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** – Contact the Director of Admissions.

**Course Offerings** – Contact the Department offering the course.

**Degree Requirements** – Contact the Office of the University Registrar, faculty advisor, head of major department, College Advising Center, or Dean of college/school.

*Refer to the Engineering and Campus Resources section of this booklet for a more comprehensive list of resources and contact information at the University of Tennessee.

CREDITS: Kim Cowart, Randall Brown, Mitchell Williamson, College of Engineering Communications Office

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**EEO/TITLE IX/AA/SECTION 504 STATEMENT**

The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services. All qualified applicants will receive equal consideration for employment without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, or covered veteran status.

PAN: E01-1399-035-13   DOP: 5/13
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<thead>
<tr>
<th>Contact Type</th>
<th>Contact Name</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate Dean for Academic and Student Affairs</td>
<td>Dr. Masood Parang</td>
<td><a href="mailto:mparang@utk.edu">mparang@utk.edu</a></td>
<td>(865) 974-2454</td>
</tr>
<tr>
<td>Engineering Advising Services</td>
<td>Margie Russell</td>
<td><a href="mailto:engradvising@utk.edu">engradvising@utk.edu</a></td>
<td>(865) 974-4008</td>
</tr>
<tr>
<td>Engineering Fundamentals Division</td>
<td>Dr. Richard Bennett</td>
<td><a href="mailto:rbennet2@utk.edu">rbennet2@utk.edu</a></td>
<td>(865) 974-9810</td>
</tr>
<tr>
<td>Engineering Honors</td>
<td>Dr. Chris Pionke</td>
<td><a href="mailto:cpionke@utk.edu">cpionke@utk.edu</a></td>
<td>(865) 974-9810</td>
</tr>
<tr>
<td>Engineering Outreach</td>
<td>Dr. Roger Parsons</td>
<td><a href="mailto:jparsons@utk.edu">jparsons@utk.edu</a></td>
<td>(865) 974-9810</td>
</tr>
<tr>
<td>Engineering Professional Practice</td>
<td>Mr. Todd Reeves</td>
<td><a href="mailto:coop@utk.edu">coop@utk.edu</a></td>
<td>(865) 974-5323</td>
</tr>
</tbody>
</table>

## ACADEMIC DEPARTMENTS

<table>
<thead>
<tr>
<th>Department</th>
<th>Contact Name</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosystems Engineering &amp; Soil Science</td>
<td>Dr. Eric Drumm</td>
<td><a href="mailto:bess@utk.edu">bess@utk.edu</a></td>
<td>(865) 974-7266</td>
</tr>
<tr>
<td>Chemical &amp; Biomolecular Engineering</td>
<td>Dr. Bamin Khomami</td>
<td><a href="mailto:cbe@utk.edu">cbe@utk.edu</a></td>
<td>(865) 974-2421</td>
</tr>
<tr>
<td>Civil &amp; Environmental Engineering</td>
<td>Dr. Dayakar Penumadu</td>
<td><a href="mailto:cee@utk.edu">cee@utk.edu</a></td>
<td>(865) 974-2503</td>
</tr>
<tr>
<td>Electrical Engineering &amp; Computer Science</td>
<td>Dr. Leon Tolbert</td>
<td><a href="mailto:deptinfo@eecs.utk.edu">deptinfo@eecs.utk.edu</a></td>
<td>(865) 974-3461</td>
</tr>
<tr>
<td>Industrial and Systems Engineering</td>
<td>Dr. Rupy Sawhney</td>
<td><a href="mailto:iiedept@utk.edu">iiedept@utk.edu</a></td>
<td>(865) 974-3333</td>
</tr>
<tr>
<td>Materials Science &amp; Engineering</td>
<td>Dr. Kurt Sickafus</td>
<td><a href="mailto:mse@utk.edu">mse@utk.edu</a></td>
<td>(865) 974-5335</td>
</tr>
<tr>
<td>Mechanical, Aerospace, and Biomedical Engineering</td>
<td>Dr. William Hamel</td>
<td><a href="mailto:mabeinfo@utk.edu">mabeinfo@utk.edu</a></td>
<td>(865) 974-5115</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>Dr. J. Wesley Hines</td>
<td><a href="mailto:utne@utk.edu">utne@utk.edu</a></td>
<td>(865) 974-2525</td>
</tr>
</tbody>
</table>


Resources

Tutoring

**Chemistry Help Sessions**
513 Buehler Hall
(865) 974-3413

**Disability Services**
2227 Dunford Hall
(865) 974-6087

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

**Engineering Fundamentals Help Sessions**
103 Estabrook Hall
(865) 974-9810

**Math Tutorial Center**
G012 Ayres Hall
(865) 974-4266

**Office of Multicultural Student Life**
1800 Melrose Ave. Black Cultural Ctr.
(865) 974-6861

**Writing Center**
212 Humanities & Social Sciences Bldg.
(865) 974-2611

**Student Success Center**
Greve Hall Room 324
821 Volunteer Boulevard
(865) 974-6641

Additional Resources

**Campus Information**
1800 Volunteer Boulevard
(865) 974-1000

**Center for International Education / Study Abroad**
1620 Melrose Avenue
(865) 974-3177

**Computer and Laptop Help**
The Commons
2nd Floor Hodges Library
(865) 974-4351

**Engineering Diversity Programs**
110 Estabrook Hall
(865) 974-1931

**Financial Aid and Scholarships**
115 Student Services Building
(865) 974-3131

**International House**
1623 Melrose Avenue
(865) 974-4453

**Office of National Scholarships and Fellowships**
First Floor, Howard Baker Center
(865) 974-3518

**Office of Undergraduate Research**
1534 White Avenue
(865) 974-1475

**Parking Services**
2121 Stephenson Drive
(865) 974-6031

**Registrar Office**
209 Student Services Building
(865) 974-2101

**Student Counseling Center**
1800 Volunteer Boulevard
(865) 974-2196

**Student Government Association**
315 E University Center
(865) 974-1000

**Student Health Services Clinic**
1800 Volunteer Boulevard
(865) 974-3135

**Student Judicial Affairs**
409 Student Services Building
(865) 974-3171

**Team VOLS Volunteer Center**
305 University Center
(865) 974-5455

**UC Computer Store**
246 University Center
(865) 974-2930

**University Honors Program**
First floor, Howard Baker Center
(865) 974-7875

**Veterans Benefits**
209 Student Services Building
(865) 974-1500

**VolCard (UT ID) Office**
472 South Stadium Hall Gate 12-13
(865) 974-3430
Academic Advising

The 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.

New Students

New freshman students are assigned to Engineering Advising Services for academic advising until they have completed the freshman curriculum. Freshman students admitted to the College of Engineering are required to designate a field of study by the end of their freshman year. Upon completion of Engineering Fundamentals 152 (or equivalent), the students are assigned faculty advisors in their selected departments.

The Engineering Advising Office delivers academic advising on an appointment basis. To make an appointment, contact the Advising Office at (865) 974-4008 or come by 202 Estabrook Hall. Advising appointments are normally offered on thirty-minute individual intervals. Hours of operation are from 8:00 a.m. to 5:00 p.m. (Eastern), Monday through Friday.

All students must meet with an advisor in the Engineering Advising Office until they successfully complete Engineering Fundamentals 151-152 or 157-158 and Math 141-142 or 147-148. Computer Science students must complete Math 141-142, 147-148 and Computer Science 102 and 140. Once EF 151-152 and Math 141-142 are successfully completed and students have a cumulative GPA of 2.00 (good academic standing) then students’ files are sent to the engineering major of their choice. Students are assigned to faculty advisors in their major of choice who assist with academic advising and career planning to the completion of the degree. Successful completion of courses is a grade of C or better. The NC (No Credit) grade or W (withdrawal) are not passing grades. Students must repeat courses with a grade of NC or W until successfully completed.

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 2.00. 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 2.00 or higher or, if after two consecutive terms, the student’s cumulative GPA is 2.00 or higher and at least one term GPA is also 2.00 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 2.00 for one semester or (2) the semester GPA falls below the minimum acceptable level of 2.00 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. 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 2.00, and
- The term GPA is below a 2.00

A student will no longer be on academic probation when his or her cumulative grade point average is 2.00 or higher and the term grade point average is 2.00 or higher. This policy is in place in recognition of the University of Tennessee, Knoxville’s minimum grade point average of 2.00 for graduation.

The Engineering Advising Syllabus is available online at the Advising Website: http://www.engr.utk.edu/advising/info.html
Shared Responsibility

– STUDENTS – To assist with the success of your academic advising sessions and your academic career, it is your responsibility to

- engage in an intense self-study. Explore options. Clarify values and goals. Relate interests and abilities to educational and career plans.
- schedule an advising appointment early each semester.
- review your curriculum in the Undergraduate Catalog.
- write down your current schedule and a tentative plan for next semester.
- meet course prerequisites and corequisites, and select specific courses.
- write down any questions you have for your advisor.
- keep copies of your relevant academic records.
- follow through on referrals and recommendations made during the advising session.
- register for the courses discussed during the advising appointment.
- consult with your advisor before making drastic changes to an agreed-upon schedule.
- consult with your advisor on issues related to academic progress, a change in program, registration for study abroad, internships and co-ops, courses to be taken at another institution, withdrawal from courses, or withdrawal from the university.
- apply to graduate online at My UTK, one year in advance of the term in which you plan to graduate. (Most students have completed 80 to 90 hours by this time.)
- make final decisions and take responsibility for your academic success.

It is your advisor’s responsibility to

- be accessible to you during reasonable hours.
- provide a means through which you can schedule appointments.
- understand the curriculum, graduation requirements, and university policies.
- provide accurate information.
- discuss specific university, college, and departmental requirements, procedures, and deadlines.
- help you define and develop realistic goals and discuss the linkage between academic preparation and career opportunities.
- assist you in planning programs of study, both short-term and long-term, that are consistent with your abilities and interests; such as course load, academic background, program demands, and employment or personal commitments.
- help you identify special needs and acquaint you with services and programs provided by the college and the university.
- refer you to other services, departments, and specific individuals as special needs are identified.
- monitor your progress toward educational goals and keep accurate, up-to-date records of academic progress.
- assist in the petitioning process for exception to policy.
- respect your right to privacy of educational records and discuss confidential information only with appropriate individuals and for the purpose of serving your best interests.
- help you assume responsibility for your decisions and actions.

“I’m quite into the idea of engineering being beautiful.”
- Sean Booth,
  British musician
The RISER Program is sponsored by NSF STEP grant. The RISER program offers two main areas of emphasis. First, it is designed for students admitted into the College of Engineering that will begin in Math 130 (Pre-calculus) Fall semester. The program offers the Math 130 students the opportunity to take Pre-calculus together with the same instructor. This will allow the students to form study groups and community. The RISER Program offers, by application and selective admission, a Summer RISER Math Camp in August. Students may apply for the RISER Math Camp while on campus at Orientation in June. In order to apply, students need ACT math of 27 or SAT math of 610. The twenty-four students selected for RISER Math Camp will be given intensive Math preparation in hopes that they will move up into Math 141 (Calculus I) for Fall semester. RISER students also have the opportunity to live together on campus in the RISER Living Learning Community. Second, the RISER program also emphasizes undergraduate research opportunities for the women in the Honors program. Honors women can be placed on research as early as spring of freshman year.

RISER Learning Community
RISER Living and Learning Community assists engineering students to develop a strong foundation in math skills to enhance their success in the College of Engineering.

RISER Living and Learning Community is open to students admitted to the College of Engineering. Participants in RISER must be eligible to take Math 130 during their first semester at UT and have an ACT math score of 25, 26 or 27, or SAT math score of 570-620.

Placement requirements can be found at Math Placement (www.math.utk.edu/ugrad/placement.html).

Residents of this community will share study sessions and social activities in addition to RISER math class sections.

Restrictions:

- All men and women living in RISER must be admitted to the College of Engineering.

For RISER Learning Community information, contact:
Holly Rodden
865-974-4201
hrodden@utk.edu

RISER Math Camp
RISER Math camp is designed for incoming freshmen with an ACT math score of 27 or SAT math score of 610. The camp will include intensive math tutorial classes and study sessions, introduction to UTK student life and extra-curricular activities.

At the conclusion of the camp, students will take the math placement test. It is a goal of the camp to increase students scores and place them in a Math 141 class thereby increasing their success in their College of Engineering major.

- Camp dates: August 4-14, 2013
- Selective admission for twenty-four students
- Camp commitment fee is $60 (or $50 if the student has paid the math placement test fee)
- Breakfasts and lunches, lodging and activities are covered in the cost of the camp
- Activities will include use of TREC and other campus facilities

Please see the Math Camp application online at: http://ef.engr.utk.edu/RISER/

Applications for Math Camp may be returned to an advisor at orientation, or by mail to:

RISER Math Camp
102 Estabrook Hall
University of Tennessee
Knoxville, TN 37996-2353

or by email to: ferguson@utk.edu

The Math Camp application deadline is July 12, 2013.

Math Camp applicants will be notified by July 19, 2013 of the status of their application.

For more RISER program information, contact:
Elizabeth Ferguson
865-974-9245
ferguson@utk.edu

Support:
The Research and Instructional Strategies for Engineering Retention (RISER) at the University of Tennessee, Knoxville is funded by the National Science Foundation (NSF) through the Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP) award number 1068103.
## Performance and Choices

### Barriers to Academic Performance and Choices

*Life happens to all of us.*

*Less successful students often believe that other students are successful only because those other students do not have bad things happen to them. Whether we are successful or not depends more on the CHOICES we make when faced with the circumstances that life deals us.*

<table>
<thead>
<tr>
<th>Presenting Issue</th>
<th>Choice of the Successful Student</th>
<th>Choice of the Less Successful Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don't know how to manage my time.</td>
<td>Recognizes that work outside of class is important to success.</td>
<td>Not sure how much time he/she should spend on work outside of class.</td>
</tr>
<tr>
<td></td>
<td>Uses weekly time schedule, semester calendars, and planners/to do lists to keep organized.</td>
<td>No plan.</td>
</tr>
<tr>
<td></td>
<td>Makes good use of daytime hours.</td>
<td>Likes to “go with the flow.”</td>
</tr>
<tr>
<td>My high school didn't cover this subject/didn't prepare me very well.</td>
<td>Talks to professor when first struggle appears.</td>
<td>Gets angry that high school didn't prepare well-enough.</td>
</tr>
<tr>
<td></td>
<td>Talks to academic advisor.</td>
<td>Concludes that college is too hard.</td>
</tr>
<tr>
<td></td>
<td>Visits Student Success Center to find out about types of academic assistance.</td>
<td>Concludes that it is unfair to be in this situation and UT shouldn't expect this of me.</td>
</tr>
<tr>
<td>I got A's in high school and didn't have to study much</td>
<td>Recognizes that college learning requires different skills than high school.</td>
<td>“I did okay in high school, so I’m sure I’ll do fine here.”</td>
</tr>
<tr>
<td></td>
<td>Follows suggestions provided in FYS 101.</td>
<td></td>
</tr>
</tbody>
</table>
| I had personal and family issues.  
  • Relationships with friends, significant others  
  • Death/Illness in Family or Friends  
  • Divorce  
  • Personal Illness                                                                 | Recognizes that he/she needs some support to work through the difficult times.                      | Withdrawn, depressed, feels alone, skips classes.                                                      |
|                                                                                  | Seeks counseling at the Counseling Center.                                                           |                                                                                                       |
|                                                                                  | Decides to withdraw for the semester to work through the issues.                                    |                                                                                                       |
|                                                                                  | Develops better coping skills.                                                                       |                                                                                                       |
| I don't have a major or I'm not sure where I'm going with the major I'm in.      | Recognizes that this current plan may not be the best fit.                                          | Continues to pursue major even though he/she dislikes it and struggles with the courses.               |
|                                                                                  | Is undecided but recognizes the importance of getting a college degree.                              | Is frustrated that he/she doesn't know what to major in.                                               |
|                                                                                  | Visits Career Services to seek assistance with finding a (new) major.                               |                                                                                                       |
| I think I might have (or I have been diagnosed with) learning (or other) disability. | Seeks evaluation and assessment of disability.                                                      | Wants to try things on his/her own.                                                                   |
|                                                                                  | Registers with Office of Disability Services.                                                        | Does not seek assistance on campus.                                                                   |
|                                                                                  | Uses accommodations at Office of Disability Services.                                                |                                                                                                       |
| I am more motivated by social life and free time than academics.                | Learns to say "no" and "bargain" on social invitations.                                              | Wants to do it all.                                                                                    |
|                                                                                  | Limits Facebook time until academic work is complete.                                                | Spends lots of time on Facebook.                                                                      |
|                                                                                  | Limits TV shows to only those most desired.                                                          | Loved pledging.                                                                                       |
|                                                                                  |                                                                                                    | Watches lots of TV.                                                                                   |
|                                                                                  |                                                                                                    | Loves X-Box, Wii or online gaming.                                                                    |
Scholarships, Student Organizations, Technology & Student Privacy

UT College of Engineering Undergraduate Scholarships

The College of Engineering annually awards an average of nearly $500,000 in scholarships to qualified undergraduate students. Students must be accepted into the University of Tennessee and the 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 Office of Financial Aid & Scholarships for the complete list of application requirements and deadlines, 115 Student Services Building, (865) 974-3131, http://web.utk.edu/~finaid. Application deadline is February 1.

The returning/transfer student scholarship application is on MyUTK in the registration links box.

Scholarships are awarded each academic year in the spring for the upcoming fall semester. For more information contact the College of Engineering Academic and Student Affairs Office at (865) 974-2454 or stop by 101 Perkins Hall.

Student Organizations and Honor Societies
http://www.engr.utk.edu/currentstudents/orgs.html

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
- Association of Computing Machinery
- College of Engineering Ambassadors
- Engineers Without Borders/Volunteers Without Borders
- Institute of Electrical and Electronics Engineers

Honor Societies
- 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

Technology
http://www.engr.utk.edu/futurestudents/computers.html

Laptops will be required for all students, incoming freshmen included. A computer store is located on campus in the University Center.

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 telephone book, 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 Hilltopics, at Orientation for new students, and on the Web site of the University Registrar, http://registrar.tennessee.edu.
Diversity Programs

Office of Diversity Programs
Mr. Travis Griffin, Director
110 Estabrook Hall, Knoxville, TN 37996-2360
Telephone: 865-974-1931
http://www.engr.utk.edu/diversity

Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP)

Tennessee State University, LeMoyne-Owen College, Middle Tennessee State University, University of Memphis, University of Tennessee and Vanderbilt University partnered to form the Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP). The goal of the TLSAMP program 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
• Undergraduate Summer Research
• Research Symposium
• Summer Bridge Program

Retention Efforts
• Financial Assistance
• Tutorial Programs/Services
• Strategies for Basic Skills Courses

National GEM Consortium

The University of Tennessee is a proud member of the National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (GEM). The mission of GEM is to attract a pool of African American, Hispanic American and American Indian talent to careers in the fields of Science, Technology, Engineering and Mathematics (STEM) by promoting the attainment of advanced degrees.

Each year, GEM identifies and recruits more than 1,000 undergraduate students, graduate students and working professionals from these underrepresented groups for admission to advanced degree programs at the nation’s top universities. GEM provides graduate students with much-needed financial support that is often the deciding factor in pursuing graduate education through three graduate fellowship tracks:
• Master of Science in Engineering
• Ph.D. in Science
• Ph.D. in Engineering
Cooperative Education (Co-op) Program
Students have the opportunity to gain real world experience in their engineering field of study by working at least three semesters with the same employer before they graduate. Typically a co-op student will alternate between semesters of work and school during their sophomore and junior years. The exact co-op rotation plan is created by the student in coordination with the Engineering Professional Practice office and the needs of their particular co-op employer. Most students find that co-op adds no more than three to six months of calendar time to their total undergraduate experience.

Benefits of Co-op
Most full time employers like to see that students have some engineering work experience before they graduate. The co-op program provides a student with a total of 12 months of work with increasingly challenging responsibilities and many students find that the second and third rotations are the most meaningful. Co-op also allows students to gain insights into what engineers really do on the job and then use that work experience to shape plans for upper level course work and what type of job to pursue upon graduation. The best benefit of participating in co-op may be that students get paid allowing them to earn money for school and other expenses while still being considered a full time student. Co-op positions are available throughout the country with most being located in the southeast. Finding that first full-time job can be very competitive and students that co-op will normally have an advantage in the hiring process.

In addition to the benefits of working and getting paid, there are also numerous academic scholarships available to students who have participated in co-op.

