead.
Step 4
Once you open your DARS report, you should click on the printer friendly icon, so that the full report opens up and you can see all the requirements under each tab of the report.

Step 5
As you scroll through the report, you will notice that the tabs have different colors. Tabs that are GREEN mean that that degree requirement is completed. Tabs that are RED show which requirements you have not yet met for your degree, and the DARS report shows which courses are still required to meet that particular requirement for your degree. Tabs that are BLUE show course requirements that you are finishing during the current semester.

Step 6
Finally, any course credits you have that do not fulfill requirements for your degree are listed at the bottom of the DARS report. Likewise, any course you withdrew from or did not pass is also listed at the bottom of the report.

UTrack Information

Universal Tracking (UTracK)
Universal Tracking (UTracK) is an academic monitoring system designed to help students stay on track for timely graduation.

Policy
1. Students must declare a major or exploratory track at the time they are admitted to the university. Some majors have a competitive admissions process.
2. All students must transition out of exploratory tracks into a major track no later than the end of the fourth tracking semester at UT.
3. Students who are off track must develop an advisor-approved plan for getting back on track before they will be allowed to register for future tracking semesters.
4. Students who are off track for two consecutive semesters will have a hold placed on their registration and must meet with a new advisor in one of the advising centers no later than the end of the “add” period of the next tracking term to select a new major that is better aligned with the student’s abilities.

Definitions

Exploratory Tracks
- College-Level Exploratory—Students who are deciding among one or more majors that are all offered by the same college follow an exploratory track for that college (e.g., Arts and Sciences Exploratory, Business Exploratory, etc.)
- University Exploratory—Students who have no clear idea of which major to pursue and/or those who are trying to decide among majors that are not in a single college follow the University Exploratory track.

Milestones—in order to remain on track for a major or exploratory area, students must complete minimum requirements for each tracking semester known as milestones. Milestones include successful completion of specified courses and/or attainment of a minimum GPA.

Tracking Semesters—Only fall and spring semesters are tracking semesters. Mini and summer semesters are not tracking semesters, they provide an opportunity for students to catch up on unmet milestones. Study abroad and co-op semesters are not tracking semesters. Students participating in study abroad and co-op are not required to complete milestones while they are away from campus.

Tracking Audit—Tracking audits will help students identify their milestone progress; audits are tied to a catalog year. Tracking audits will be used to notify students when they are off track.

Off Track for a Single Semester—Students who are off track at the end of a tracking semester must meet with an advisor as soon as possible but no later than the end of the next tracking semester to develop a plan for getting back on track. Students who do not have an advisor-approved plan for getting back on track will not be allowed to register for future tracking semesters.

Off Track for Two Consecutive Semesters—Students who are off track for two consecutive semesters will have a hold placed on their registration and must meet with a new advisor in one of the advising centers no later than the end of the “add” period of the next tracking term to select a new major that is better aligned with the student’s abilities.

“I strive for perfection in everything you do. Take the best that exists and make it better. When it does not exist, design it.” – Sir Henry Royce
A QUICK REFERENCE FOR USING THE ONLINE REGISTRATION

To begin registration, you need to log on to MyUTK (my.utk.edu), and then log in with your username, which is your NETID (not ID #), and your NETID password.

TO SEARCH FOR CLASSES and/or CREATE A SCHEDULE PLAN

STEP 1—Log into my.utk.edu and then click on the Search For Classes link under the Academic Resources heading.

STEP 2—Once in the registration system, click on the Browse Classes link on the right side of the menu to begin the process of searching for classes.

STEP 3—Each time you look for courses or attempt to register, you must make sure you are looking for classes in the correct semester with this menu.

STEP 4—Once you are in the correct semester, you can look up the classes by the department that teaches them. So, for example, if you want to take EF 151, you would look up Engineering Fundamentals as the subject.

If you wish to create a tentative plan for the whole semester, you can use the Plan Ahead feature.

Under the Plan Ahead feature, you can create up to 5 plans per semester. You can give these unique names so that you identify them later when you register.

TO REGISTER FOR CLASSES

STEP 1—Log into the registration system and then click on the Register for Classes link to sign up for courses. It is important that you look up courses prior to registration because the Banner System enforces pre- and co-requisite requirements (see Search for classes). You must register for all corequisite courses simultaneously. You can either look the courses up individually, but we would encourage you to use the Plan Ahead feature in the search to make sure you have all the appropriate courses scheduled for your semester, especially if they have pre- and co-requisite requirements.