Internship Program and Benefits
The internship program differs from co-op in that the students will only work one or two assignments typically with different employers. The work terms are usually in the summer. While students can still gain valuable engineering experience with multiple employers, the internships typically provide a sub-set of the total experience students obtain in the co-op program.

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

Before students go on their first assignment, they must complete 30 hours of course work and be in good academic standing though the specific GPA requirements will vary depending on the needs of the employers.
Career Services, located at 100 Dunford Hall, is a university-wide department designed to help students explore majors and related career fields, plan and implement career goals, prepare for a job search, conduct on-campus interviews, and identify additional employment opportunities and resources.

**Services for Engineering students include:**

**Career Planning**
- Research majors and careers on the Career Services website and in the Career Services Resource Center
- Find out “What I Can Do With This Major” - information on majors and careers throughout the college
- Take career assessments to assist with career exploration and career planning
- Meet with a Career Counselor to discuss your options or register for Exploring Majors and Careers, a one-credit course with a focus on choosing a major and learning about what's available at UT

**Career Resources**
- **Career Resource Center** - review a collection of career books, periodicals, pamphlets, and videotapes with information on careers, job search skills, employment opportunities, and salary ranges
- **Career Services Website** - a variety of valuable career articles, resume and cover letter samples and links to hundreds of other career-related Internet resources
- **Workshops** - held each semester on resume writing, cover letters, job fair success, interviewing, etiquette, company visit/second interview, graduate school, and other career topics
- **Resume Critiques** - resumes can be dropped off for overnight critiques at the Career Services offices or students can drop-by for a personalized review Monday-Thursday from 3 pm - 5 pm during Fall and Spring Semester
- **Part-Time Employment Listings/Consultant** - information on part-time positions for students
- **Disability Careers Office** - assists students with disabilities with career planning services and guidance
- **HIRE-A-VOL at career.utk.edu** - online job and resume database listing employment opportunities for part-time, summer, internships, and full-time for UT students and alumni
- **EF 301** - Engineering Career Planning Placement - a one-hour Pass/Fail course designed to equip Juniors and Seniors with the right tools to land a great full-time job after graduation

**Career Events**
- **Annual Job Fairs** – Career fair opportunities to speak informally with representatives from hundreds of organizations about part-time and summer jobs, internships, and full-time positions
- **On-Campus Recruiting/Interviewing** – approximately 300 organizations conduct over 6,000 interviews annually at UT through Career Services
- **Information Sessions** – conducted by employers throughout the year on opportunities within their organizations
- **Special Engineering Career Events** – watch for these each semester!

[www.career.utk.edu](http://www.career.utk.edu)

College of Engineering Career Consultant - schedule an appointment with April Gonzalez, who works directly with engineering students, faculty and employers, by calling 865-974-5435 or e-mailing agonza16@utk.edu.

Students are encouraged to visit with Career Services by the end of their junior year to be ready for employment recruiting opportunities in their senior year.
Ready for the World

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)**

**Contact:**
Center for International Education Programs Abroad Office
1620 Melrose Avenue, Knoxville, TN 37996-3531
Phone: (865) 974-3177
Fax: (865) 974-2985
Email: studyabroad@utk.edu

The “PAO” provides students with information about their options for overseas study, research, work, volunteer projects, and travel. The PAO administers most of UTs 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 studyabroad@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 at the College of Engineering Advising Office. 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 of 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.

**Engineering Study Abroad Fellowship**

The College of Engineering offers up to 10 competitive fellowships for students studying abroad. Students may apply for these competitive fellowships in the Engineering Outreach Office, located in 100 Estabrook Hall.

**Engineering Outreach Office**

The Office of Engineering Outreach’s mission is to work with organizations across campus, throughout the community, and around the world to develop these “powerful learning opportunities” for engineering students. Through specialized coursework, opportunities to teach younger students, opportunities to be mentored by professionals, and study abroad, the outreach office seeks the continual development of our students’ sense of “engineering in the world.”

Emphasis is also placed on student interaction with the next generation of potential engineering students, promoting their abilities as problem solvers and involved citizens.

**Contact:**
Dr. Roger Parsons, Director
Engineering Outreach Office
100 Estabrook Hall
Phone: (865) 974-6064
Fax: (865) 974-6162
Email: jparsons@utk.edu
Web: http://www.engr.utk.edu/outreach/index.html
Grades, Credit Hours, and Grade Point Average

The basic unit of credit at UT Knoxville is the semester hour. This normally represents one hour of lecture or recitation or two hours of laboratory work per week. 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 certain number of quality points per credit hour in the course. A student's grade point average is obtained by dividing the number of quality points the student has accumulated at UT Knoxville by the number of hours the student has attempted at UT Knoxville, not including hours for which grades of I, N, NC, NR, P, S and W have been received.

Undergraduate Grades

<table>
<thead>
<tr>
<th>Grade</th>
<th>Performance Level</th>
<th>Quality Points Per Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Superior</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>Intermediate Grade</td>
<td>3.70</td>
</tr>
<tr>
<td>B+</td>
<td>Very Good</td>
<td>3.30</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>Intermediate Grade</td>
<td>2.70</td>
</tr>
<tr>
<td>C+</td>
<td>Fair</td>
<td>2.30</td>
</tr>
<tr>
<td>C</td>
<td>Satisfactory</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>Unsatisfactory</td>
<td>1.70</td>
</tr>
<tr>
<td>D+</td>
<td>Unsatisfactory</td>
<td>1.30</td>
</tr>
<tr>
<td>D</td>
<td>Unsatisfactory</td>
<td>1.00</td>
</tr>
<tr>
<td>D-</td>
<td>Unsatisfactory</td>
<td>.70</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
<td>0.00</td>
</tr>
</tbody>
</table>

First Year Composition


ABC/No Credit Grading Scheme

This grading system does not include a grade for failure; instead, you receive an A, B, C, or NC (for “no credit”), depending on your performance in the course. The NC grade does not affect your GPA; it merely indicates that you need to re-enroll in the course for continued practice before moving to the next level.

Changes in Registration

Undergraduate students may add courses through the tenth calendar day counted from the beginning of classes fall and spring terms. Because of the nature of some courses, permission of the department head may be required to add a course after classes begin. Students may also, as departmental policies permit, change a section of a course through the add deadline.

Students may drop courses until the tenth calendar day from the start of classes with no notation on the academic record for full term courses in fall and spring.

From the eleventh day until the eighty-fourth calendar day, students may drop courses and will receive the notation of W (Withdrawn) for full term courses in fall and spring. Following are additional regulations related to dropping classes after the tenth day:

- Students are allowed four drops during their academic career (until a bachelor’s degree is earned).
- Students holding a bachelor’s degree who return to pursue a second bachelor’s degree are allowed four additional drops.
- Students pursuing more than one major or degree simultaneously are not allowed additional drops.
- The W grade is not computed in the grade point average.
- After the 84th day, no drops are permitted.
- Courses may be dropped on the web (https://myutk.utk.edu/).

Failure to attend a course is not an official withdrawal and will result in the assignment of an F grade.

The periods for add, drop, change of grading for sessions within the full term, summer, and mini term are determined based on a percentage of the equivalent deadline for the full term. See Timetable of Classes each term for exact dates on the MyUTK website at https://myutk.utk.edu/. Deadline dates may be adjusted if the deadline falls on a holiday, weekend day or spring recess.

Imagine
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 when a course is taken on an S/NC grading basis.
- W (Withdrawal) is assigned in courses when a student has officially withdrawn from the university. W is also assigned in courses when a student withdraws from a course between the 11th and 84th calendar day of classes. Regulations concerning withdrawal from courses or from the university appear under Changes in Registration.

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, 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-, D+, D, D- and F.
- The student only receives credit in the course if an S is received.
- A student may not repeat a course for S/NC if the student received a conventional grade (A, A-, B+, B, B-, C+, C, C-, D+, D, D- and F).
- If the student elects non-conventional grading, grades of A, A-, B+, B, B-, C+, C, C-, D+, D, D- or F as NC.
- The grade of I for incomplete work will be recorded as an SI, which will not be computed in the average.
- A student is permitted to change the system of grading in a course through the add deadline.
- The changing of an S/NC grade to a conventional letter grade or vice versa is not permitted unless an error is determined by the Office of the University Registrar.

Repeating Courses

General Repeat Policy

Students who are struggling with a class should talk with their advisor before deciding whether to withdraw from and/or plan to repeat a class.

- Courses may be repeated twice, for a total of three attempts per course.
- A grade of W does not count as one of the three attempts.
- Grades of C-, D+, D, D-, F, Incomplete, and NC are counted as one of the three attempts.
- No course may be repeated if a grade of C or better has already been earned.
- Each repeated course is counted only once in determining credit hours presented for graduation.
- With limited exceptions (see Grade Replacement Policy), all grades earned in repeated courses will count in calculating the GPA.
- Exceptions 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 dean or designee.

Grade Replacement Policy for Three Lower Division (100-200 Level) Courses

- The first three lower-division (100-200 level) course grades may be replaced when a course is repeated. All other grades will be included in computing the cumulative grade point average.
- If the same course is repeated more than once, the additional repeat(s) will count toward the grade replacement total.
- Repeating a course in which an NC or a W grade has been earned does not count as one of the three grade replacements.
- The grade earned during the final attempt will be used in computing the cumulative GPA.
- All grades for all courses remain on the transcript.
- Transfer course grades cannot be replaced (see Transfer Admission policy).

Office of the University Registrar

209 Student Services Building
Knoxville, TN 37996-0200
Phone 865-974-2101
Fax 865-974-2606
http://registrar.tennessee.edu/
Biomedical Engineering
http://www.engr.utk.edu/mabe/

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. Mature 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 an intermediary role 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, thermodynamics and fluid mechanics. Required mathematics include calculus, differential equations, matrix methods and statistics. The educational objectives of the biomedical engineering program are:

• to provide an education that includes in-depth fundamental instruction in aerodynamics, structures, flight mechanics, orbital mechanics, flight propulsion and the design of aerospace systems;
• to prepare students for professional careers in aerospace engineering by developing the skills pertinent to problem solving, analysis, design and those personal skills required for teamwork and effective communication;

• to provide opportunities to develop and cultivate life-long learning skills, individual professionalism and ethics;
• to prepare capable students for graduate study at major universities. The university’s engineering programs are fully accredited by the ABET Engineering Accreditation Program.

Career Opportunities in Biomedical Engineering

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 B.S. students chose to continue their education at graduate school.
Biosystems Engineering
http://bioengr.ag.utk.edu/

What is Biosystems Engineering?
Today’s tightly-focused engineering specialties would 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 startling 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 to be

• competitive in seeking employment at the regional and national levels;
• aware of meeting their own and societal needs consistent with the goals of life-long learning, professional ethics and leadership;
• performing as entry-level engineers in a manner that positively reflects on the overall program’s reputation. The university’s engineering programs are fully accredited by the ABET Engineering Accreditation Program.

Career Opportunities in Biosystems Engineering
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. Government agencies 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.

Chemical and Biomolecular Engineering
http://www.engr.utk.edu/cbe/

What is Chemical and Biomolecular Engineering?
Chemical and Biomolecular engineering deals with developing industrial processes and systems used to manufacture 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 UT chemical and biomolecular engineering program who enter professional practice will demonstrate a high level of technical competence, along with career progression toward positions of technical or managerial leadership.
• Graduates of the UT chemical and biomolecular engineering program who pursue full-time graduate or advanced professional study will complete their programs of study successfully.
• Graduates of the UT chemical and biomolecular engineering program will continue their professional growth through lifelong learning.

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

Career Opportunities in Chemical and Biomolecular Engineering
As a graduate of the chemical and biomolecular engineering program, 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.
Civil and Environmental Engineering
http://www.engr.utk.edu/civil/

What is Civil and Environmental Engineering?

Civil engineering is about the basic infrastructure of society and community service, development and improvement—the planning, design, construction, and operation of facilities essential to modern life and economic vitality.

An established department at the University of Tennessee, Knoxville, Civil and Environmental Engineering dates back to the mid-1800s, making it one of the oldest programs in the Southeast.

The Civil and Environmental Engineering Department (CEE) offers proficiency in environmental and water resources engineering, geotechnical and structural engineering, construction, and transportation engineering leading to a Bachelor of Science in Civil Engineering. In addition, the College of Engineering offers an undergraduate minor in environmental engineering.

Academic units and areas of research include the following: transportation systems planning and design; transportation safety; traffic operations; transportation air quality; investment and financial analysis; bridge testing and evaluation; testing of masonry in-fills; lateral load test of driven piles; testing, behavior and modeling of highway materials; stability of slopes, embankments and tunnels; non-destructive evaluation of pavement systems; railroad engineering; risk assessment; automated highway systems; intelligent vehicle systems; GPS/GIS applications; air pollution control technologies; air pollution dispersion modeling; climate change and environment and associated impact on infrastructure; water and waste water treatment; hazardous waste management; environmental restoration; mixed and radioactive waste management; bioremediation; aquatic chemistry; fate and transport of contaminants; surface and ground water hydrology; erosion and sediment transport; soil and geosynthetic hydraulic barriers; remediation of mines and characteristic of fractures in soil and rock.

Consistent with the mission of the Department of Civil and Environmental Engineering at The University of Tennessee, graduates of the program will have:

1. Technical competency to conduct engineering projects and to advance with increasing responsibility.
2. Professional competency to continually increase engineering proficiency, proceed on a track to attain professional licensure, and contribute to the profession and community.

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

Career Opportunities in Civil and Environmental Engineering

Civil engineers are found throughout the workplace in a variety of functions. Aside from private engineering firms that are responsible for contracted projects from start to finish, civil engineers work for utility companies, telecommunications businesses, consulting firms and even toy and athletic equipment manufacturers. There are a large number of civil engineers who work in federal, state and local governments, working each day to serve the public in thousands of projects nationwide. Civil engineers also work in academic fields through teaching, research, evaluation and publishing, generating much of the current information available today.

In their first job, most civil engineers are teamed with a senior engineer. They are guided through a variety of assignments, depending on the civil engineering specialty area. Later, job responsibility increases with continuing education and experience. During this process many engineers seek professional licensure that requires a depth of knowledge and skills essential to success in the field.

Civil engineers usually work for one of the following employer types (in approximate order of employed engineers): government (every city, county, state and federal operation); consulting firms (all sizes); construction companies; industry (e.g., petroleum, utilities, aircraft, chemical, paper, shipbuilding); international firms (may involve the categories above).

Career Information
What can I do with this engineering major?

“There can be little doubt that in many ways the story of bridge building is the story of civilization. By it we can readily measure an important part of a people’s progress.”

-Franklin D. Roosevelt
Computer Engineering
http://www.eecs.utk.edu/

What is Computer Engineering?
Computer engineering deals with the electronic hardware side of electrical engineering 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, data 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.

Career Opportunities in Computer Engineering
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 through 2015, 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 other devices such as appliances or cell phones, also will increase the demand for computer hardware engineers.

Computer Science
http://www.eecs.utk.edu/

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 in Computer Science
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.
designs that enhance the quality of life for all people, both as sciences. This concern for the human element leads to system engineering also emphasizes the life sciences and social mathematics and the physical sciences. However, industrial engineering disciplines, industrial engineering is based on integration of new technologies. In common with all approach, scientific method, engineering design, and Industrial engineers create value through a total systems humankind, in terms of safety, quality and productivity. is to achieve the best possible results for the benefit of engineering disciplines. The industrial engineer's objective that distinguishes industrial engineering from the other It is this emphasis on people, science and technology unique combination of skills can be applied to many working industrial engineer typically works on problems or systems which include human beings as a major variable; and the industrial engineer is by definition a systems engineer, whose industrial engineering is distinctive in two respects: The industrial engineer typically works on problems or systems which include human beings as a major variable; and the industrial engineer is by definition a systems engineer, whose unique combination of skills can be applied to many working environments.

Career Information
What can I do with this engineering major?

Electrical Engineering
http://www.eecs.utk.edu/
What is Electrical Engineering?

Electrical engineering deals with the application of the physical laws governing charged particles. From miniature integrated circuits that contain millions of microelectronic devices, to high-speed fiber-optic communication systems that span international boundaries, electrical engineering impacts every aspect of modern-day living. Electrical engineering is unique among the engineering disciplines because of its wide range of applications. Subject areas within electrical engineering are so diverse that it is not always apparent that there is an underlying connection. The range of subjects is not only broad but is also expanding. The program educational objectives of the electrical 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.

Industrial Engineering
http://www.engr.utk.edu/ie/
What is Industrial Engineering?

Originally, the industrial engineering profession focused on manufacturing. Today's industrial engineer is involved in the design of systems and processes to produce and deliver goods and services not only in manufacturing, but also in the service industries and government sectors of the economy. Industrial engineers are concerned with the design of integrated systems involving people, materials, facilities, finances, equipment, and energy to ensure the overall system functions efficiently and human needs are adequately met. Industrial engineering is distinctive in two respects: The industrial engineer typically works on problems or systems which include human beings as a major variable; and the industrial engineer is by definition a systems engineer, whose unique combination of skills can be applied to many working environments.

Career Opportunities in Industrial Engineering

The growth trends for employment of electrical engineering graduates are expected to increase through 2015. Projected job growth stems largely from increased demand for electrical and electronic goods, including advanced communications equipment, computer communications, biomedical instrumentation, defense-related electronic equipment, and consumer electronics products. The need for electronics manufacturers to invest heavily in research and development to remain competitive and gain a scientific edge will provide openings for graduates who have learned the latest technologies.

Career Opportunities in Electrical Engineering

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Career Opportunities in Industrial Engineering

Industrial engineers have an almost unlimited range of career fields available, including retail distribution, banking, health-care delivery, corporate management, consulting firms, aerospace systems, research groups, government and military agencies as well as manufacturing. In all areas of manufacturing, service and government, there is increasing emphasis on the goal of improving quality and productivity. Industrial engineers work closely with the top management in these sectors to achieve this goal. IE's command very competitive salaries in a strong market that is expected to grow by 20% over the next decade – the third strongest growth of the fifteen engineering disciplines. IE's also rank very high in job satisfaction surveys.

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Materials Science & Engineering
http://www.engr.utk.edu/mse/

What is Materials Science and Engineering?

Materials Science and Engineering (MSE) is a discipline that is on the leading edge of technology through the development of new materials and the improvement of existing materials for applications in all engineering fields. It is at the forefront of modern technological advances and its graduates are in great demand.

Materials engineers can be found working in all technological fields, usually as part of a multidisciplinary team. For this reason, materials engineers receive a broad engineering education that includes design, mechanics, chemistry, physics, mathematics and electronics. The processing and testing of materials are core subjects in the MSE curriculum that stresses “hands-on” learning through laboratory classes that introduce students to modern processing and characterization techniques.

Modern engineering materials are used in a broad spectrum of products, including automobiles, aircraft and spacecraft, jet and rocket engines, surgical implant devices, computers, cell phones, optical displays, textiles and sports equipment. The types of engineering materials include metals and alloys, polymers and plastics, ceramics, semiconductors, and composites.

The department has one of the lowest student-faculty ratios (about 4:1) in the College of Engineering. This allows MSE students to receive a great deal of individual interaction with the faculty, especially in laboratory courses. The educational objectives of the program for the degree of B.S. in Materials Science and Engineering are:

- to provide students with a knowledge of the fundamentals of appropriate physical and chemical sciences, mathematics and engineering sciences; and to demonstrate the applications of these principles to solve engineering problems with emphases on materials processing, structure, properties and performance. This knowledge base includes the development of analytical and experimental skills.
- to provide students with experiences in design and materials selection such that they can design components, systems or processes with consideration of economic, safety, environmental and social issues.
- to develop professional skills in such areas as written and oral communications, problem solving and working in diverse teams, that prepare graduates to practice materials engineering in contemporary and global environments.
- to provide students with a general education component that complements the technical content, encourages the appreciation of cultural and social values, exhibits the impact of engineering solutions on society, and enhances personal development.

Career Information
What can I do with this engineering major?

The university’s engineering programs are fully accredited by the ABET Engineering Accreditation Program. Career Opportunities in Materials Science and Engineering Graduates with a Bachelor of Science (B.S.) degree in Materials Science and Engineering receive employment offers from a wide range of industries both in Tennessee and nationwide. MSE graduates can be found working in many different capacities, including basic and applied research, product and process development, manufacturing, quality control, material selection and failure analysis. Materials science graduates frequently opt to continue their education through graduate school for Master of Science and Ph.D. degrees.
Mechanical Engineering

http://www.engr.utk.edu/mabe/

What is Mechanical Engineering?

Mechanical engineering is the application of the laws of solid and fluid mechanics and the thermal sciences to the analysis, design and/or manufacturing of systems and products. Mechanical engineers play a key role in national, state and local economies by bringing their expertise to the development of power generation systems (such as steam turbines, jet engines and internal combustion engines) that provide mechanical power to all segments of society. They also bring essential expertise to manufacturing processes, efficient production methods and automation vital to the well being of the national economy. Their expertise and involvement in the analysis, design and development of new products and materials for new devices and systems produce economic activity and provide employment opportunities which sustain high standards of living.

The mechanical engineering program at UT offers fundamental education in the engineering sciences and engineering design. The engineering science component educates students in the fundamental principles of engineering, while the engineering design component emphasizes design methodology, enhances creative skills and develops student ability to solve open-ended problems of the type common to industry.

The undergraduate experience is broad-based and includes, in the first two years, general education in mathematics, sciences and preliminary design courses that are common with curricula in other engineering programs.

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:

- to prepare students for professional careers by developing their skills in problem formulation, problem solving, analysis, computation, synthesis, teamwork and effective communication
- to teach students the underlying principles of mechanical and thermal systems and the application of these principles in the design process
- to instill in students an appreciation for the importance of lifelong learning, individual professionalism and ethical practice
- to prepare capable students for graduate study at major universities

Career Opportunities in Mechanical Engineering

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., ORNL, 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.
Career Information
What can I do with this engineering major?

Nuclear Engineering
http://www.engr.utk.edu/nuclear/

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 fundamental knowledge in mathematics, computer science, the basic sciences and the engineering sciences that are necessary to solve complex problems in nuclear and radiological engineering;
- provide students with a real-world design and analysis experience in nuclear and radiological engineering that includes environmental, societal, safety and economic considerations;
- provide students with appropriate skills in oral and written communication, teamwork, laboratory work, problem solving and the use of modern engineering tools that will prepare them to work productively in a contemporary and global environment;
- provide students with a diverse general education in the humanities, ethics and social sciences to compliment their technological education in order to understand and appreciate the importance of each in society and in personal development; and
- foster a genuine desire for life-long learning in students.

Career Opportunities in Nuclear Engineering
Nuclear engineering is actually a very broad and diverse engineering discipline with graduates employed in a wide variety of fields including the electric utility industry (e.g., TVA, Duke Energy, Southern Nuclear Co., Entergy), private industry (e.g., General Electric, Westinghouse, Honeywell, Emerson), and government laboratories (e.g., DOE’s Oak Ridge National Laboratory and NASA’s Johnson Space Flight Center). Nuclear engineering graduates also work as medical physicists and radiation safety officers at hospitals and other health related facilities. The current job market for nuclear engineers is excellent and is expected to improve in the future.

“Inventing is the mixing of brains and materials. The more brains you use, the less materials you need.”
-Charles F. Kettering, American engineer
## Engineering Majors

http://catalog.utk.edu

### Aerospace Engineering Catalog 2013

#### Fall 2013

<table>
<thead>
<tr>
<th>16 hours</th>
<th>Math 141 or 147 (4) FA, SP, SU</th>
<th>EF 151 or 157 (4) FA, SP</th>
<th>EF 105 (1) FA, SP</th>
<th>English 101 or 118 (3) FA, SP, SU</th>
<th>Chem 120 or 128 (4) FA, SP, SU</th>
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<tbody>
<tr>
<td>Prereq: Math 130 or Math ACT 28 or Math SAT 630</td>
<td>Prereq: Math 141 or 147 or Math 157</td>
<td>Prereq: EF 151 or 157</td>
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<td>Prereq: Math 130</td>
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<tr>
<td>Winter Math 142 or 148 (4) FA, SP, SU ME 202 (2) FA, SP, SU EF 152 or 158 (4) FA, SP</td>
<td>EF 230 (2) FA, SP</td>
<td>ME 321 (3) FA, SP, SU</td>
<td>AE 345 (3) FA, SP, SU</td>
<td>ME 331 or 397 (3) FA, SP, SU</td>
<td>AE 351 or 347</td>
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<tr>
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<td>Prereq: EF 152 or 158 or ME 202</td>
<td>Prereq: EF 152 or 158</td>
<td>Prereq: EF 341</td>
<td>Prereq: Physics 231</td>
<td>Prereq: ME 331</td>
</tr>
<tr>
<td>Physics 231 (3) FA, SP, SU</td>
<td>Prereq: ME 202 and Math 142 or 148</td>
<td>Prereq: ME 202 and Math 142 or 148</td>
<td>Prereq: ME 331 and 391</td>
<td>Prereq: Physics 321</td>
<td>Prereq: ME 331</td>
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<td>Gen Ed (3) FA, SP, SU</td>
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<tr>
<td>Spring 2013</td>
<td>ME 331 (3) FA, SP, SU</td>
<td>ME 363 or 367 (3) FA, SP, SU</td>
<td>AE 345 (3) FA, SP, SU</td>
<td>AE 351 or 347</td>
<td>AE 410 (2) FA (OC)</td>
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<tr>
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<td>Prereq: ME 321 and Math 231</td>
<td>Prereq: ME 321 and Math 231</td>
<td>Prereq: AE 341 or 347</td>
<td>Prereq: ME 331 and 391</td>
<td>Coreq: AE 342 and Senior</td>
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<td>Physics 231 (3) FA, SP, SU</td>
<td>Prereq: ME 321 and Math 231</td>
<td>Prereq: ME 321 and Math 231</td>
<td>Prereq: ME 331 and 391</td>
<td>Prereq: Physics 321</td>
<td>Prereq: ME 331</td>
</tr>
<tr>
<td>Gen Ed (3) FA, SP, SU</td>
<td>Prereq: ME 321 and Math 231</td>
<td>Prereq: ME 321 and Math 231</td>
<td>Prereq: ME 331 and 391</td>
<td>Prereq: Physics 321</td>
<td>Prereq: ME 331</td>
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<tr>
<td>AE 422 (3) FA</td>
<td>AE 425 (3) FA</td>
<td>AE 426 (2) FA</td>
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<td>ME courses below</td>
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</tr>
<tr>
<td>AE 449 (3) SP (WC)</td>
<td>AE 449 (3) SP</td>
<td>AE 426 (2.25) FA, SP</td>
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<td>Prereq: AE 345, 351, and 425</td>
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<td>Prereq: AE 345, 351, and 425</td>
<td>ME courses below</td>
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### Departmental Electives

**Choose from:** ME 315, 355, 366, 405, 451, 463, 466, 470, 472, 475 or 477, 476, 480. Other courses require prior approval by the department.

### Progression

**The first two years of the curriculum are considered to be lower-division and the two remaining years upper-division. Students must apply for progression to departmental upper division courses, which depends on academic performance. Factors considered include overall grade point average, performance in selected lower division courses, and evidence of orderly progression through the prescribed curriculum.**

### Full Status

A lower-division student may apply for progression to upper division after completing CHEM 120, ME 202, MATH 231, ME 231, and PHYS 231, with a grade of C or better in each, & overall GPA of at least 2.4.

### Provisional Status

Students who have completed CHEM 120, ME 202, MATH 231, ME 231, and PHYS 231 with a grade of C or better and have an overall GPA between 2.0 and 2.4 may apply for provisional status. The granting of provisional status is based on the availability of space in departmental programs after all full status students have been accommodated. Provisional status students 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. Students who have not progressed to upper-division will be dropped from departmental class rolls.

### Departmental Academic Standing

The Department of Mechanical, Aerospace and Biomedical Engineering expects all students who enter to make progress toward graduation. To graduate from the department, a student must earn a minimum cumulative departmental grade point average of 2.0. Students not meeting the required departmental GPA may be dropped from their major in the department.

### Graduation Requirements

A minimum cumulative GPA of 2.0 in all departmental courses taken at the University of Tennessee, Knoxville, is required for graduation. No more than two departmental courses in which a C- or lower is the highest grade earned may be counted toward graduation. This is in addition to the university's graduation requirements. Students also have opportunities for an Honors Concentration and/or a 5 year BS/MS program. See the Undergraduate Catalog for details and requirements.

### UTRACK Milestones 2013:

<table>
<thead>
<tr>
<th>Term 1</th>
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<td>Course</td>
<td>Milestones</td>
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<tr>
<td>Math 130 or higher or one SS or one AH or one CC</td>
<td>Math 130 or higher</td>
<td>EF 151/157 or Physics 130/137</td>
<td>EF 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201 or CBE 201</td>
<td>No Milestones</td>
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# Biomedical Engineering Catalog 2013

## Fall 16 hours

<table>
<thead>
<tr>
<th>Course/Prerequisite</th>
<th>Hours</th>
<th>Semesters</th>
</tr>
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<tbody>
<tr>
<td>Math 141 or 147 (4)</td>
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<td>EF 151 or 157 (4)</td>
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<td>Prereq: Math 130 or Math ACT 26 or Math SAT 630</td>
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<td>Coreq: Math 141 or 147 and EF 105</td>
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## Spring 17 hours

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<th>Semesters</th>
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<td>Math 142 or 148 (4)</td>
<td>FA, SU</td>
<td>EF 152 or 158 (4)</td>
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<td>Coreq: EF 151 or 157</td>
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## Fall 17 hours

<table>
<thead>
<tr>
<th>Course/Prerequisite</th>
<th>Hours</th>
<th>Semesters</th>
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<tbody>
<tr>
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<td>FA, SU</td>
<td>ME 231 (3)</td>
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<td>Prereq: Math 142 or 148</td>
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<td>Prereq: EF 152 or 158 and ME 202</td>
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## Spring 14 hours

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<th>Semesters</th>
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<tr>
<td>Math 241 or 247 (4)</td>
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<td>Math 360 (1)</td>
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<th>Course/Prerequisite</th>
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<th>Semesters</th>
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<tr>
<td>BME 363 or 367 (3)</td>
<td>FA, SP</td>
<td>AE 343/247 (3)</td>
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<tr>
<td>Prereq: ME 231 and Math 231 and BME 271</td>
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<td>Prereq: ME 231 and Math 241 or 247</td>
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## Spring 16 hours

<table>
<thead>
<tr>
<th>Course/Prerequisite</th>
<th>Hours</th>
<th>Semesters</th>
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<tbody>
<tr>
<td>BME 315 (3)</td>
<td>SP</td>
<td>BME 340 (3)</td>
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<td>Prereq: BME 271 and 363 or 367</td>
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## Fall 17 hours

<table>
<thead>
<tr>
<th>Course/Prerequisite</th>
<th>Hours</th>
<th>Semesters</th>
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</thead>
<tbody>
<tr>
<td>BME 410 (2)</td>
<td>FA</td>
<td>Coreq: BME 455 and Senior</td>
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<td>Prereq: Coreq: BME 455 and Senior</td>
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<td>Coreq: Coreq: BME 345 and Coreq: BME 201 or BME 315 or BME 400</td>
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## Spring 16 hours

<table>
<thead>
<tr>
<th>Course/Prerequisite</th>
<th>Hours</th>
<th>Semesters</th>
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</thead>
<tbody>
<tr>
<td>Gen Ed (3)</td>
<td>FA, SP, SU</td>
<td>Gen Ed (3)</td>
</tr>
<tr>
<td>Cultures &amp; Civilizations</td>
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<td>Cultures &amp; Civilizations</td>
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</tbody>
</table>

### Technical Elective
- Restricted to any 300-500 biomedical engineering course not required for the degree or Chemistry 350 or 356, 360 or 368.

### Biomedical Engineering Elective
- Restricted to any 300-500 biomedical engineering course not required for the degree.

### Progression
- The first two years of the curriculum are considered to be lower-division and the remaining two years upper-division. Students must apply for progression to departmental upper-division courses, which depends on academic performance. Factors considered include overall grade point average, performance in selected lower-division courses, and evidence of orderly progression through the prescribed curriculum.

### Full Status
- A lower-division student may apply for progression to upper-division after completing BME 271, CHEM 120, ME 202, BME 315, and MATH 231 with a grade of C or better in each and an overall GPA of at least 2.4.

### Provisional Status
- Students who have completed CHEM 120, ME 202, MATH 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. The granting of provisional status is based on the availability of space in departmental programs after full-status students have been accommodated. Provisional status students are required to demonstrate their ability to perform satisfactorily in upper-division by attaining a minimum GPA of 2.0 in their 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.

### Departmental Academic Standing
- The Department of Mechanical, Aerospace and Biomedical Engineering expects all students who enter to make progress toward graduation. To graduate from the department, a student must earn a minimum cumulative departmental grade point average of 2.0. Students not meeting the required departmental GPA may be dropped from their major in the department. In addition, the University Academic Good Standing Policies apply to all students.

### Graduation Requirements
- A minimum cumulative GPA of 2.0 in all departmental courses taken at the University of Tennessee, Knoxville, is required for graduation. No more than two departmental courses in which a C- or lower is the highest grade earned may be counted toward graduation. This is in addition to the university's graduation requirements. Students also have opportunities for an Honors Concentration and/or a five-year BS/MS program. See the Undergraduate Catalog for details and requirements.

### UTRACK Milestones 2013

<table>
<thead>
<tr>
<th>Term 1</th>
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<td>EF 151/157 or Physics 135/137</td>
<td>EF 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201 or ECE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
### Biosystems Engineering Catalog 2013

#### Fall
- **16 hours**
  - Math 141 or 147 (4) FA, SP, SU
  - EF 151 or 157 (4) FA, SP, SU
  - EF 105 (1) FA, SP, SU
  - English 101 or 118 (3) FA, SP, SU
  - Chem 120 or 128 (4) FA, SP, SU
  - Coreq- Math 130 or Math ACT 28 or Math SAT 630

#### Spring
- **17 hours**
  - Math 142 or 148 (4) FA, SP, SU
  - EF 152 or 158 (4) FA, SP, SU
  - ME 202 (2) FA, SP, SU
  - EF 102 (3) FA, SP, SU
  - Gen Ed (3) FA, SP, SU
  - Cultures & Civilizations

#### Fall
- **17 hours**
  - Math 241 or 247 (4) FA, SP, SU
  - ME 231 (3) FA, SP, SU
  - ME 331 (3) FA, SP, SU
  - BF 151 or 157 (4) FA, SP, SU
  - BF 105 (1) FA, SP, SU

#### Spring
- **17 hours**
  - Math 241 or 247 (4) FA, SP, SU
  - ME 231 (3) FA, SP, SU
  - ME 331 (3) FA, SP, SU
  - BF 152 or 158 (4) FA, SP, SU
  - BF 102 (3) FA, SP, SU

#### Fall
- **16 hours**
  - AE 341 or 347 (3) FA, SP, SU
  - AE 341 or 347 (3) FA, SP, SU
  - ECE 301 (3) FA, SP, SU
  - BF 231 (3) FA, SP, SU

#### Spring
- **16 hours**
  - BSE 411 (3) FA, SP, SU
  - BF 416 (3) FA, SP, SU
  - BF 431 (3) SP
  - BF 451 (4) SP

#### Fall
- **14 hours**
  - ECON 201 or 207 (4) FA, SP, SU or AREC 201
  - Social Science
  - BF 401 (2) (OC) FA

#### Spring
- **16 hours**
  - Gen Ed (3) FA, SP, SU
  - BF 402 (6) SP
  - Gen Ed (5) FA, SP, SU

#### Progression
Progression of students to departmental upper-division courses is competitive and is based on the space available in the department. Factors considered include overall GPA, performance in selected lower-division courses and evidence of satisfactory and orderly progress through the prescribed curriculum.

*Technical Electives- Note that some electives have required prerequisites. See individual course descriptions for specific information. BSET 412, 414, 432, 434, 452, 462, 474; CE 485; Chem 230, 310, 330 or 358, 360 or 368; ESS 334, 442, 444, 446, 448; Geog 410, 411; Geol 485; IE 304; Math 403, 405, 411, 431; ME 363 or 367, 365, 366, 391 or 397, 393, 455, 451, 456; Phys 323.

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

**UTRACK Milestones 2013:**
- Term 1
  - Math 130 or higher or one SS or one AH or one CC
- Term 2
  - Math 130 or higher
- Term 3
  - EF 151/157 or Physics 130/137
- Term 4
  - EF 152/158 or Physics 139/138
- Term 5
  - ME 202 or CS 102 or MSE 201 or CBE 201
- Term 6 through 8
  - No Milestones
## Biosystems Engineering Catalog 2013
### Pre-Professional Concentration

<table>
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<tr>
<th>Fall</th>
<th>16 hours</th>
<th>Spring</th>
<th>17 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Math 141 or 147 (4) FA, SP, SU</strong>&lt;br&gt;Prereq: Math 130 or Math ACT 28 or Math SAT 630</td>
<td><strong>Math 142 or 148 (4) FA, SR, SU</strong>&lt;br&gt;Prereq: Math 141 or 147</td>
<td><strong>Math 152 or 158 (4) FA, SR, SU</strong>&lt;br&gt;Prereq: EF 151 or 157</td>
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</tr>
<tr>
<td><strong>EF 151 or 157 (4) FA, SP</strong>&lt;br&gt;Coreq: Math 141 or 147 and EF 150</td>
<td><strong>ME 202 (2) FA, SP, SU</strong>&lt;br&gt;Prereq: EF 152 or 158 and Math 142 or 148</td>
<td><strong>ME 331 (3) FA, SP, SU</strong>&lt;br&gt;Coreq: Math 241 or 247</td>
<td></td>
</tr>
<tr>
<td><strong>EF 165 (1) FA, SP</strong>&lt;br&gt;Coreq: EF 151 or 157</td>
<td><strong>BSE 201 (1) FA</strong>&lt;br&gt;Prereq: EF 152 or 158</td>
<td><strong>BSE 211 (3) FA</strong>&lt;br&gt;Prereq: EF 151 or 158</td>
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</tr>
<tr>
<td><strong>English 101 or 118 (3) FA, SP, SU</strong>&lt;br&gt;Coreq: Math 130</td>
<td><strong>Chem 120 or 128 (4) FA, SP, SU</strong>&lt;br&gt;Coreq: EF 151 or 158</td>
<td><strong>BSE 231 (3) FA</strong>&lt;br&gt;Prereq: Chem 120 or 128</td>
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</table>

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Math 241 or 247 (4) FA, SR, SU</strong>&lt;br&gt;Prereq: Math 142 or 148</td>
<td><strong>Math 231 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Math 142 or 148</td>
<td><strong>Chem 350 or 358 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Chem 130 or 138</td>
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</tr>
<tr>
<td><strong>ME 231 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: EF 152 or 158 and Coreq: Math 241 or 247</td>
<td><strong>ME 331 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Chem 130 or 138</td>
<td><strong>ME 321 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: ME 202 and Math 142 or 148</td>
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<tr>
<td><strong>BSE 221 (1) FA</strong>&lt;br&gt;Prereq: Chem 120 or 128</td>
<td><strong>BSE 321 (3) SP</strong>&lt;br&gt;Prereq: BSE 221</td>
<td><strong>BSE 231 (3) FA</strong>&lt;br&gt;Prereq: Denver 120 or Denver 128 and Math 141 or 147</td>
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</table>

<table>
<thead>
<tr>
<th>Fall</th>
<th>16 hours</th>
<th>Spring</th>
<th>15 hours</th>
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<tr>
<td><strong>Phil 244 (3) FA, SP</strong>&lt;br&gt;Prereq: Math 142 or 148</td>
<td><strong>BSE 411 (3) SP</strong>&lt;br&gt;Prereq: ME 231 and 321</td>
<td><strong>BSE 451 (4) SP</strong>&lt;br&gt;Prereq: BSE 321</td>
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<tr>
<td><strong>AE 341 or 374 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: ME 231 and Math 241 or 247</td>
<td><strong>BSE 431 (3) SP</strong>&lt;br&gt;Prereq: BSE 321</td>
<td><strong>BSE 402 (6) SP</strong>&lt;br&gt;Prereq: BSE 401 or 404 and 444</td>
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<td><strong>ECE 301 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Math 142</td>
<td><strong>BSE 201 (1) FA</strong>&lt;br&gt;Prereq: ME 202 and Math 142 or 148</td>
<td><strong>BSE 404 (2) FA</strong>&lt;br&gt;Prereq: BSE 401 and 444</td>
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<tr>
<td><strong>Stats 251 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Math 142 or 148</td>
<td><strong>Chem 360 or 368 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: BSE 350 or 358</td>
<td><strong>Chem 369 (2) FA, SP, SU</strong>&lt;br&gt;Prereq: Chem 360 or 368</td>
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<tbody>
<tr>
<td><strong>Econ 201 or 207 (4) FA, SP, SU</strong>&lt;br&gt;Prereq: Denver 120 or Denver 128</td>
<td><strong>Gen Ed (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Cultures &amp; Civilizations</td>
<td><strong>Gen Ed (3) FA, SP, SU</strong>&lt;br&gt;Prereq: BSE 401 or 404 and 444</td>
<td></td>
</tr>
<tr>
<td><strong>Social Science</strong></td>
<td><strong>Gen Ed (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Cultures &amp; Civilizations</td>
<td><strong>Social Science</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Gen Ed (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Cultures &amp; Civilizations</td>
<td><strong>Gen Ed (3) FA, SP, SU</strong>&lt;br&gt;Prereq: BSE 401 or 404 and 444</td>
<td><strong>Gen Ed (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Cultures &amp; Civilizations</td>
<td></td>
</tr>
</tbody>
</table>

### Progression
Progression of students to departmental upper-division courses is competitive and is based on the space available in the department. Factors considered include overall GPA, performance in selected lower-division courses and evidence of satisfactory and orderly progress through the prescribed curriculum.