STEP 2—Once you have created a course plan, you can click on the tab that says Plan and add those classes to your schedule for the semester.

Once you have chosen the courses to be on your plan, you can submit those to your registration system. After successful submission of your courses, the registration system will show you that you are registered for the semester (this dialog box will be in the bottom right of your screen).

Keep in mind that any course you look for in the registration system has further information about it that you can find by clicking on the underline title hyperlink of the class. Another dialog box will appear and allow you to find information on the professor, the textbook, and any pre- or co-requisite information on the class.
Academic Calendar

Fall Semester 2020
Classes Begin ................................................. Wednesday, August 19
Labor Day ..................................................... Monday, September 7
1st Session Ends ............................................. Wednesday, October 7
Fall Break ................................................... Thursday–Friday, October 8–9
2nd Session Begins ........................................... Monday, October 12
No Class Day ............................................... Wednesday, November 25
Thanksgiving .......................................... Thursday–Friday, November 26–27
Classes End ............................................... Wednesday, December 2
Study Day .................................................... Thursday, December 3
Exams .................................................... Friday–Thursday, December 4, 7, 8, 9, 10
Graduate Hooding ........................................... Friday, December 11
Commencement .............................................. Saturday, December 12

Spring Semester 2021
Classes Begin ................................................ Wednesday, January 13
MLK Holiday ................................................ Monday, January 18
1st Session Ends ............................................. Wednesday, March 3
2nd Session Begins .......................................... Thursday, March 4
Spring Break ........................................... Monday–Friday, March 15–19
No Class Day ............................................... Thursday, April 1
Spring Recess ................................................ Friday, April 2
Classes End ................................................... Friday, April 30
Study Day .................................................... Monday, May 3
Exams ..................................................... Tuesday–Monday, May 4, 5, 6, 7, 10
Graduate Hooding ........................................... Thursday, May 13
College Commencement Ceremonies ........... Tuesday–Monday, May 4, 5, 6, 7, 10
Official Graduation Date .................................. Thursday, May 13
Official Graduation Date .................................. Saturday, May 15

Summer Term 2021
Please refer to the Summer 2021 academic calendar on the Office of the University Registrar website: registrar.utk.edu/calendar/academic-calendars

*There is no commencement ceremony in the summer. This date is the official graduation date that will appear on the transcript of graduating students. The Academic Calendar is available on the Web site of the Office of the University Registrar: registrar.utk.edu/calendar/academic_calendars.
## Key Term Dates

**Fall 2020 - Undergraduate**
- Priority Registration Begins .................................................. February 26, 2020
- Fall 2020 Graduation Application Deadline / Admission to Candidacy Deadline for Graduate Students .......... August 6, 2020
- Classes Begin ........................................................................... August 19, 2020
- Last Day to Add, Change Grading Options or Drop without a “W” — 1st Session Courses ........... August TBD, 2020
- Last Day to Final Register, Add, Change Grading Options or Drop without a “W” - Full Session Courses ........... August TBD, 2020
- Labor Day (No Classes) ............................................................. September 7, 2020
- Last Day to Adjust Hours for Financial Aid Awarding ................................................................. September TBD, 2020
- Last Day to Drop with a “W” - 1st Session Courses ........................................................................ November TBD, 2020
- First Session Classes End .................................................. October 7, 2020
- Fall Break (No Classes) ............................................................... October 8-9, 2020
- Second Session Classes Begin .................................................. October 12, 2020
- Last Day to Add, Change Grading Options or Drop without “W” - 2nd Session Courses ........... October TBD, 2020
- Last Day to Drop with a “W” - Full Term Courses ........................................................................ November TBD, 2020
- No Class Day ........................................................................... November 25, 2020
- Thanksgiving Holidays (No Classes) ....................................................................................... November 26–27, 2020
- Total Withdrawal from the University Deadline ........................................................................ December TBD, 2020
- Classes End (Full and Second Session) .................................................................................... December 2, 2020
- Study Day ............................................................................... December 3, 2020
- Exam Period ........................................................................... December 4, 7, 8, 9, 10, 2020
- Commencement (Thompson Boling Assembly Center & Arena) .................................................. December 11, 2020
- Official Graduation Date on Transcript .............................................................................. December 12, 2020