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

### UTRACK Milestones 2013:

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
<th>Term 4</th>
<th>Term 5</th>
<th>Term 6 through 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 130 or higher or one SS or one AH or one CC</td>
<td>Math 130 or higher</td>
<td>EF 151/157 or Physics 135/137</td>
<td>EF 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201 or ECE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
### Chemical and Biomolecular Engineering Catalog 2013

**Fall 2013**

- **16 hours**
  - Math 141 or 147 (4) FA, SP, SU
  - Prereq- Math 130 or Math ACT 28 or Math SAT 630
  - Chem 120 or 128 (4) FA, SP, SU
  - Prereq- Chem 120 or 126
  - English 101 or 118 (3) FA, SP, SU
  - Prereq- English 101 or 118
  - EF 151 or 157 (4) FA, SP
  - Coreq- Math 141 or 147 and EF 105
  - EF 105 (1) FA, SP

**Spring 2013**

- **15 hours**
  - Math 142 or 148 (4) FA, SP, SU
  - Prereq- Math 141 or 147
  - Chem 130 or 138 (4) FA, SP, SU
  - Prereq- Chem 120 or 128
  - English 102 (3) FA, SP, SU
  - Prereq- EF 151 or 157
  - EF 152 or 158 (4) FA, SP, SU
  - Prereq- EF 151 or 157
  - Coreq- Math 142 or 148

### Math 142 or 148 Prereq- Math 130 or Math ACT 28 Math 130 Coreq- Math 141 or 147 and Coreq- EF 151 or 157

**Prereq-**
- Math 130 or Math ACT 28
- Math SAT 630
- EF 151 or 157

**Coreq-**
- Math 141 or 147
- EF 105

### Fall 2013

- **16 hours**
  - Math 231 (3) FA, SP, SU
  - Prereq- Math 140 or 148
  - CBE 201 (4) FA, SU
  - Prereq- EF 152/158 & Chem 130/138
  - Coreq- Math 231
  - CBE 235 (3) FA
  - Prereq- EF 152/158 & Chem 130/138
  - Coreq- Biology 140 or 148
  - EF 152 or 158 (4) FA, SP, SU
  - Prereq- EF 152 or 158
  - Coreq- Math 231

**Spring 2013**

- **15 hours**
  - Chem 310 (3) & 319 (1) FA, SP
  - Prereq- Chem 130 or 138
  - Math 241 or 247 (4) FA, SP, SU
  - Prereq- Math 142 or 148
  - EF 152 or 158 (4) FA, SP
  - Prereq- EF 152 or 158
  - EF 230 (1) FA, SP

**Prereq-**
- Math 142 or 148
- EF 152/158
- Chem 130/138

**Coreq-**
- Math 142 or 148

### Math 231 Prereq- Math 140 or 148

**Coreq-**
- CBE 201
- EF 151 or 157

### Spring 2013

- **19 hours**
  - CBE 340 (5) SP, SU
  - Prereq- CBE 201 and 250
  - Restrictions: 2.3 GPA
  - CBE 350 (5) SP, SU
  - Prereq- CBE 201 and 240
  - Coreq- Math 231
  - CBE 380 (1) SP
  - Grad: Satisfactory/ No Credit
  - Bio Option I **(3) FA, SP, SU
  - Petition required in advance
  - See note below***

**Prereq-**
- CBE 201 and 240
- EF 152/158 & Chem 130/138
- Coreq- Math 241 or 247

**Coreq-**
- Math 241 or 247

### Spring 2013

- **16 hours**
  - CBE 445 (3) FA
  - Prereq- CBE 340
  - CBE 415 (WC) (3) FA
  - Prereq- CBE 301 and 340
  - Restrictions: 2.3 GPA
  - CBE 480 (3) FA
  - Prereq- CBE 360 and Chem 350 or 358
  - Coreq- Math 232
  - Gen Ed (3) FA, SP, SU
  - Arts and Humanities

**Prereq-**
- CBE 340
- EF 152/158 & Chem 130/138
- Coreq- Math 241 or 247

**Provisional Status**

- Students who have completed CBE 201, CBE 235, CBE 240, and CBE 250 with an overall GPA of at least 2.3 may apply for provisional status. The granting of provisional upper-division status is based on availability of space in the departmental programs after upper-division status students have been accommodated. Provisional students are required to demonstrate the ability to perform satisfactorily in upper-division courses by completing a total of seven departmental courses with a grade of C or better in each course (including the four required for upper-division status). Permission to continue with upper-division classes depends on this minimum level of performance.

- Any student with an overall GPA below 2.3 will not be admitted to upper-division chemical and biomolecular engineering courses. Students who have not been admitted to upper-division or provisional status will be dropped from upper-division departmental classes.

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

**UTRACK Milestones 2013:**

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
<th>Term 4</th>
<th>Term 5</th>
<th>Term 6 through 8</th>
</tr>
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<tbody>
<tr>
<td>Math 130 or higher or one SS or one SS or one SS</td>
<td>Math 130 or higher</td>
<td>EF 151/157 or Physics 130/137</td>
<td>EF 152/158 or Physics 130/137</td>
<td>ME 202 or C S 102 or CBE 201</td>
<td>No Milestones</td>
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</table>
### Chemical and Biomolecular Engineering Catalog 2013
#### Biomolecular Concentration

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
</table>
| **Fall 16 hours** | Math 141 or 147 (4) FA, SP, SU  
Chem 130 or 138 (4) FA, SP, SU  
Physics 135/137 or CBE 201  
Restrictions: 2.3 GPA |
| **Spring 15 hours** | Math 142 or 148 (4) FA, SP, SU  
Chem 130 or 138 (4) FA, SP, SU  
Physics 135/137 or CBE 201  
Restrictions: 2.3 GPA |
| **Fall 17 hours** | Math 231 (2) FA, SP, SU  
Chem 120 or 128 (4) FA, SP, SU  
Eff 151 or 157 (4) FA, SP, SU  
Restrictions: 2.3 GPA |
| **Spring 15 hours** | Math 241 or 247 (4) FA, SP, SU  
Chem 120 or 128 (4) FA, SP, SU  
Physics 135/137 or CBE 201  
Restrictions: 2.3 GPA |
| **Fall 15 hours** | Chemistry 350 or 358 (3) FA, SP, SU  
Chem 130 or 138 (4) FA, SP, SU  
Physics 231 (3) FA, SP, SU  
Restrictions: 2.3 GPA |
| **Spring 19 hours** | CBE 340 (3) SP, SU  
CBE 360 or 368 (3) FA, SP, SU  
CBE 455 (3) SP, SU  
Restrictions: 2.3 GPA |
| **Fall 16 hours** | CBE 455 (3) SP, SU  
CBE 419 (WC) (3) FA, SP, SU  
CBE 488 or 498 (3) SP, SU  
Restrictions: 2.3 GPA |
| **Spring 16 hours** | CBE 461 (1) SP  
CBE 475 (3) SP  
CBE 473 (3) SP |

* Biology Option I: Choose one CBE 230, 321, 401, 412; Biology 250, CBE 455, Microbiology 210, 310.

**Progression to Upper Division**
Progression of students in the Department of Chemical and Biomolecular Engineering to departmental courses numbered 310 and above is competitive and is based on capacity. Factors considered include overall grade point average, performance in selected lower-division courses, and evidence of satisfactory and orderly progress through the prescribed curriculum.

**Upper-Division Status**
A lower-division student must apply for progression to upper division status after completing CBE 201, CBE 235, CBE 240, and CBE 250 with a grade of C or better in each course and an overall GPA of 2.3 or better.

**Provisional Status**
Students who have completed CBE 201, CBE 235, CBE 240, and CBE 250 with an overall GPA of at least 2.3 may apply for provisional status. The granting of provisional upper-division status is based on availability of space in the departmental programs after upper-division status students have been accommodated. Provisional students are required to demonstrate the ability to perform satisfactorily in upper-division courses by completing a total of seven departmental courses with a grade of C or better in each course (including the four required for upper-division status). Permission to continue with upper-division classes depends on this minimum level of performance. Any student with an overall GPA below 2.3 will not be admitted to upper-division chemical and biomolecular engineering courses. Students who have not been admitted to upper-division or provisional status will be dropped from upper-division departmental classes.

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

**UTRACK Milestones 2013**:

- **Term 1**: Math 130 or higher or one SS or one AH or one OC  
- **Term 2**: Math 130 or higher  
- **Term 3**: EF 151/157 or 158 or Physics 135/137  
- **Term 4**: EF 153/158 or Physics 136/138  
- **Term 5**: ME 302 or CS 102 or MSE 201  
- **Term 6 through 8**: No Milestones
## Civil Engineering Catalog 2013

### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>English 101 or 118</td>
<td>FA, SR, SU</td>
<td>Math 130</td>
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<td>Chem 130 or 138 (4)</td>
<td>FA, SR, SU</td>
<td>Math 141 or 147 (4)</td>
<td>Physics 131 or 137</td>
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<tr>
<td>EF 151 or 157 (4)</td>
<td>FA, SR, SU</td>
<td>Math 141 or 147</td>
<td>Physics 131 or 137</td>
<td>15</td>
</tr>
<tr>
<td>EF 153 (4)</td>
<td>FA, SR, SU</td>
<td>Math 141 or 147</td>
<td>Physics 131 or 137</td>
<td>15</td>
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</table>

### Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101 or 118</td>
<td>FA, SR, SU</td>
<td>Math 130</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Chem 130 or 138 (4)</td>
<td>FA, SR, SU</td>
<td>Math 141 or 147 (4)</td>
<td>Physics 131 or 137</td>
<td>15</td>
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<tr>
<td>EF 151 or 157 (4)</td>
<td>FA, SR, SU</td>
<td>Math 141 or 147</td>
<td>Physics 131 or 137</td>
<td>15</td>
</tr>
<tr>
<td>EF 153 (4)</td>
<td>FA, SR, SU</td>
<td>Math 141 or 147</td>
<td>Physics 131 or 137</td>
<td>15</td>
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### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 231 (5)</td>
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<td>Math 130 or 138</td>
<td>Physics 130</td>
<td>6</td>
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<tr>
<td>STATS 310 (5)</td>
<td>FA, SR, SU</td>
<td>Math 130 or 138</td>
<td>Physics 130</td>
<td>6</td>
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<tr>
<td>ECON 201 or 207 (4)</td>
<td>FA, SR, SU</td>
<td>Math 130 or 138</td>
<td>Physics 130</td>
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<tr>
<td>ME 202 (5)</td>
<td>FA, SR, SU</td>
<td>Math 130 or 138</td>
<td>Physics 130</td>
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### Spring

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<th>Course Code</th>
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<th>Hours</th>
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<td>Math 231 (5)</td>
<td>FA, SR, SU</td>
<td>Math 130 or 138</td>
<td>Physics 130</td>
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<td>STATS 310 (5)</td>
<td>FA, SR, SU</td>
<td>Math 130 or 138</td>
<td>Physics 130</td>
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<td>ECON 201 or 207 (4)</td>
<td>FA, SR, SU</td>
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<td>ME 202 (5)</td>
<td>FA, SR, SU</td>
<td>Math 130 or 138</td>
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<tr>
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<th>Prerequisites</th>
<th>Corequisites</th>
<th>Hours</th>
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<td>CE 262 (3)</td>
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<td>Physics 130</td>
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<td>6</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td>CE 262 (3)</td>
<td>FA, SP</td>
<td>Physics 130</td>
<td>6</td>
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</tbody>
</table>

### Graduation Requirements

- Students are required to maintain a cumulative grade point of at least 2.0 in all civil engineering and environmental engineering courses taken at the University of Tennessee, Knoxville, used to satisfy the graduation requirements.
- No more than four credit hours of civil and environmental engineering courses in which a C- or lower is the highest grade earned may be counted toward graduation. Students must earn a grade of C or better in all courses within their two selected concentrations.
- Students also have opportunities for an Honors Concentration and/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.
- Graduation Milestones 2013:
  - Term 1: Math 130 or higher or one SS or one AH or one CC.
  - Term 2: Math 130 or higher.
  - Term 3: Math 130 or higher or one SS or one AH or one CC.
  - Term 4: Math 130 or higher.
  - Term 5: Math 130 or higher.
  - Term 6 through 8: No Milestones.
### Department of Electrical Engineering and Computer Science

#### Computer Engineering Catalog 2013

**Fall 15 hours**
- Math 141 or 147 (4) FA, SP, SU
  - Prereq: Math 130 or Math ACT 28
  - Coreq: Math 141 or 147 and EF 106 or CS 102
- EF 131 or 137 (4) FA, SP
  - Coreq: Math 141 or 147 and EF 106 or CS 102
- CS 102 (4) FA, SP
- English 101 or 118 (3) FA, SP, SU

**Spring 15 hours**
- Math 143 or 145 (4) FA, SP, SU
  - Prereq: Math 141 or 147
- EF 132 or 138 (4) FA, SP
  - Prereq: EF 151 or 157
  - Coreq: Math 142 or 148
- CS 160 (4) FA, SP
  - Prereq: CS 102
- English 102 (3) FA, SP, SU
  - Prereq: English 101 or 118

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**Fall 16 hours**
- Math 231 (3) FA, SP, SU
  - Prereq: Math 142 or 148
- ECE 201 (3) FA, SP
  - Prereq: EF 153/1598 and Math 142/148
  - Coreq: Math 251
- EF 144 (4) FA, SP
  - Prereq: Math 142 or 148
- Physics 231 (3) FA, SP, SU
  - Prereq: Physics 231
  - Coreq: Math 241 or 247
- English 102 (3) FA, SP, SU
  - Prereq: English 101 or 118

**Spring 15 hours**
- Math 241 or 247 (4) FA, SP, SU
  - Prereq: Math 142 or 148
- ECE 202 (3) FA, SP
  - Prereq: EF 201
- Math 251 or 257 (3) FA, SP, SU
  - Prereq: Math 142 or 148
- Physics 232 (3) FA, SP, SU
  - Prereq: Physics 231
  - Coreq: Math 241 or 247
  - Chem 120 or 128 (4) FA, SP, SU
  - Math 130

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**Fall 17 hours**
- ECE 315 (5) FA, SP
  - Prereq: ECE 300 or 202
- ECE 335 (3) FA, SP
  - Prereq: ECE 300 or 202
- CS 321 (4) FA, SP
  - Prereq: CS 140
- CS 331 (4) FA, SP
  - Prereq: CS 140, CS 160 and Math 142 or 148
- CS 361 (3) FA, SP
  - Prereq: CS 160 and 302
- Upper Elective (3) FA, SP, SU
- Gen. Ed. (3) FA, SP, SU
  - Cultures and Civilizations
- Gen. Ed. (3) FA, SP, SU
  - Arts and Humanities

**Spring 15 hours**
- ECE 401 (OC&WC) (2) FA
  - Prereq: ECE 401
- ECE 351 or 357 (3) FA, SP
  - Prereq: ECE 255
- CS 311 (3) FA, SP
  - Prereq: CS 300, CS 160 and Math 142 or 148
- CS 361 (3) FA, SP
  - Prereq: CS 160 and 302
- Upper Elective (3) FA, SP, SU
- Upper Elective (3) FA, SP, SU
- Gen. Ed. (3) FA, SP, SU
  - Arts and Humanities
- Gen. Ed. (3) FA, SP, SU
  - Gen. Ed. (3) FA, SP, SU
  - Social Science

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**Fall 17 hours**
- ECE 300 (5) FA, SP
  - Prereq: ECE 300 or 202
- ECE 315 (3) FA, SP
  - Prereq: ECE 300 or 202
- CS 321 (4) FA, SP
  - Prereq: CS 140
- CS 331 (4) FA, SP
  - Prereq: CS 140, CS 160 and Math 142 or 148
- CS 361 (3) FA, SP
  - Prereq: CS 160 and 302
- Upper Elective (3) FA, SP, SU
- Upper Elective (3) FA, SP, SU
- Gen. Ed. (3) FA, SP, SU
  - Cultures and Civilizations
- Gen. Ed. (3) FA, SP, SU
  - Social Science

**Spring 15 hours**
- ECE 401 (5) FA, SP
  - Prereq: ECE 401
- ECE 401 (5) FA, SP
  - Prereq: ECE 401
- CS 411 (3) FA, SP
  - Prereq: CS 300 or 311
- CS 480 (3) FA, SP
  - Prereq: ECE 255 and CS 160
- Upper Elective (3) FA, SP, SU
- Upper Elective (3) FA, SP, SU
- Upper Elective (3) FA, SP, SU
- Upper Elective (3) FA, SP, SU
- Gen. Ed. (3) FA, SP, SU
  - Social Science

### Progression

- The department requires at least a C in every computer engineering, computer science, electrical engineering, and mathematics course used for the undergraduate degrees. Students taking ECE 201 must also have a C or better in EF 152 or 158.
- Progression of departmental undergraduate students to the upper-division programs of the department is competitive and is based on the space available in the department. Factors considered in the decision include overall grade point average, grades earned in courses required in the lower division curricula of the department and College of Engineering, and seriousness of purpose and interest in departmental programs as exemplified by regular and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges.
- Students who take ECE 300 (ECE 201-202) will be evaluated during the semester they are registered for it. Transfer students for whom ECE 300 (ECE 201-202) transfer credit is given may take 9 semester hours in departmental courses before progression evaluation. All students, whether or not they transfer in, who are not accepted into the upper-division program of the department will be put in either a temporary probationary status or a non-progressed status and will not be permitted to register for any upper division courses within the department.
- Students also have opportunities for an Honors Concentration and/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.

### UTRACK Milestones 2013:

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<thead>
<tr>
<th>Term 1</th>
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<th>Term 5</th>
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<td>ME 202 or CS 102 or MSE 201 or CMSE 201</td>
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**No Milestones**
### Department of Electrical Engineering and Computer Science
#### Computer Science Catalog 2013

<table>
<thead>
<tr>
<th>Term</th>
<th>CS Courses</th>
<th>Math Courses</th>
<th>Physics Courses</th>
<th>English Courses</th>
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<tbody>
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<td>Math 141 or 147 (4) FA, SP</td>
<td>Math 130 or Math ACT 28 or Math SAT 630</td>
<td>English 161 or 168 (3) FA, SP, SU</td>
</tr>
<tr>
<td>Spring 15-16 h</td>
<td>CS 180 (4) FA, SP</td>
<td>Prepr: CS 102</td>
<td>Math 142 or 146 (4) FA, SP, SU</td>
<td>Prepr: Math 141 or 147</td>
</tr>
<tr>
<td>Fall 14-15 h</td>
<td>CS 140 (4) FA, SP</td>
<td>Prepr: CS 102</td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
<td>Biolog 191 FA, SU or 139 FA, SP, SU or Bioch 139 FA, SP, SU or Physics 231 FA, SP, SU or-6</td>
</tr>
<tr>
<td>Spring 13 h</td>
<td>CS 326 or 327 (4) FA, SP</td>
<td>Prepr: CS 140</td>
<td>Math 251 or 257 (4) FA, SP, SU</td>
<td>Prepr: Math 142 or 146</td>
</tr>
<tr>
<td>Fall 16 h</td>
<td>CS 336 or 361 (4) FA, SP</td>
<td>Prepr: CS 180 and 302</td>
<td>ECE 313 or 317 (4) FA, SP</td>
<td>Prepr: Math 142 or 148</td>
</tr>
<tr>
<td>Spring 15 h</td>
<td>CS 358 (4) SP</td>
<td>Prepr: CS 302</td>
<td>CS Upper Division Elective** (3) FA, SP, SU</td>
<td>Prepr: Math 142 or 148</td>
</tr>
<tr>
<td>Fall 17 h</td>
<td>CS 491 (3) (OC &amp; WC)</td>
<td>Prepr: CS 360</td>
<td>CS Upper Division Elective** (3) FA, SP, SU</td>
<td>Prepr: Math 142 or 148</td>
</tr>
<tr>
<td>Spring 12 h</td>
<td>CS 492 (3) (OC &amp; WC)</td>
<td>Prepr: CS 461</td>
<td>CS Upper Division Elective** (3) FA, SP, SU</td>
<td>Prepr: Math 142 or 148</td>
</tr>
</tbody>
</table>

**The following list shows an acceptable set of electives that may be taken to satisfy the upper division electives for the CS major. The electives have been grouped into 6 suggested tracks. The tracks group related electives that a student may wish to take in order to achieve a level of expertise in the indicated area. However, it is not mandatory to take any track and students are free to mix and match courses from different tracks to fit their specific interests.**

**Theory:** CS 440, 482, Systems: CS 458, 462, ECE 453, 454; Software: CS 340, 461, 465; Hardware: ECE 451, 455; Scientific Computing: CS 370 or 377, 471, 472, Math 231; Artificial Intelligence: CS 420 or 427, 425, ECE 471

**Progression:**

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

- Progression of departmental undergraduate students to the senior and graduate programs of the department is competitive and is based on the space available in the department. Factors considered in the decision include overall grade point average, courses required in the lower division curricula of the department and College of Engineering, and seriousness of purpose and interest in departmental programs as exemplified by regular and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges.

- Students also have opportunities for an Honors Concentration and/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.
## Department of Electrical Engineering and Computer Science

### Electrical Engineering Catalog 2013

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
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<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>15 hours</strong></td>
<td></td>
<td><strong>Math 141 or 147 (4) FA, SP, SU</strong>&lt;br&gt;Prereq: Math 130 or Math 38 ACT or Math 630 SAT</td>
<td><strong>EF 151 or 157 (4) FA, SP</strong>&lt;br&gt;Prereq: Math 141 or 147 and EF 105 or CS 102</td>
</tr>
<tr>
<td></td>
<td><strong>CS 182 (4) FA, SP</strong></td>
<td></td>
<td><strong>English 101 or 118 (3) FA, SP, SU</strong></td>
<td></td>
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<tr>
<td><strong>Spring</strong></td>
<td><strong>15 hours</strong></td>
<td></td>
<td><strong>Math 142 or 148 (4) FA, SP, SU</strong>&lt;br&gt;Prereq: Math 141 or 147</td>
<td><strong>CS 160 (4) FA, SP</strong>&lt;br&gt;Prereq: CS 102</td>
</tr>
<tr>
<td></td>
<td><strong>English 102 (3) FA, SP, SU</strong></td>
<td></td>
<td><strong>Prereq: English 101 or 118</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Fall**<br>**16 hours**<br>**Math 231 (3) FA, SP, SU**<br>Prereq: Math 142 or 148 | **EF 255 (3) FA, SP, SU**<br>Prereq: CS 160 | **Physics 231 (3) FA, SP, SU**<br>Prereq: Math 142 or 148 | **Chem 120 or 128 (4) FA, SP, SU**<br>Prereq: Math 130 | **ECE 201 (3) FA, SP**<br>Prereq: EF 152/158 and Math 142/148 | **Coreq: Math 142 or 148**<br>Prereq: Math 142 or 148 | **Prereq: English 101 or 118** |
|          | **Physics 231 (3) FA, SP, SU**                                           |         | **Coreq: Math 142 or 148**                                                                   |                                                                              |
|          | **CS 102 (4) FA, SP**                                                    |         | **Prereq: CS 102**                                                                          |                                                                              |

**Spring**<br>**17 hours**<br>**Math 241 or 247 (4) FA, SP, SU**<br>Prereq: Math 142 or 148 | **EF 257 (3) FA, SP**<br>Prereq: CS 102 | **Physics 232 (4) FA, SP, SU**<br>Prereq: Physics 211 | **ECE 313 or 317 (3) FA, SP**<br>Prereq: Math 162 or 148 | **ECE 202 (3) FA, SP**<br>Prereq: Math 231 |
|          | **Physics 232 (4) FA, SP, SU**                                           |         | **Coreq: Math 241 or 247**                                                                   |                                                                              |
|          | **English 102 (3) FA, SP, SU**                                           |         | **Prereq: English 101 or 118**                                                              |                                                                              |

**Fall**<br>**16 hours**<br>**ECE 315 (3) FA, SU**<br>Prereq: ECE 300 or 202 | **ECE 325 (3) FA, SP**<br>Prereq: ECE 300 or 202 | **ECE 335 (3) FA, SP**<br>Prereq: ECE 300 or 202 | **ECE 341 or 347 (3) FA, SP**<br>Prereq: ECE 300 or 202 | **ECE 395 (1) FA, SP**<br>Prereq: ECE 300 or ECE 202 | **Gen. Ed. (5) FA, SP, SU**<br>Social Science |
|          | **Social Science**                                                       |         | **Prereq: ECE 315 or 313**                                                                   |                                                                              |
|          | **ECE 342 (3) FA, SP**                                                   |         | **Gen. Ed. (3) FA, SP, SU**                                                                  |                                                                              |
|          | **ECE Sr. Elective (3) FA, SP, SU**                                     |         | **Gen. Ed. (3) FA, SP, SU**                                                                  |                                                                              |
|          | **Senior Elective**                                                     |         | **Gen. Ed. (3) FA, SP, SU**                                                                  |                                                                              |
|          | **Tech. Elective (3) FA, SP, SU**                                       |         | **Gen. Ed. (3) FA, SP, SU**                                                                  |                                                                              |

**Spring**<br>**15 hours**<br>**ECE Sr. Elective (3) FA, SP, SU**<br>Senior Elective | **Tech. Elective (3) FA, SP, SU**<br>Senior Elective | **ECE 411 (0) CWR (5) FA**<br>Prereq: ECE 315 or 321 | **ECE 492 (0) CWR (5) FA**<br>Prereq: ECE 401 | **Gen. Ed. (3) FA, SP, SU**<br>Cultures and Civilizations |
|          | **ECE Sr. Elective (3) FA, SP, SU**                                     |         | **Petition required in advance**                                                             |                                                                              |
|          | **Senior Elective**                                                     |         | **Petition required in advance**                                                             |                                                                              |
|          | **Tech. Elective (3) FA, SP, SU**                                       |         | **Petition required in advance**                                                             |                                                                              |

**Acceptable Senior Electrical and Computer Engineering Sequences:**<br>415-416 or 417, 421 (or 427)-422, 431-432, 431-433, 441-442, 443-446, 451 or 457/453, 451 or 457/454, 451 or 457/455, 453/454, 471 or 477-472 or 478, 481 or 487-482 **Technical Electives:**<br>Computer Science 140, 311 or Math 300, CS 370; Chemistry 130 or 138; Industrial 405; Materials Science and Engineering 201, 410; Mechanical Engineering 231, 321, 331, 344; Nuclear Engineering 342 or 347.

**Progression**<br>The department requires at least a C in every computer engineering, computer science, electrical engineering, and mathematics course used for the undergraduate degrees. Students taking ECE 201 must also have a C or better in EF 152 or 158.

Progression of departmental undergraduate students to the upper-division programs of the department is competitive and is based on the space available in the department. Factors considered in the decision include overall grade point average, grades earned in courses required in the lower division curricula of the department and College of Engineering, and seriousness of purpose and interest in departmental programs as exemplified by regular and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges.

Students who take ECE 300 (now ECE 201-202) will be evaluated during the semester they are registered for it. Transfer students for whom ECE 300 (now ECE 201-202) transfer credit is given may take 9 semester hours in departmental courses before progression evaluation. All students, whether or not they transfer in, who are not accepted into the upper-division program of the department will be put in either a temporary probationary status or a non-progressed status and will not be permitted to register for any upper division courses within the department.

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

**UTRACK Milestones 2013:**

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<thead>
<tr>
<th>Term</th>
<th>Courses</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tr>
<td>1</td>
<td>Math 130 or higher or one SS or one AH or one CC</td>
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<td></td>
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<tr>
<td>2</td>
<td>Math 130 or higher</td>
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<tr>
<td>3</td>
<td>EF 151/157 or Physics 130/137</td>
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<tr>
<td>4</td>
<td>EF 152/158 or Physics 130/138</td>
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<td>5</td>
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<tr>
<td>6</td>
<td>No Milestones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 15 hours</td>
<td>Math 141 or 147 (4) FA, SP, SU Prereq: Math 130 or Math 23 ACT or Math 130 S &amp; E</td>
<td>EF 151 or 157 (4) FA, SP Prereq: Math 141 or 147 and EF 106 or 107</td>
<td>CS 102 (4) FA, SP Prereq: CS 102</td>
</tr>
<tr>
<td>Spring 15 hours</td>
<td>Math 142 or 148 (4) FA, SP, SU Prereq: Math 141 or M 177</td>
<td>EF 152 or 158 (4) FA, SP Prereq: EF 151 or 157 and CS 102</td>
<td>CS 102 (4) FA, SP Prereq: CS 102</td>
</tr>
<tr>
<td>Fall 16 hours</td>
<td>Math 331 (3) FA, SP, SU Prereq: CS 160</td>
<td>Physics 311 (3) FA, SP, SU Prereq: Math 142 or 148</td>
<td>Chem 120 or 128 (4) FA, SP, SU Prereq: Math 130</td>
</tr>
<tr>
<td>Spring 17 hours</td>
<td>Math 241 or 247 (4) FA, SP, SU Prereq: Math 142 or 148</td>
<td>Math 257 or 259 (3) FA, SP, SU Prereq: Math 142 or 148</td>
<td>Physics 232 (4) FA, SP, SU Prereq: Physics 231 Prereq: Math 241 or 267</td>
</tr>
<tr>
<td>Fall 16 hours</td>
<td>ECE 315 (3) FA, SU Prereq: ECE 300 or 302</td>
<td>ECE 325 (3) FA, SP Prereq: ECE 300 or 302</td>
<td>ECE 335 (3) FA, SP Prereq: ECE 300 or 302</td>
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<tr>
<td>Spring 15 hours</td>
<td>ECE 316 (3) FA, SP, SU Prereq: ECE 315</td>
<td>ECE 365 (3) FA, SP Prereq: ECE 335 Prereq: ECE 315</td>
<td>ECE 342 (3) FA, SP Prereq: ECE 315 and 313</td>
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<tr>
<td>Fall 18 hours</td>
<td>ECE Elective (3) FA, SP, SU Power &amp; Energy Elective</td>
<td>ECE Elective (3) FA, SP, SU Power &amp; Energy Elective</td>
<td>ECE Elective (3) FA, SP, SU Power &amp; Energy Elective</td>
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<tr>
<td>Spring 16 hours</td>
<td>ECE Elective (3) FA, SP, SU Power &amp; Energy Elective</td>
<td>Tech. Elective (3) FA, SP, SU Entrepreneurship Elect (3)</td>
<td>ECE 402 (6) O/C/W/C (3) SP Prereq: ECE 401</td>
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</table>

*Acceptable Power & Energy Systems ECE Electives: Select 4 courses from the following (12 hours): ECE 415, 421 or 427, 422, 481 or 487, 482, 521, 522, 523, or 525.
**Technical Elective select from: CS 140, CS 370, CS 311 or Math 300; Chem 130 or 131; E 405, MSE 201, 203, ME 231, 231, 332, 344, NE 342 or 347.

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 taking ECE 201 must also have a C or better in EF 152 or 158.

Progression of departmental undergraduate students to the upper-division programs of the department is competitive and is based on the space available in the department. Factors considered in the decision include overall grade point average, grades earned in courses required in the lower-division curricula of the department and College of Engineering, and seriousness of purpose and interest in departmental programs as exemplified by regular and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges.

Students who take ECE 300 (now ECE 201-202) will be evaluated during the semester they are registered for it. Transfer students for whom ECE 300 (now ECE 201-202) transfer credit is given may take 9 semester hours in departmental courses before progression evaluation. All students, whether or not they transfer in, who are not accepted into the upper-division program of the department will be put in either a temporary probationary status or a non-progressed status and will not be permitted to register for any upper-division courses within the department.

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

UTRACK Milestones 2013:

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
<th>Term 4</th>
<th>Term 5</th>
<th>Term 6 through 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 130 or higher or one SS or one AH or one CC</td>
<td>Math 130 or Higher</td>
<td>EF 151/157 or Physics 135/137</td>
<td>EF 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201</td>
<td>No Milestones</td>
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## Engineering Majors

### Industrial Engineering Catalog 2013

<table>
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<tr>
<th>Fall</th>
<th>16 hours</th>
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</thead>
<tbody>
<tr>
<td>Math 141 or 147 (4) FA, SP, SU Prereq: Math 130 or Math ACT 28 or SAT 620</td>
<td></td>
</tr>
<tr>
<td>English 101 or 118 (3) FA, SP, SU</td>
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</tr>
<tr>
<td>Chem 122 or 128 (4) FA, SP, SU Math 130</td>
<td></td>
</tr>
<tr>
<td>EF 151 or 157 (4) FA, SP Coreq: Math 144 or EF 105</td>
<td></td>
</tr>
<tr>
<td>EF 95 (5) FA, SP Coreq: EF 151 or 157</td>
<td></td>
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<table>
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<tr>
<th>Spring</th>
<th>16 hours</th>
</tr>
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<tbody>
<tr>
<td>Math 142 or 148 (4) FA, SP, SU Prereq: Math 141 or 147</td>
<td></td>
</tr>
<tr>
<td>English 102 (3) FA, SP, SU Prereq: English 101 or 118</td>
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</tr>
<tr>
<td>Gen Ed (3) FA, SP, SU Social Science</td>
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</tr>
<tr>
<td>EF 152 or 158 (4) FA, SP Prereq: EF 151 or 157 Coreq: Math 140 or 148</td>
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<tr>
<td>ME 202 (2) FA, SP, SU Coreq: EF 152 or 158 and Math 140 or 148</td>
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<table>
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<th>Fall</th>
<th>17 hours</th>
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<tbody>
<tr>
<td>IE 250 (1) FA Industrial majors only</td>
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<tr>
<td>IE 200 (3) FA Prereq: Math 142 or 148</td>
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<tr>
<td>E 405 (3) FA, SP, SU Prereq: Engineering or Biosystems major</td>
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<tr>
<td>Math 241 or 247 (4) FA, SP, SU Prereq: Math 142 or 148</td>
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<tr>
<td>Physics 231 (3) FA, SP, SU Coreq: Math 142 or 148</td>
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<tr>
<td>MSE 201 (3) FA, SP, SU Prereq: Chemistry 120 or 128</td>
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<table>
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<tr>
<th>Spring</th>
<th>16 hours</th>
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<tbody>
<tr>
<td>ECON 201 or 207 (4) FA, SP, SU Social Science</td>
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<tr>
<td>Math 231 (3) FA, SP, SU Prereq: Math 142 or 148</td>
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<tr>
<td>Math 200 (1) FA, SP, SU Minor in another major if previous</td>
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</tr>
<tr>
<td>Coreq: Math 241 or 247</td>
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<tr>
<td>IE 331 (3) FA, SP, SU Coreq: Math 200 or Stats 251</td>
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<tr>
<td>IE 202 (3) SP Prereq: EF 150 or 157 Coreq: EF 300 or Stats 251</td>
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<tr>
<td>IE 230 (2) FA, SP Prereq: EF 152 or 158</td>
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<table>
<thead>
<tr>
<th>Fall</th>
<th>16 hours</th>
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<tbody>
<tr>
<td>IE 350 (WQ) (1) FA Prereq: IE 250 Minimum level: Junior</td>
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</tr>
<tr>
<td>IE 401 or 497 (3) FA Prereq: IE 302 Coreq: IE 405</td>
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</tr>
<tr>
<td>E 301 (3) FA Prereq: Math 200</td>
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</tr>
<tr>
<td>IE 300 (3) FA Prereq: IE 200 or Stats 251</td>
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<tr>
<td>IE 304 (3) FA Minimum student level — Junior</td>
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</tr>
<tr>
<td>IE 402 (3) FA Prereq: IE 202 and 300</td>
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<table>
<thead>
<tr>
<th>Spring</th>
<th>15 hours</th>
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<tbody>
<tr>
<td>Gen Ed (3) FA, SP, SU Arts &amp; Humanities</td>
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<tr>
<td>ECE 301 (3) FA, SP, M Prereq: Math 231</td>
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</tr>
<tr>
<td>E 310 or 317 (3) SP Prereq: IE 301 &amp; E 200 or Stats 251</td>
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</tr>
<tr>
<td>IE 340 (3) SP Prereq: IE 202 and 300</td>
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</tr>
<tr>
<td>IE 421 or 428 (3) FA Prereq: IE 402 Minimum student level — Senior</td>
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<table>
<thead>
<tr>
<th>Fall</th>
<th>15 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE 450 (1) FA Prereq: IE 350 Minimum level: Senior</td>
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</tr>
<tr>
<td>IE 404 (2) FA, SP, SU Prereq: IE 300, 301 Coreq: IE 405</td>
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</tr>
<tr>
<td>IE 405 (3) FA Petition required in advance</td>
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<tr>
<td>IE 412 (3) FA Prereq: IE 200 or Stats 251 Coreq: IE 202 or 300</td>
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<tr>
<td>IE 407 (3) SP Petition required in advance</td>
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<tr>
<td>IE 426 (3) FA, SP Prereq: IE 406 or 408</td>
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<tr>
<td>IE 431 (3) SP Petition required in advance</td>
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<tr>
<td>IE 432 (3) SP Petition required in advance</td>
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<tr>
<td>IE 409 (3) FA, SP Prereq: IE 402 or 408</td>
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</tr>
<tr>
<td>IE 409 (3) SP Petition required in advance</td>
<td></td>
</tr>
<tr>
<td>Gen Ed (3) FA, SP, SU Coreq: IE 402 and 408</td>
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</tr>
</tbody>
</table>

**IE Technical Electives chosen from AE 341 or 347, BME 300, BUAD 351 *, BUAD 419 *, BUAD 494 *, BUAD 301, COIS 102, ECE 265, ECE 302, ECON 311 *, ECON 312 *, ECON 313, ECON 322, ECON 333, ECON 355, ECON 361, FNIC 425, FNIC 455 *, IE 430, IE 457, IE 483, IE 484, INSC 310, INSC 451 *, MARK 300, MGMT 300, MSE 340 or 347, MSE 360 or 367, MSE 390 or 397, MSE 405, MSE 421, MSE 363 or 367, MSE 365, ME 366, ME 405, ME 342 or 347. Some courses may require a prerequisite that is not part of the IE program.**

**IE Industrial Electives chosen from AE 423, IE 430, IE 457, IE 483, IE 484, IE 493, IE 495. The same course may not be used to count for both IE Technical Elective and IE Elective. Students also have opportunities for an Honors Concentration and/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.**

### UTRACK Milestones 2013

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<thead>
<tr>
<th>Term 1</th>
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<td>EF 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201 or CBE 201</td>
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## Engineering Majors

http://catalog.utk.edu

### Materials Science and Engineering Catalog 2013

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<thead>
<tr>
<th>Fall</th>
<th>16 hours</th>
<th>English 101 or 118 (3) FA, SP, SU</th>
<th>Chem 120 or 128 (4) FA, SP, SU</th>
<th>Math 141 or 147 (4) FA, SP, SU</th>
<th>EF 151 or 157 (4) FA, SP</th>
<th>EF 105 (1) FA, SP</th>
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<tr>
<td></td>
<td></td>
<td>Prereq- English 101 or 118</td>
<td>Prereq- Chem 120 or 128</td>
<td>Prereq- Math 141 or Math ACT 28 or Math SAT 630</td>
<td>Coreq- Math 141 or 147 and EF 105</td>
<td>Coreq- EF 105 or 157</td>
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<tr>
<th>Spring</th>
<th>16 hours</th>
<th>English 102 (3) FA, SP, SU</th>
<th>Chem 130 or 138 (4) FA, SP, SU</th>
<th>Math 142 or 148 (4) FA, SP, SU</th>
<th>EF 152 or 158 (4) FA, SP</th>
<th>EF 105 (1) FA, SP</th>
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<tr>
<td></td>
<td></td>
<td>Prereq- English 102 or 118</td>
<td>Prereq- Chem 130 or 138</td>
<td>Prereq- Math 141 or 147</td>
<td>Coreq- EF 152 or 158</td>
<td>Coreq- EF 105 or 158</td>
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### Fall