## Financial Calendar for Fall Term 2020

- Statement information available on MYUTK.UTK.EDU. ......................................................... July TBD, 2020
- Priority Registration Payment/Deadline ................................................................................ August TBD, 2020
- Late Registration/Late Fees Begin ......................................................................................... August TBD, 2020
- Late Registration Payment/Deadline ....................................................................................... August TBD, 2020

*PAYMENT MUST BE RECEIVED BY THESE DEADLINES WHETHER OR NOT YOU HAVE RECEIVED a VoXpress STATEMENT. You may view your account on MyUTK.*

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### Engineering Campus Map

[Image of the Engineering Campus Map showing various buildings and areas.]
# Engineering Campus Office Locations by Building

## Key for Engineering Buildings

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<tr>
<th>Building</th>
<th>Room</th>
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</thead>
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<td>Claxton</td>
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<tr>
<td>Innovative Computing Laboratory</td>
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<tr>
<td>Dougherty Hall</td>
<td></td>
</tr>
<tr>
<td>Department of Chemical &amp; Biomolecular Engineering</td>
<td>419</td>
</tr>
<tr>
<td>Department of Mechanical, Aerospace, and Biomedical Engineering</td>
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<tr>
<td>National Office, Tau Beta Pi Engineering Honor Society</td>
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<td>Ferris Hall</td>
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<tr>
<td>Department of Materials Science &amp; Engineering</td>
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<tr>
<td>Center for Materials Processing</td>
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<tr>
<td>John Dejarnette Engineering Building</td>
<td></td>
</tr>
<tr>
<td>Department of Civil &amp; Environmental Engineering</td>
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</tr>
<tr>
<td>Department of Industrial &amp; Systems Engineering</td>
<td>525</td>
</tr>
<tr>
<td>Min H. Kao Electrical Engineering &amp; Computer Science Building</td>
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<tr>
<td>Department of Electrical Engineering &amp; Computer Science</td>
<td>401</td>
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<tr>
<td>CURENT</td>
<td>555</td>
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<tr>
<td>Nuclear Engineering Building</td>
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<tr>
<td>Department of Nuclear Engineering</td>
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<tr>
<td>Perkins Hall</td>
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<tr>
<td>College of Engineering Administrative Offices</td>
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<td>Communications</td>
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<tr>
<td>Computer Assistance</td>
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<td>Dean’s Office</td>
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<tr>
<td>Development</td>
<td>118, 120</td>
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<tr>
<td>Finance &amp; Administrative Affairs</td>
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<td>Academic and Student Affairs</td>
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<td>Engineering Advising Office</td>
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<td>Engineering Diversity Programs</td>
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<td>Engineering Fundamentals Program</td>
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<tr>
<td>Engineering Professional Practice</td>
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<tr>
<td>Faculty Affairs</td>
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<td>Tennessee Louis Stokes Alliance for Minority Participation</td>
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<tr>
<td>Science &amp; Engineering Research Facility (SERF)</td>
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<tr>
<td>Ion Beam Materials Research Center</td>
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<tr>
<td>Senter Hall</td>
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<tr>
<td>Fibers and Composites Manufacturing Facility and Engineering Annex</td>
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<tr>
<td>See individual directory listings</td>
<td>101</td>
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<tr>
<td>UT Conference Center</td>
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<tr>
<td>Center for Transportation Research</td>
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<tr>
<td>Reliability and Maintainability Center</td>
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<tr>
<td>Cherokee Farm Innovation Campus</td>
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<td>Joint Institute for Advanced Materials (JIAM)</td>
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<td>Not Shown</td>
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<tr>
<td>Biosystems Engineering &amp; Soil Science</td>
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<tr>
<td>— 2506 E. J. Chapman Drive, Knoxville, TN</td>
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<tr>
<td>National Transportation Research Center</td>
<td>— 2360 Cherohala Blvd., Knoxville, TN</td>
</tr>
<tr>
<td>UT Space Institute</td>
<td>— 411 B.H. Goethert Parkway, Tullahoma, TN</td>
</tr>
</tbody>
</table>

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Tickle College of Engineering Ambassadors

**ENGINEERING ADVISING**

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