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<th>MSE 301 (3) FA, SP, SU</th>
<th>MSE 210 (5) FA, SP, SU</th>
<th>Math 241 or 247 (4) FA, SP, SU</th>
<th>Physics 231 (3) FA, SP, SU</th>
<th>EF 230 (3) FA</th>
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<tbody>
<tr>
<td></td>
<td>Prereq- Chemistry 120 or 128</td>
<td>Prereq- MSE 201</td>
<td>Coreq- Math 142 or 148</td>
<td>Coreq- MSE 201 and Math 231</td>
<td>Prereq- EF 152 or 158</td>
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<td>MSE 200 (1) SP</td>
<td>Math 200 (1) FA, SP, SU</td>
<td>Prereq- Math 142 or 148</td>
<td>Physics 232 (4) FA, SP, SU</td>
<td>MSE 200 (1) SP</td>
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<td>Prereq- Physics 231</td>
<td>Coreq- Math 241 or 247</td>
<td>Coreq- MSE 201 and Math 231</td>
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### Spring

<table>
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<tr>
<th>15 hours</th>
<th>MSE 201 (3) FA, SP, SU</th>
<th>MSE 390 or 397 (3) SP</th>
<th>MSE 370 (3) SP</th>
<th>MSEE 302 (3) SP</th>
<th>MSEE 350 or 357 (3) SP</th>
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<tbody>
<tr>
<td></td>
<td>Prereq- MSE 300, 320, 340, 347, 360 or 367</td>
<td>Prereq- MSE 201</td>
<td>Prereq- MSE 340 and 360</td>
<td>Coreq- MSE 201</td>
<td>Prereq- MSEE 201</td>
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<td>MSE 403 (WIC) (4) FA, SP</td>
<td>MSE 440 (3) FA</td>
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<td></td>
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<td>Technical Elective* (3) FA, SP, SU</td>
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<table>
<thead>
<tr>
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<th>MSE 4XX (3) FA, SP, SU</th>
<th>MSE 420 (1) FA, SP, SU</th>
<th>MSE 430 (2) FA, SP, SU</th>
<th>MSE 490 (OC) (3) SP</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>see below</td>
<td>Technical Elective* (3) FA, SP</td>
<td>Maximum student level - senior</td>
<td>Gen. Ed. (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EF 400 (1) FA, SP, SU</td>
<td>Petition required in advance</td>
<td>MSE 490 CO (3) SP</td>
<td>Gen. Ed. (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>minimum student level - senior</td>
<td>EF 152/157 or Physics 135/137</td>
<td>EF 153/158 or Physics 136/138</td>
<td>Gen. Ed. (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>see below</td>
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<td>Gen. Ed. (3) FA, SP, SU</td>
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</table>

**MSE 4XX Electives- Materials Science and Engineering electives:** 410, 421, 425, 432, 440, 445, 450, 451, 455, 457, 460, 466, 474, 476, 484, 485, 486, 494, 495

*Technical electives: ECE 301 strongly recommended. BCMB 230; BIOD 140 or 148; BME 300; BME 405; CBE 475; CHEM 350 or 358; any MSE course; ME 321; ME 483; NE 484; other 300 or 400 level science or engineering courses as approved by academic advisor and department head.*


### Progression

Progression of students to departmental upper-division courses is competitive. Factors considered include overall grade point average, performance in selected lower division courses and evidence of satisfactory and orderly progress through the prescribed curriculum.

### Upper Division Status

A lower division student formally applies for upper division status after completing 50 hours of lower division engineering curriculum course work with an overall GPA of at least 2.4. This must include MSE 201.

### Provisional Status

Students who have completed 50 hours of lower-division engineering curriculum course work with an overall GPA between 2.0 and 2.4 may apply for provisional status.

The granting of provisional upper-division status is based on the availability of space in the departmental programs after upper-division status students have been accommodated.

Provisional students are required to demonstrate their ability to perform satisfactorily in upper-division courses by attaining a minimum GPA of 2.0 in at least 8 hours of 300-level required courses specified by the department.

Further progression to upper-division courses is dependent upon this minimum level of performance.

### Graduation

Graduation in materials science and engineering requires a minimum grade point average of 2.0 for all departmental courses.

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

### UTRACK Milestones 2013:

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
<th>Term 4</th>
<th>Term 5</th>
<th>Term 6 through 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 130 or higher or one SS or one AH or one CC</td>
<td>Math 130 or Higher</td>
<td>EF 151/157 or Physics 135/137</td>
<td>EF 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201 or CBE 301</td>
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No Milestones
# Materials Science and Engineering Catalog 2013

## BIOMATERIALS CONCENTRATION

### Fall
- **English 101 or 118 (3)**
- **Math 130 (3)**
- **MSE 141 or 147 (4)**
- **EF 151 or 157 (4)**
- **EF 105 (1)**

### Spring
- **English 102 (3)**
- **Chem 120 or 128 (4)**
- **Math 142 or 148 (4)**
- **EF 152 or 158 (4)**
- **MSE 101 (1)**

### Fall
- **MSE 201 (3)**
- **MSE 210 (1)**
- **Math 241 or 247 (4)**
- **Physics 231 (3)**
- **MSE 240 (3)**

### Spring
- **MSE 290 (1)**
- **Math 200 (1)**
- **Math 231 (3)**
- **Physics 232 (4)**
- **MSE 250 (3)**

### Fall
- **MSE 300 (1)**
- **Stats 251 (3)**
- **MSE 320 (3)**
- **MSE 340 or 347 (3)**
- **MSE 350 or 357 (3)**

### Spring
- **MSE 304 (1)**
- **MSE 390 or 397 (3)**
- **MSE 370 (3)**
- **MSE 360 or 367 (3)**
- **Technical Elective (4-5)**

### Fall
- **MSE 474 (3)**
- **MSE 405 (WC) (4)**
- **MSE 480 (3)**
- **EF 402 (1)**
- **MSE Elective (3)**

### Spring
- **MSE Elective (3)**
- **MSE 489 (OC) (3)**
- **Technical Elective (3)**
- **Term 6 through 8**

## Progression

Progression of students to departmental upper-division courses is competitive. Factors considered include overall grade point average, performance in selected lower division courses and evidence of satisfactory and orderly progress through the prescribed curriculum.

### Upper Division Status

A lower division student formally applies for upper division status after completing 50 hours of lower division engineering curriculum course work with an overall GPA of at least 2.4. This must include MSE 201.

### Provisional Status

Students who have completed 50 hours of lower-division engineering curriculum course work with an overall GPA between 2.0 and 2.4 may apply for provisional status.

The granting of provisional upper-division status is based on the availability of space in the departmental programs after upper-division status students have been accommodated. Provisional students are required to demonstrate their ability to perform satisfactorily in upper-division courses by attaining a minimum GPA of 2.0 in at least 8 hours of 300-level required courses specified by the department. Further progression to upper-division courses is dependent upon this minimum level of performance.

### Graduation

Graduation in materials science and engineering requires a minimum grade point average of 2.0 for all departmental courses.

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

## UTRACK Milestones 2013:

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
<th>Term 4</th>
<th>Term 5</th>
<th>Term 6 through 8</th>
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<tbody>
<tr>
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<td>Math 130 or higher</td>
<td>EF 151/157 or Physics 136/137</td>
<td>EF 152/158 or Physics 136/138</td>
<td>ME 302 or CS 102 or MSE 201</td>
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</tbody>
</table>

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*Note: Milestones are subject to change and should be verified with the latest UTRACK guidelines.*
### Materials Science and Engineering Catalog 2013

#### NANOMATERIALS CONCENTRATION

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<th>Courses</th>
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<tr>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>Math 130</td>
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<tr>
<td>Chem 130 or 128 (4) FA, SP, SU</td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
</tr>
<tr>
<td>EF 151 or 157 (4) FA, SP</td>
<td>EF 105 (1) FA, SP</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>16 hours</td>
<td></td>
</tr>
<tr>
<td>English 102 (3) FA, SP, SU</td>
<td>Chem 130 or 128 (4) FA, SP, SU</td>
</tr>
<tr>
<td>Preq: English 101 or 118</td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
</tr>
<tr>
<td>Preq: Math 130 or Math ACT 28 or Math SAT 550</td>
<td>EF 152 or 158 (4) FA, SP</td>
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<td>EF 151 or 157</td>
<td>EF 151 or 157</td>
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<td>MSE 101 (1) SP</td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>16 hours</td>
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<tr>
<td>MSE 201 (3) FA, SP, SU</td>
<td>MSE 215 (1) FA, SP, SU</td>
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<td>Coreq: MSE 201</td>
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<td>MSE 241 or 247 (4) FA, SP, SU</td>
<td>Coreq: Math 142 or 148</td>
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<td>Physics 231 (3) FA, SP, SU</td>
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<td>MSE 260 (3) FA</td>
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<td>EF 239 (2) FA, SP</td>
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<td>MSE 230 (1) SP</td>
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<td>Preq: Math 142 or 148</td>
<td>Preq: Math 142 or 148</td>
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<tr>
<td>Physics 232 (4) FA, SP, SU</td>
<td>Coreq: MSE 230</td>
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<td>MSE 250 (3) SP</td>
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<td><strong>Fall</strong></td>
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<td>Stats 231 (3) FA, SP, SU</td>
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<td>Preq: MSE 201</td>
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<td>MSE 340 (3) FA</td>
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<td>Preq: MSE 201</td>
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<td>MSE 350 or 357 (3) FA</td>
<td>Technical Elective* (3) FA, SP, SU</td>
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<td>Preq: MSE 201</td>
<td>Preq: MSE 201</td>
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<td>Preq: Math 142 or 148 and EF 230</td>
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<tr>
<td>Arts and Humanities</td>
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<tr>
<td>MSE 300 (3) FA</td>
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<tr>
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<td>Preq: MSE 201</td>
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<td>MSE 362 (3) FA</td>
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<td>Preq: MSE 201</td>
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<td>Preq: MSE 201</td>
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<td>Preq: Math 142 or 148 and EF 230</td>
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<td>Arts and Humanities</td>
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<td>MSE 402 (1) FA, SP</td>
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<td>MSE 485 (3) SP</td>
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<td>Social Science</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td></td>
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</tbody>
</table>

*Technical electives: Chem 473, MSE 421, 466, 474, Phys 411. Credit for other courses that address processing, structure, properties or behavior of nanomaterials may be substituted by permission of academic advisor and department head.

### Progression

Progression of students to departmental upper-division courses is competitive. Factors considered include overall grade point average, performance in selected lower division courses and evidence of satisfactory and orderly progress through the prescribed curriculum.

### Upper Division Status

A lower division student formally applies for upper division status after completing 50 hours of lower division engineering curriculum course work with an overall GPA of at least 2.4. This must include MSE 201.

### Provisional Status

Students who have completed 50 hours of lower-division engineering curriculum course work with an overall GPA between 2.0 and 2.4 may apply for provisional status.

The granting of provisional upper-division status is based on the availability of space in the departmental programs after upper-division status students have been accommodated. Provisional students are required to demonstrate their ability to perform satisfactorily in upper-division courses by attaining a minimum GPA of 2.0 in at least 8 hours of 300-level required courses specified by the department. Further progression to upper-division courses is dependent upon this minimum level of performance.

### Graduation

Graduation in materials science and engineering requires a minimum grade point average of 2.0 for all departmental courses.

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

**Title Goes Here**

**http://catalog.utk.edu**

#### Mechanical Engineering Catalog 2013

<table>
<thead>
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<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
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<td><em>Math 142</em> (or <em>Math 151</em>), <em>Physics 136</em></td>
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<tr>
<td>Fall</td>
<td><em>Math 241</em> or <em>Math 247</em> (4)</td>
<td>16</td>
</tr>
<tr>
<td>Spring</td>
<td><em>Physics 231</em> (3)</td>
<td>3</td>
</tr>
<tr>
<td>Fall</td>
<td><em>Math 331</em> or <em>Math 347</em> (4)</td>
<td>16</td>
</tr>
<tr>
<td>Spring</td>
<td><em>Physics 331</em> or <em>Physics 347</em> (4)</td>
<td>16</td>
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<tr>
<td>Spring</td>
<td><em>Math 449</em> (3)</td>
<td>3</td>
</tr>
<tr>
<td>Fall</td>
<td><em>Math 475</em> or <em>Math 477</em> (3)</td>
<td>16</td>
</tr>
</tbody>
</table>

#### Requirements

- **Progression**
  - The first two years of the curriculum are considered to be lower-division and the two remaining years upper-division. Students must apply for progression to departmental upper division courses, which depends on academic performance. Factors considered include overall grade point average, performance in selected lower division courses, and evidence of orderly progression through the prescribed curriculum.

- **Full Status**
  - A lower-division student may apply for progression to upper division after completing *Chem 120, ME 202, Math 231, ME 231*, and *Physics 231*, with a grade of C or better in each, and an overall GPA of at least 2.4.

- **Provisional Status**
  - Students who have completed *Chem 120, ME 202, Math 231, ME 231, ME 321*, and *Physics 231* with a grade of C or better and have not progressed to upper-division will be dropped from departmental class rolls.

- **Graduation Requirements**
  - A minimum cumulative GPA of 2.0 in all departmental courses taken at the University of Tennessee, Knoxville, is required for graduation. No more than two departmental courses in which a C- or lower is the highest grade earned may be counted toward graduation. This is in addition to the university’s graduation requirements.

### UTRACK Milestones 2013

<table>
<thead>
<tr>
<th>Term</th>
<th>MILESTONES</th>
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<tr>
<td>Fall</td>
<td><em>Math 142</em> (or <em>Math 151</em>), <em>Physics 136</em></td>
</tr>
<tr>
<td>Fall</td>
<td><em>Math 241</em> or <em>Math 247</em> (4)</td>
</tr>
<tr>
<td>Fall</td>
<td><em>Math 331</em> or <em>Math 347</em> (4)</td>
</tr>
<tr>
<td>Spring</td>
<td><em>Physics 231</em> (3)</td>
</tr>
<tr>
<td>Spring</td>
<td><em>Physics 331</em> or <em>Physics 347</em> (4)</td>
</tr>
<tr>
<td>Spring</td>
<td><em>Math 449</em> (3)</td>
</tr>
<tr>
<td>Fall</td>
<td><em>Math 475</em> or <em>Math 477</em> (3)</td>
</tr>
</tbody>
</table>

#### Departmental Academic Standing

The Department of Mechanical, Aerospace and Biomedical Engineering expects all students who enter to make progress toward graduation without endangering their future employment, internship or graduate opportunities. Failure to make satisfactory progress will result in a petition by the department, subject to a maximum of three terms (9 months) to complete the degree. In addition, the University Academic Good Standing Policies apply to all students.

#### UTRACK Milestones 2013

- **Science**
  - *Math 142* or *Math 151*, *Physics 136*, *Chem 120*
  - *Math 241* or *Math 247*, *Physics 231*
  - *Math 331* or *Math 347*, *Physics 331*

- **Fall**
  - *Math 449*, *Physics 347*

- **Spring**
  - *Math 475*, *Physics 477*
## Nuclear Engineering Catalog 2013

### Traditional Track

<table>
<thead>
<tr>
<th>Term</th>
<th>Fall</th>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
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<tr>
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<td></td>
<td>Math 141 or 147 (4) FA, SP, SU Prereq-Math 130 or math ACT 28 or Math SAT 630 English 101 or 118 (3) FA, SP, SU Math 130 Chem 120 or 128 (4) FA, SP, SU Prereq-Chem 120 or 128 EF 151 or 157 (4) FA, SP Prereq-Math 141 or 147 and Math 105 EF 106 (1) FA, SP Prereq-EF 151 or 157</td>
</tr>
<tr>
<td>Spring</td>
<td>15</td>
<td></td>
<td>Math 142 or 148 (4) FA, SP, SU Prereq-Math 141 or 147 English 102 (3) FA, SP, SU Prereq-English 101 or 118 Chem 130 or 138 (4) FA, SP, SU Prereq-Chem 120 or 128 EF 152 or 158 (4) FA, SP Prereq-EF 151 or 157 EF 152 or 158 (4) FA, SP Prereq-EF 151 or 157</td>
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### Fall

<table>
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<td>Math 231 (3) FA, SP, SU Prereq-Math 142 or 148 NE 200 (2) FA ME 202 (2) FA, SP, SU Prereq-Math 141 or 147 and EF 152 or 158 (4) FA, SP Prereq-EF 151 or 157 EF 230 (2) FA, SP Prereq-EF 152 or 158 ECON 201 or 207 (4) FA, SP, SU Social Science</td>
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### Spring

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<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Math 241 or 247 (4) FA, SP, SU Prereq-Math 142 or 148 ME 331 (3) FA, SP, SU Prereq-Math 241 or 247 ECE 501 (3) FA, SP Prereq-Math 231 Physics 232 (4) FA, SP, SU Prereq-Physics 231 Gen Ed (3) FA, SP, SU Arts and Humanities</td>
</tr>
</tbody>
</table>

### Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>NE 342 or 347 (3) FA Prereq-ME 331 NE 351 or 357 (3) FA NE 382 or 367 (3) FA Prereq-Math 231 and 241 or 247 Physics 345 (3) FA Prereq-Physics 232 Gen Ed (3) FA, SP, SU Social Science</td>
</tr>
</tbody>
</table>

### Spring

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>NE 401 (3) SP Prereq-ME 410 NE 360 (4) SP Prereq-ME 342 NE 433 (3) SP NE 470 (3) FA, SP Gen Ed (3) FA, SP, SU Social Science</td>
</tr>
</tbody>
</table>

### Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>NE 402 or 427 (WC) (3) FA Prereq-ME 401 MSE 201 (3) FA, SP, SU Prereq-Chemistry 120 or 128 ME 321 (3) FA, SP, SU Prereq-ME 202 and Math 231 or 241 or 148 Technical Elective '3 FA, SP, SU Petition required in advance Gen Ed (3) FA, SP, SU Social Science</td>
</tr>
</tbody>
</table>

### Spring

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>NE 406 (OC) (1) SP Prereq-Math 232 Minimum student level — senior NE 406 or 447 (3) SP Prereq-Physics 232 NE 472 (4) SP Prereq-NE 470 Technical Elective '3 FA, SP, SU Petition required in advance EF 408 (1) FA, SP Minimum student level - senior Gen Ed (3) FA, SP, SU Social Science</td>
</tr>
</tbody>
</table>

### Progression

The first two years of the curriculum are considered to be lower-division and the two remaining years upper-division. Students must apply for progression to departmental upper-division courses, which depends on academic performance. Factors considered include overall grade point average, performance in selected lower division courses and evidence of orderly progression through the prescribed curriculum.

### Full Status

A lower-division student may apply for progression to upper division after completing CHEM 120* or CHEM 128*, CHEM 130* or CHEM 138*, MATH 141* or MATH 147*, MATH 142* or MATH 148*, MATH 231, EF 151* or EF 157*, EF 152* or EF 158*, CHEM 120*, CHEM 128*, CHEM 130*, CHEM 138*, MATH 141* or MATH 147*, MATH 142* or MATH 148*, MATH 231, EF 151* or EF 157*, EF 152* or EF 158*, and PHYS 231*, with a grade of C or better in each, and an overall GPA of at least 2.5.

### Provisional Status

Students who have completed CHEM 120* or CHEM 128*, CHEM 130* or CHEM 138*, MATH 141* or MATH 147*, MATH 142* or MATH 148*, MATH 231, EF 151* or EF 157*, EF 152* or EF 158*, CHEM 120*, CHEM 128*, CHEM 130*, CHEM 138*, MATH 141* or MATH 147*, MATH 142* or MATH 148*, MATH 231, EF 151* or EF 157*, EF 152* or EF 158*, and PHYS 231* with a grade of C or better and have an overall GPA between 2.0 and 2.5 may apply for provisional status. The granting of provisional status is based on the availability of space in departmental programs after full status students have been accommodated. Provisional status students are required to demonstrate their ability to perform satisfactorily in upper-division by obtaining a minimum GPA of 2.5 in the first 9 hours of 300-level required nuclear engineering courses. Award of upper-division full 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/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.

### UTRACK Milestones 2013

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
<th>Term 4</th>
<th>Term 5</th>
<th>Term 6 through 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 130 or higher or one SS or one AA or one CC</td>
<td>Math 130 or higher</td>
<td>EF 151/157 or Physics 135/137</td>
<td>EF 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MISE 201 or CBE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
### Nuclear Engineering Catalog 2013

#### Radiological Concentration

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong>&lt;br&gt;16 hours</td>
<td>Math 141 or 147 (4) FA, SP, SU&lt;br&gt;Preq: Math 130 or Math ACT 28 or Math SAT 630</td>
<td>10</td>
<td>English 101 or 118 (3) FA, SP, SU&lt;br&gt;Math 130</td>
<td>EF 151 or 157 (4) FA, SP&lt;br&gt;Coreq: Math 141 or 147 and EF 105&lt;br&gt;EF 105 (1) FA, SP&lt;br&gt;Coreq: EF 151 or 157</td>
</tr>
<tr>
<td><strong>Spring</strong>&lt;br&gt;15 hours</td>
<td>Math 142 or 148 (4) FA, SP, SU&lt;br&gt;Preq: Math 141 or 147</td>
<td>9</td>
<td>English 102 (3) FA, SP, SU&lt;br&gt;Eng 101 or 118&lt;br&gt;Math 120 or 128</td>
<td>EF 152 or 158 (4) FA, SP&lt;br&gt;Coreq: EF 151 or 157&lt;br&gt;EF 105 (1) FA, SP&lt;br&gt;Coreq: Math 142 or 148</td>
</tr>
<tr>
<td><strong>Fall</strong>&lt;br&gt;16 hours</td>
<td>Math 231 (3) FA, SP, SU&lt;br&gt;Preq: Math 142 or 148</td>
<td>10</td>
<td>NE 200 (2) FA&lt;br&gt;Coreq: EF 152 or 158 and Math 142 or 148</td>
<td>Physics 231 (3) FA, SP, SU&lt;br&gt;Coreq: Math 142 or 148&lt;br&gt;EF 230 (2) FA, SP&lt;br&gt;Coreq: EF 152 or 158&lt;br&gt;ECON 201 or 207 (4) FA, SP, SU&lt;br&gt;Social Science</td>
</tr>
<tr>
<td><strong>Spring</strong>&lt;br&gt;17 hours</td>
<td>Math 241 or 247 (4) FA, SP, SU&lt;br&gt;Preq: Math 142 or 148</td>
<td>13</td>
<td>ME 331 (3) FA, SP, SU&lt;br&gt;Coreq: Math 241 or 247</td>
<td>Physics 232 (4) FA, SP, SU&lt;br&gt;Coreq: Math 241 or 247&lt;br&gt;Gen Ed (3) FA, SP, SU&lt;br&gt;Arts and Humanities</td>
</tr>
<tr>
<td><strong>Fall</strong>&lt;br&gt;15 hours</td>
<td>NE 342 or 347 (3) FA&lt;br&gt;Preq: ME 331</td>
<td>11</td>
<td>NE 351 or 357 (3) FA&lt;br&gt;Coreq: Math 231 or 241 and 247</td>
<td>Physics 341 (3) FA&lt;br&gt;Coreq: Physics 231&lt;br&gt;Gen Ed (3) FA, SP, SU&lt;br&gt;Cultures and Civilizations</td>
</tr>
<tr>
<td><strong>Spring</strong>&lt;br&gt;15 hours</td>
<td>NE 401 (3) SP&lt;br&gt;Coreq: NE 470</td>
<td>9</td>
<td>Stats 251 (3) FA, SP, SU&lt;br&gt;Coreq: Math 142 or 148</td>
<td>NE 470 (3) FA, SP&lt;br&gt;Gen Ed (2) FA, SP, SU&lt;br&gt;Social Science</td>
</tr>
<tr>
<td><strong>Fall</strong>&lt;br&gt;15 hours</td>
<td>NE 402 or 427 (WC) (3) FA&lt;br&gt;Preq: NE 401</td>
<td>9</td>
<td>NE 490 (3) FA&lt;br&gt;Coreq: ME 202 and Math 142 or 148</td>
<td>Technical Elective *(3) FA, SP, SU&lt;br&gt;Petition required in advance&lt;br&gt;Gen Ed (3) FA, SP, SU&lt;br&gt;Cultures and Civilizations</td>
</tr>
<tr>
<td><strong>Spring</strong>&lt;br&gt;15 hours</td>
<td>Minimum student level - senior</td>
<td>8</td>
<td>NE 490 or 467 (3) SP&lt;br&gt;Preq: Physics 232</td>
<td>Technical Elective *(3) FA, SP, SU&lt;br&gt;Petition required in advance&lt;br&gt;EF 462 (1) FA, SP&lt;br&gt;Minimum student level - senior&lt;br&gt;Gen Ed (3) FA, SP, SU&lt;br&gt;Arts &amp; Humanities</td>
</tr>
</tbody>
</table>

*Technical Electives* are selected from upper division mathematics, chemistry, physics and engineering courses and must be pre-approved by the department. Courses in Nuclear Engineering other than 500, 502 or 508 may also be used as technical electives.

Pre-med, pre-vet, and pre-dentistry students should take Chem 350, Chem 360 and 369.

### Progression

The first two years of the curriculum are considered to be lower-division and the two remaining years upper division. Students must apply for progression to departmental upper division courses, which depends on academic performance. Factors considered include overall grade point average, performance in selected lower division courses and evidence of orderly progression through the prescribed curriculum.

### Full Status

A lower-division student may apply for progression to upper division after completing CHEM 120* or CHEM 128*, CHEM 130* or CHEM 138*, MATH 141* or MATH 147*, MATH 142* or MATH 148*, MATH 231*, EF 151* or EF 157*, EF 152* or EF 158*, NE 200, and PHYS 231*, with a grade of C or better in each, and an overall GPA of at least 2.5.

### Provisional Status

Students who have completed CHEM 120* or CHEM 128*, CHEM 130* or CHEM 138*, MATH 141* or MATH 147*, MATH 142* or MATH 148*, MATH 231, EF 151* or EF 157*, EF 152* or EF 158*, NE 200, and PHYS 231* with a grade of C or better and have an overall GPA between 2.0 and 2.5 may apply for provisional status. The granting of provisional status is based on the availability of space in departmental programs after full status students have been accommodated.

Provisional status students are required to demonstrate their ability to perform satisfactorily in upper division by attaining a minimum GPA of 2.5 in the first 9 hours of 300 level required nuclear engineering courses. Award of upper-division full 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/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.

### UTRACK Milestones 2013:

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Math 130 or higher or one SS or one AH or one CC&lt;br&gt;or one SS or one AH or one CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 2</td>
<td>Math 130 or higher&lt;br&gt;EF 151/157 or Physics 135/137</td>
</tr>
<tr>
<td>Term 3</td>
<td>EF 152/158 or Physics 136/138&lt;br&gt;ME 202 or CS 102 or MSE 201 or CBE 201</td>
</tr>
<tr>
<td>Term 4</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
Undergraduate Minors Offered at the University of Tennessee, Knoxville 2013-2014

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

College of Business Administration
- Business administration

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

College of Education, Health and Human Sciences
- Child and family studies
- Elementary education
- Middle grades education
- Nutrition
- Restaurant and food service management
- Retail and consumer sciences
- Retail technology
- Secondary education
- Tourism and hospitality management

College of Engineering
- Aerospace engineering
- Biomedical engineering
- Computer science
  (open to all majors except computer engineering)
- Engineering entrepreneurship
- Environmental engineering
- Honors engineering leadership
- Materials science & engineering
- Mechanical engineering
- Reliability & maintainability engineering

College of Arts and Sciences
- Africana studies
- American studies
- Anthropology
- Art history
- Art studio
- Asian studies
- Astronomy
- Biological sciences
- Chemistry
- Chinese
- Cinema studies
- Classical archaeology
- Classical civilization
- Comparative literature
- Economics
- English
- English language learning
- English technical communication
- Environmental studies
- French and francophone studies
- Geography
- Geology
- German
- Global studies
- Greek
- History
- Italian
- Japanese
- Judaic studies
- Latin
- Latin American and Caribbean studies
- Linguistics
- Mathematics
- Medieval Renaissance studies
- Music (Applied, Composition, Culture & Theory)
- Music Business
- Neuroscience
- Philosophy
- Physics
- Political science
- Portuguese
- Psychology
- Religious studies
- Russian
- Spanish (Hispanic studies)
- Sociology (Environmental issues and Globalization)
- Statistics
- Sustainability
- Theatre
- VolsTeach math
- VolsTeach science
- Women’s studies

College of Nursing
- Gerontology

Minors

http://catalog.utk.edu
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 or Honors 118
- Biology 130-140 or 138-148 Honors
- Chemistry 120-130 or 128-138 Honors
- Chemistry 350-360 and 369 or 358-368 Honors
- Physics 221-222 (231-232 for engineering students only)

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. (Competitively qualified applicants will be invited for interviews after their applications have been reviewed by the Committee.)
7. 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.

**Alpha Epsilon Delta (AED)**

Alpha Epsilon Delta 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 information sessions on preparing to apply to professional schools, local speakers from the medical community, trips to Tennessee medical schools and health centers, and service activities. The schedule of meetings is available at http://web.utk.edu/~aed/.

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 mhoskins@utk.edu to request to be added to the pre-health distribution list.

**Seminar for Pre-Health Students**

Each fall semester, Arts and Sciences Advising Services offers a one credit hour course entitled “Introduction to Health Care Delivery.” This one credit hour seminar course is taught in the Wood Auditorium of UT Hospital. The course provides weekly seminars on topics such as managed care, family practice, ethical issues in medicine, malpractice, allied health programs, and many others. The course is listed in the timetable under Interdisciplinary Programs 100. The course is open to any interested student.
Required Honors Curriculum
To maintain status in and earn a degree from the Chancellor’s Honors Program, students are required to:
1) Meet all degree requirements in their respective major(s)
2) Maintain a 3.25 minimum GPA
3) Complete an approved international and/or intercultural learning experience
4) Complete a minimum 25-credit hour Chancellor’s Honors Program curriculum, listed below.

<table>
<thead>
<tr>
<th>Course requirements</th>
<th>Number of courses</th>
<th>Required or suggested year of enrollment</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH 101-102</td>
<td>2</td>
<td>Required during first-year</td>
<td>1</td>
</tr>
<tr>
<td>100–400 level honors courses (three credit hours each)</td>
<td>7</td>
<td>Recommended courses selected throughout undergraduate study from varied interdisciplinary University Honors seminars approved for General Education (e.g., UH 257, 267, 277), departmental honors courses (e.g., Chem 128, 138; Math 147, 148, 247; EF 157, 158; Physics 137, 138), or approved Honors-by-Contract or graduate courses.</td>
<td>21</td>
</tr>
<tr>
<td>UH 498 or approved departmental substitute</td>
<td>1</td>
<td>Recommended during senior year Honors Thesis Project</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

Required Honors Curriculum for Haslam Scholars

<table>
<thead>
<tr>
<th>Course Requirements</th>
<th>Required Course with Year of Enrollment</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSP 195</td>
<td>Required during Freshman Year, Summer</td>
<td>1</td>
</tr>
<tr>
<td>UH 101-102</td>
<td>Required during Freshman Year</td>
<td>1</td>
</tr>
<tr>
<td>English 118</td>
<td>Required during Freshman Year, Fall Semester</td>
<td>3</td>
</tr>
<tr>
<td>HSP 197</td>
<td>Required during Freshman Year, Fall Semester</td>
<td>1</td>
</tr>
<tr>
<td>HSP 258</td>
<td>Required during Freshman Year, Spring Semester</td>
<td>3</td>
</tr>
<tr>
<td>HSP 288</td>
<td>Required during Sophomore Year, Fall Semester</td>
<td>3</td>
</tr>
<tr>
<td>HSP 268</td>
<td>Required during Sophomore Year, Spring Semester</td>
<td>3</td>
</tr>
<tr>
<td>HSP 491</td>
<td>Required during Sophomore Year, Summer Semester</td>
<td>3</td>
</tr>
<tr>
<td>HSP 348</td>
<td>Required during Junior Year, Fall Semester</td>
<td>3</td>
</tr>
<tr>
<td>HSP 497</td>
<td>Required during Junior Year, Spring Semester</td>
<td>3</td>
</tr>
<tr>
<td>HSP 498</td>
<td>Required during Senior Year, Fall Semester</td>
<td>3</td>
</tr>
<tr>
<td>HSP 499</td>
<td>Required during Senior Year, Spring Semester</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>
Engineering Honors

National Scholarships and Fellowships
The Office of National Scholarships and Fellowships 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.

The Office of National Scholarships and Fellowships 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 Office of National Scholarships and Fellowships, visit on the first floor of the Howard Baker Center or call (865) 974-3518 to schedule an appointment.

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
Click on “jobs” on the left hand menu.

For more honors and research information, contact:
Dr. Chris Pionke
Engineering Honors Director
102 Estabrook Hall
(865) 974-9810
cpionke@utk.edu

Office of Undergraduate Research
Sharon Pound
1534 White Ave.
(865) 974-1475
http://research.utk.edu/undergrad

Engineering Honors Requirements
Beginning students who wish to pursue an honors concentration in one of the engineering majors will normally be part of the Chancellor’s Honors Program or the Haslam Scholars Program. Requirements for first-year coursework are:

- Four 100- or 200-level departmental honors courses. For engineering students, these would normally be EF 157 - Honors: Physics for Engineers I, EF 158 - Honors: Physics for Engineers II, and two courses chosen from MATH 147, MATH 148, MATH 247 or CHEM 128, CHEM 138.

- The combination of a UH 101-102 - Chancellor’s Honors First-Year Seminar AND a UH 200 level course may be used as an approved substitute for a single 200-level departmental honors course.

- Other departmental honors courses may be approved by the individual engineering departments upon entry to their honors concentration.

- Coursework requirements in the upper division are specific to the individual departments, and the student is referred to those individual descriptions for explanation.
## 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>Art Drawing</td>
<td>4 or 5</td>
<td>Art LD</td>
</tr>
<tr>
<td>Art 2-D Design</td>
<td>4 or 5</td>
<td>Art LD</td>
</tr>
<tr>
<td>Biology</td>
<td>3, 4 or 5</td>
<td>Biology 101-102</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>Computer Science A</td>
<td>5</td>
<td>Computer Science 102</td>
</tr>
<tr>
<td>Computer Science AB</td>
<td>4</td>
<td>Computer Science 102</td>
</tr>
<tr>
<td>Economics - Micro &amp; Mac.</td>
<td>3, 4 or 5</td>
<td>Economics 201</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>English 101-102</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>3</td>
<td>Geology 201</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>4 or above</td>
<td>Geology 201-202</td>
</tr>
<tr>
<td>European History</td>
<td>4 or 5</td>
<td>History LD-242</td>
</tr>
<tr>
<td>French Language</td>
<td>3</td>
<td>French 211-212</td>
</tr>
<tr>
<td>French Language</td>
<td>4</td>
<td>French 333-334 or 353</td>
</tr>
<tr>
<td>French Language</td>
<td>5</td>
<td>French 333-334 or 353 (Use 353 as default)</td>
</tr>
<tr>
<td>French Literature</td>
<td>3</td>
<td>French 211-212</td>
</tr>
<tr>
<td>French Literature</td>
<td>4</td>
<td>French 353</td>
</tr>
<tr>
<td>French Literature</td>
<td>5</td>
<td>French 353</td>
</tr>
<tr>
<td>German Language</td>
<td>4 or 5</td>
<td>German 201-202 or German 311-312</td>
</tr>
<tr>
<td>German Language</td>
<td>3</td>
<td>German 201-202</td>
</tr>
<tr>
<td>Human Geography</td>
<td>4 or 5</td>
<td>Geography 201</td>
</tr>
<tr>
<td>Latin Literature - Catullus/Cicero, Catullus/Horace</td>
<td>3, 4 or 5</td>
<td>Latin 251-252</td>
</tr>
<tr>
<td>Latin Literature - Catullus/Ovid, or Virgil</td>
<td>3, 4 or 5</td>
<td>Latin 251-252</td>
</tr>
<tr>
<td>Music</td>
<td>4 or 5</td>
<td>Music Theory 110</td>
</tr>
<tr>
<td>Physics B</td>
<td>4 or 5</td>
<td>Physics 101-102 or Physics 161 or 221</td>
</tr>
<tr>
<td>Physics C - E &amp; M</td>
<td>5</td>
<td>Physics 136</td>
</tr>
<tr>
<td>Physics C - E &amp; M</td>
<td>4</td>
<td>Physics 102 or 222 or 231</td>
</tr>
<tr>
<td>Physics C - Mechanics</td>
<td>5</td>
<td>Physics 135</td>
</tr>
<tr>
<td>Physics C - Mechanics</td>
<td>4</td>
<td>Physics 101 or 161 or 221</td>
</tr>
<tr>
<td>Political Science - Comparative Exam</td>
<td>3, 4 or 5</td>
<td>Political Science 102</td>
</tr>
<tr>
<td>Political Science - US Exam</td>
<td>3, 4 or 5</td>
<td>Political Science 101</td>
</tr>
<tr>
<td>Psychology</td>
<td>3, 4 or 5</td>
<td>Psychology 110</td>
</tr>
<tr>
<td>Spanish Language or Literature</td>
<td>3</td>
<td>Spanish 211-212</td>
</tr>
<tr>
<td>Spanish Language or Literature</td>
<td>4</td>
<td>Spanish 212 and 300</td>
</tr>
<tr>
<td>Spanish Language or Literature</td>
<td>5</td>
<td>Spanish 300 and 305</td>
</tr>
<tr>
<td>Statistics</td>
<td>4 or 5</td>
<td>Statistics 201</td>
</tr>
<tr>
<td>Studio Art - General or Drawing Portfolio</td>
<td>4 or 5</td>
<td>Art Studio 101</td>
</tr>
<tr>
<td>World History</td>
<td>4 or 5</td>
<td>History 261-262</td>
</tr>
</tbody>
</table>

### How to refuse AP and IB credits

If you prefer to take the course at UT that you have AP or IB credit for, you must officially refuse your AP or IB credit by going to the Registrar’s Office, 209 Student Services Building by the Add Deadline (first 10 days of the semester).
## International Baccalaureate (IB) Exam Credit

<table>
<thead>
<tr>
<th>Subject</th>
<th>AP 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>Chemistry (higher level)</td>
<td>5+</td>
<td>Chemistry 120-130</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</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 or 333</td>
</tr>
<tr>
<td>Geography</td>
<td>4+</td>
<td>Geography 201</td>
</tr>
<tr>
<td>German (standard level)</td>
<td>4</td>
<td>German 201-202</td>
</tr>
<tr>
<td>German (higher level)</td>
<td>4+</td>
<td>German 201-202 or German 301-302 or German 311-312</td>
</tr>
<tr>
<td>History (higher level)</td>
<td>4+</td>
<td>History LD-LD</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</td>
</tr>
<tr>
<td>Music</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 1)</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>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>Theatre (higher level)</td>
<td>4+</td>
<td>Theatre 100 and Theatre LD</td>
</tr>
<tr>
<td>Visual Arts (higher level)</td>
<td>5+</td>
<td>Art LD</td>
</tr>
<tr>
<td>World Religions (standard level)</td>
<td>4+</td>
<td>Religious Studies LD</td>
</tr>
</tbody>
</table>
Based on ACT Math or SAT Math Placement Scores

### Freshman Math Placement

Adjustments to Placement:
1. AP credits in Math or Dual Enrollment credits in Math trump the ACT Math/SAT Math placements.
2. Take the equivalent of Math 130 at a local community college or at UT in the summer prior to classes starting in the Fall.
3. Take an online placement test through the Math Department website (www.math.utk.edu). There will be two tests, one for attaining Math 130 (Level 3) and one for attaining Math 141 (Level 4). Engineering students take the test for Math 141. The test maybe repeated 3 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

Students must be taking Math 141 or higher to be eligible for Engineering Fundamentals 151/157 or Physics 135/137.

Math 130 is preparation class:

These are required Math classes:

<table>
<thead>
<tr>
<th>Math ACT</th>
<th>Math SAT</th>
<th>Math Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>570</td>
<td>Math 130 Pre Calculus</td>
</tr>
<tr>
<td>28</td>
<td>630</td>
<td>Math 141 Calculus 1</td>
</tr>
<tr>
<td>32</td>
<td>720</td>
<td>Math 147 Honors Calculus 1</td>
</tr>
</tbody>
</table>

Math 119
College Algebra
3 credit hrs.

Math 130
Pre Calculus
4 credit hrs.

Math 141/147
Cal I/Honors
4 credit hrs.

Math 142/148
Cal II/Honors
4 credit hrs.

Math 241/247
Cal III/Honors
4 credit hrs.

Math 231
Diff. Eq.
3 credit hrs.

Math 251/257
Matrix/Honors
3 credit hrs.
FOREIGN LANGUAGE – Not Required in Engineering

*Students can take a foreign language assessment as part of the Pre-Orientation steps. The College of Engineering does not require the study of foreign language to earn a diploma. However, intermediate (200 level) foreign language sequence satisfies the University’s General Education area of Cultures and Civilizations.*

Students interested in earning intermediate foreign language credits in Spanish, French, German or others, contact:
Douglas Canfield
Modern Foreign Language Department
207C Humanities & Social Sciences Bldg.
(865)974-6494
dcanfiel@utk.edu

Students interested in earning intermediate foreign language credits in Latin (Classics) contact:
Dr. Elizabeth Sutherland
Classics Department
1106 McClung Tower
(865)974-7174
ehsuther@utk.edu

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 UT placement exam before enrolling. This rule does not apply to students who receive 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 admittance 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.
Arts and Humanities (2 courses)
Taking two courses from the list below satisfies this requirement

Approved Arts and Humanities (AH) Courses

Africana Studies
- 160: Art of Africa, Oceania and Pre-Columbian America
- 225: Introduction to African Literature
- 226: Introduction to Caribbean Literature
- 233: Major Black Writers

Architecture
- 111: Architecture and the Built Environment
- 117: Honors-Architecture and the Built Environment
- 211: History and Theory of Architecture I
- 212: History and Theory of Architecture II
- 217: Honors-History and Theory of Architecture I
- 218 Honors-History and Theory of Architecture II

Art History
- 162: Art of Africa, Oceania and Pre-Columbian America
- 167: Honors-Art of Africa, Oceania and Pre-Columbian America
- 172: Western Art I
- 173: Western Art II
- 177: Honors-Western Art I
- 178: Honors-Western Art II
- 183: Asian Art
- 187: Honors-Asian Art
- 232 Archaeology and Art of Ancient Greece and Rome

Cinema Studies
- 281: Introduction to Film Studies

Classics
- 221: Early Greek Mythology
- 222: Classical Greek and Roman Mythology
- 232: Archeology and Art of Ancient Greece and Rome
- 253: Greek and Roman Literature in English Translation

English
- 201: British Literature I-Beowulf through Johnson
- 202: British Literature II-Wordsworth to Present
- 206: Introduction to Shakespeare
- 207: Honors-British Literature I
- 208: Honors-British Literature II
- 221: World Literature I-Ancient through Early Modern
- 222: World Literature II-18th Century to Present
- 225: Introduction to African Literature
- 226: Introduction to Caribbean Literature
- 231: American Literature I-Colonial Era through the Civil War

Haslam Scholars Program
- 258: Foundations of Modernity

Musicology
- 110: Introduction to Music in Western Culture
- 115: Music in the United States
- 120: History of Rock
- 125: Jazz in American Culture
- 210: History of Western Music-Ancient to the Baroque
- 220: History of Western Music-Classic to the Present
- 290: Soundscapes-Exploring Music in a Changing World

Philosophy
- 101: Introduction to Philosophy
- 107: Honors-Introduction to Philosophy
- 244: Professional Responsibility
- 252: Contemporary Moral Problems

Russian
- 221: Rebels, Dreamers and Fools-The Outcast in 19th Century Russian Literature
- 222: Heaven or Hell-Utopias and Dystopias in 20th Century Russian Literature

Theatre
- 100: Introduction to Theatre
- 107: Honors: Introduction to Theatre

University Honors
- 257: Special Topics in the Arts and Humanities
- 258: Special Topics in the Arts and Humanities

Social Sciences (2 courses)
This requirement is satisfied by taking two courses from the following list.

Approved Social Sciences (SS) Courses

Africana Studies
- 201: Introduction to African-American Studies
- 202: Introduction to African-American Studies

Agricultural and Resource Economics
- 201: Economics of the Global Food and Fiber System

Anthropology
- 130: Cultural Anthropology
- 137: Honors-Cultural Anthropology

Baker Center for Public Policy
- 101: Introduction to Public Policy

Child and Family Studies
- 210: Human Development
- 220: Marriage and Family-Roles and Relationships

Economics
- 201: Intro to Economics-A Survey Course
- 207: Honors-Introductory Economics

Educational Psychology
- 210: Psychoeducational Issues in Human Development

Geography
- 101: World Geography
- 201: Concepts in Human Geography

Haslam Scholars Program
- 268: Perspectives on Globalization

Political Science
- 101: United States Government and Politics
- 102: Introduction to Political Science
- 107: Honors-U.S. Government and Politics

Psychology
- 110: General Psychology
- 117: Honors-General Psychology

Religious Studies
- 232: Religions in Global Perspective
- 233: Religion and Society in North America

Social Work
- 250: Social Welfare

Sociology
- 110: Social Justice and Social Change
- 120: General Sociology
- 127: Honors-General Sociology
- 232: Religions in global perspective

University Honors
- 267: Special Topics in the Social Sciences
- 268: Special Topics in the Social Sciences

Women’s Studies
- 230: Marriage and Family-Roles and Relationships
General Education Requirements

Cultures and Civilizations (2 courses)
This requirement is satisfied by either
(1) taking two courses from the following list or
(2) taking a two-course sequence in a foreign language at the intermediate level
or
(3) taking a six-hour intensive foreign language course at the intermediate level.

Approved Cultures and Civilizations (CC) Courses

Africana Studies
• 235: Introduction to African Studies
• 236: Introduction to African Studies

Anthropology
• 120: Prehistoric Anthropology
• 127: Honors-Prehistoric Anthropology

Classics
• 201: Introduction to Classical Civilization

Cultural Studies in Education
• 200: Survey of International Education

Environmental and Soil Sciences
• 120: Soils and Civilizations
• 220: Waters and Civilizations

Food Science and Technology
• 150: History and Culture of Food

Global Studies
• 250: Introduction to Global Studies

History
• 241: Development of Western Civilization
• 242: Development of Western Civilization
• 247: Honors-Development of Western Civilization
• 248: Honors-Development of Western Civilization
• 255: Introduction to Latin America and Caribbean Studies
• 256: Introduction to Latin America and Caribbean Studies
• 261: History of World Civilization
• 262: History of World Civilization
• 267: Honors-History of World Civilization
• 268: Honors-History of World Civilization

Latin America and Caribbean Studies
• 251: Introduction to Latin American and Caribbean Studies Studies

Medieval Studies
• 201: Medieval Civilization I
• 202: Medieval Civilization II

Modern Foreign Languages and Literatures
• 200: Topics in International Literatures and Cultures

Religious Studies
• 101: World Religions in History
• 102: The Comparison of World Religions
• 107: Honors-World Religions in History
• 225: Introduction to Judaism, Christianity, Islam
• 221 and 222: Intermediate Biblical Hebrew I and II
• 280: Introduction to the Religions of Asia

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
• 221 and 222 Intermediate American Sign Language I and II

Arabic
• Arabic 221 and 222

Asian Languages
• Chinese 231 and 232 or Japanese 251 and 252

Asian Studies
• Arabic 221 and 222, Hebrew 241 and 242, or Persian 261 and 262

Chinese
• Chinese 231 and 232 (same as Asian Languages 231 and 232)

Classics
• Latin 251 and 252 or Greek 261 and 264

French
• French 211 and 212 or 217 and 218

German
• German 201 and 202

Hebrew
• Hebrew 241 and 242 (same as Asian Studies 241 and 242)

Italian
• Italian 211 and 212

Japanese
• Japanese 251 and 252 (same as Asian Languages 251 and 252)

Persian
• Persian 261 and 262 (same as Asian Studies 261 and 262)

Portuguese
• Portuguese 211 and 212

Russian
• Russian 201 and 202

Spanish
• Spanish 211 and 212 or 217 and 218

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, http://catalog.utk.edu/.
General Education Requirements in Engineering

College of Engineering General Education Requirements

Major

Communicating Through Writing*
1. English 101 or 118 (Honors)
2. English 102 or completion of Honors sequence
3. See major requirements

Natural Sciences
1. EF 151 or 155 (Honors) (Physics 135/7 for Computer Science ONLY)
2. EF 132 or 138 (Honors) (Physics or 136/138 for Computer Science ONLY)

Quantitative Reasoning
1. Math 141 or 147 (Honors)
2. Math 142 or 148 (Honors)

Social Sciences
1. Economics 201 or 207 (Honors) required for all majors EXCEPT Chemical, Electrical, Computer, Computer Science, or Materials Science
2. Pick 1 from Catalog Social Science List

Arts and Humanities
1. 
2. Pick 2 from Catalog Arts and Humanities List

Cultures and Civilizations*
1. 
2. Pick 2 from Catalog Cultures and Civilizations List
General Education Requirements in Engineering

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

Communication Through Writing:
Aerospace - AE 449
Biomedical - BME 430
Biosystems - English 360
Chemical - CBE 415
Civil - CE 205
Computer, Electrical - ECE 402
Computer Science - CS 402
Industrial - IE 422
Materials Science - MSE 405
Mechanical - ME 449
Nuclear - NE 402

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 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, Biomedical, Mechanical – AE 410, BME 410 or ME 410
Biosystems – BSE 401
Chemical – CBE 488 or 490
Civil – CE 205
Computer, Electrical – ECE 402
Computer Science – CS 402
Industrial – IE 422
Materials Science – MSE 489
Nuclear – NE 400

“Scientists investigate that which already is; Engineers create that which has never been.”
- Albert Einstein
Universal Tracking (UTracK) is an academic monitoring system designed to help students stay on track for timely graduation. Tracking will begin with first-time, first-year, full-time, degree-seeking college students entering fall 2013.

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 UTK.

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 be placed on hold and required to select a new major that is better aligned with their 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.
Registration Quick Guide

Log on to MyUTK (https://my.utk.edu)
Username: utk\NetID (no spaces)
Password: NetID Password

1. Find the “UTK Student Registration Links” web part.
   • Select the desired term.
   • Select the “Add/Drop Classes” link.

2. Advising - if advising has not been cleared, you will receive a message to contact your advisor before you can register.

3. Holds - if you are unable to register due to a hold, click View Holds from the Student menu.

4. To Add - use the worksheet to enter Course Reference Numbers (CRN). If you are adding a course that has a co-requisite, you MUST enter both course CRNs in the worksheet.

5. To search for CRNs, click the Class Search button.

6. To drop - click the Action box beside the course.

7. Multiple Subject Search - You can search on multiple Subjects by holding the Shift key down and clicking more than one Subject. To select all Subjects, hold Shift + Ctrl, scroll to the bottom of the subject list and click the last subject. This feature is useful for searching all courses with a particular attribute, such as GenEd-Arts/Humanities.

8. To register for classes -
   • click the box in front of the course to select your course (C=Closed)
   • click “Register” or “Add to Worksheet”

9. Error Message examples:
   • student level restriction requires permission of department or instructor
   • pre-requisite, co-requisite or test score mandatory to take this course

10. Waitlists - Departments can choose to have a Priority or a First-In/First-Out Waitlist.
    • Students are not automatically enrolled from the Waitlist.
    • You will be notified by e-mail that a seat is available and will have 24 hours to add the course.
    • You will need to get required permissions prior to adding during the 24-hour period.

For more information, please visit http://registrar.tennessee.edu/bannermyutk.html, or contact the Office of the University Registrar at registrar@utk.edu or 865-974-2101.
<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
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<tr>
<td>8:00-8:50</td>
<td>8:10-9:25</td>
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<td>8:10-9:25</td>
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<td>11:00-2:00</td>
<td>11:15-12:30</td>
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<td>3:45-5:30</td>
<td>4:55-6:30</td>
<td>5:00-6:30</td>
</tr>
</tbody>
</table>
Questions for Reflection

- Why did you choose to pursue a major in Engineering? What are your academic and career goals?

- Given the information you have gathered from your orientation sessions and from your individual advising, do you understand how each class for the semester fits within your curriculum?

- Reflect on the personal and professional opportunities available to you as an Engineering student. Have you considered an internship or cooperative education experience? Have you thought about participating in undergraduate research? Are you interested in a five-year BS/MS degree path? Are you planning to pursue a pre-medical curriculum? Is graduate school your goal? What kind of career do you envision?

- How many hours do you plan to study each week? Remember, a good rule of thumb is two hours outside of class for every hour spent in class. For a schedule of 16 hours, this would mean 32 hours a week in study and preparation, plus the 16 hours spent in class! Do you know where to find resources to support your academic studies? Don't hesitate to take advantage of these options!

- Do you already have an electronic or paper calendar/planner to keep track of due dates, tests, and holidays? Time management will be critical to your success as a college student. Do you know where to find resources to help you manage your time?

- Have you thought about an international or intercultural experience? Do you want to study abroad? If so, what country or region interests you? When might you think about going abroad? What kinds of classes do you want to take there?

Transfer Student reflections (in addition to the questions listed above):

- Review the evaluation of your credits on your Academic History. Are you currently enrolled in classes elsewhere? Do you need to send a final transcript from a previous institution for all your credit to appear?

- Do you need to gather syllabi and course descriptions to petition credits you have earned to meet requirements for your degree?

- Do you know where you will be advised next semester? Do you know where your department is located?

- Have you considered ways to get involved at the University of Tennessee? Have you looked at the list of student organizations?
Academic Calendar

Fall Semester 2013
Classes Begin .......................................................... Wednesday, August 21
Labor Day ................................................................. Monday, September 2
1st Session Ends ......................................................... Wednesday, October 9
2nd Session Begins ..................................................... Thursday, October 10
Fall Break ................................................................. Thursday - Friday, October 17-18
Thanksgiving ............................................................ Thursday-Friday, November 28-29
Classes End ............................................................... Tuesday, December 3
Study Day ................................................................. Wednesday, December 4
Exams ................................................................ Monday - Thursday, December 5, 6, 9, 10, 11, 12
Graduate Hooding ...................................................... Thursday, December 12
Commencement ........................................................ Friday, December 13
Official Graduation Date .............................................. Friday, December 13

Spring Semester 2014
Classes Begin .......................................................... Wednesday, January 8
MLK Holiday ............................................................ Monday, January 20
1st Session Ends ......................................................... Wednesday, February 26
2nd Session Begins ..................................................... Thursday, February 27
Spring Break ............................................................ Monday - Friday, March 17-21
Spring Recess ............................................................ Friday, April 18
Classes End ............................................................... Friday, April 25
Study Day ................................................................. Monday, April 28
Exams ................................................................ Tuesday-Tuesday, April 29, 30, May 1, 2, 5, 6
Graduate Hooding ...................................................... Thursday, May 8
University College Commencement Ceremonies ................. Wednesday-Saturday, May 7-10
Official Graduation Date .............................................. Saturday, May 10

Summer Term 2014
Mini Session Begins .................................................... Wednesday, May 7
Memorial Day Holiday ................................................... Monday, May 26
Mini Session Ends ....................................................... Wednesday, May 28
Full and 1st Sessions Begin ........................................... Thursday, May 29
1st Session Ends ......................................................... Wednesday, July 2
2nd Session Begins ..................................................... Monday, July 3
Independence Day Holiday ........................................ Friday, July 4
Full and 2nd Sessions End ............................................. Friday, August 8
Summer Graduation Date* ............................................ Saturday, August 9

*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 http://registrar.tennessee.edu/academic_calendar/index.shtml.
Key Term Dates

Fall 2013 - Undergraduate
Priority Registration .................................................. March 11–August 19, 2013
Fall 2013 Graduation Application Deadline .................................................. April 26, 2013
Spring 2014 Graduation Application Deadline .................................................. August 9, 2013
Late Registration .................................................. August 21-August 30, 2013
Classes Begin .................................................. August 21, 2013
Last Day to Add, Change Grading Options or Drop without a “W” - 1st Session Courses .................................................. August 26, 2013
Last Day to Final Register, Add, Change Grading Options or Drop without a “W” - Full Session Courses .................................................. August 30, 2013
Labor Day (No Classes) .................................................. September 2, 2013
Last Day to Adjust Hours for Financial Aid Awarding .................................................. September 4, 2013
Last Day to Drop with a “W” - 1st Session Courses .................................................. September 27, 2013
First Session Classes End .................................................. October 9, 2013
Fall Break (No Classes) .................................................. October 17-18, 2013
Second Session Classes Begin .................................................. October 10, 2013
Last Day to Add, Change Grading Options or Drop without “W” - 2nd Session Courses .................................................. October 14, 2013
Last Day to Drop with a “W” - Full Term Courses .................................................. November 12, 2013
Thanksgiving Holidays (No Classes) .................................................. November 28-29, 2013
Total Withdrawal from the University Deadline .................................................. December 3, 2013
Classes End (Full and Second Session) .................................................. December 3, 2013
Summer 2014 Graduation Application Deadline for Undergraduates .................................................. December 3, 2013
Study Day .................................................. December 5, 2013
Exam Period .................................................. December 5, 6, 9, 10, 11, 12, 2013
Commencement Rehearsal (Thompson Boling Assembly Center & Arena) .................................................. December 12, 2013 at 11:00 a.m.
Commencement (Thompson Boling Assembly Center & Arena) .................................................. December 13, 2013
Official Graduation Date on Transcript .................................................. December 13, 2013

Financial Calendar for Fall Term 2013
Statement information available on MYUTK.UTK.EDU .................................................. August 9, 2013
Priority Registration Payment/Confirmation Deadline .................................................. August 19, 2013 at 4:30 p.m.
Late Registration/Late Fees Begin .................................................. August 21, 2013
Late Registration Payment/Confirmation Deadline .................................................. August 30, 2013

* PAYMENT AND CONFIRMATION OF ATTENDANCE FORM MUST BE RECEIVED BY THESE DEADLINES WHETHER OR NOT YOU HAVE RECEIVED a VolXpress STATEMENT. You may view your account at MyUTK.
### Key for Engineering Buildings

<table>
<thead>
<tr>
<th>Building</th>
<th>Room</th>
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<tbody>
<tr>
<td>Engineering Campus Office Locations by Building</td>
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<tr>
<td><strong>Berry Hall</strong></td>
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<td>See individual directory listings</td>
<td></td>
</tr>
<tr>
<td><strong>Dougherty Hall</strong></td>
<td></td>
</tr>
<tr>
<td>Department of Chemical &amp; Biomolecular Engineering</td>
<td>419</td>
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<tr>
<td>Department 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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<tr>
<td><strong>Claxton</strong></td>
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<tr>
<td>Innovative Computing Laboratory</td>
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<tr>
<td><strong>East Stadium Hall</strong></td>
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<tr>
<td>Center for Materials Processing</td>
<td>513</td>
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<tr>
<td>Reliability &amp; Maintainability Center</td>
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<td><strong>Estabrook Hall</strong></td>
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<td>Engineering Fundamentals Division</td>
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<td>Engineering Diversity Programs</td>
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<td>Tennessee Louis Stokes Alliance for Minority Participation</td>
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<td>Engineering Advising Services</td>
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<tr>
<td><strong>Min H. Kao Electrical Engineering &amp; Computer Science Building</strong></td>
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<td>Department of Electrical Engineering &amp; Computer Science</td>
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<tr>
<td>Center for Intelligent Systems &amp; Machine Learning</td>
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<td>CURENT</td>
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<td><strong>Perkins Hall</strong></td>
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<td>College of Engineering Administrative Offices</td>
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<td>Communications</td>
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<td>Computer Assistance</td>
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<td>Dean’s Office</td>
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<td>Development</td>
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<td>Engineering Professional Practice</td>
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<td><strong>Science &amp; Engineering Research Facility (SERF)</strong></td>
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<td>Scintillation Materials Research Center</td>
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<td><strong>Senter Hall</strong></td>
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<td>Ion Beam Materials Laboratory (IBML)</td>
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<td><strong>Textiles &amp; Nonwovens Development Center (TANDEC)</strong></td>
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<td>See individual directory listings</td>
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<tr>
<td><strong>John D. Tickle Engineering Building</strong></td>
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<tr>
<td>Department of Civil &amp; Environmental Engineering</td>
<td>325</td>
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<tr>
<td>Department of Industrial &amp; Systems Engineering</td>
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<tr>
<td><strong>UT Conference Center</strong></td>
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<td>Center for Transportation Research</td>
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<tr>
<td><strong>Under Construction or Design</strong></td>
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<tr>
<td>Joint Institute for Advanced Materials (JIAM)</td>
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<td><strong>Not Shown</strong></td>
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<tr>
<td>Biosystems Engineering &amp; Soil Science — 2506 E.J. Chapman Drive, Knoxville, TN</td>
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<tr>
<td>National Transportation Research Center — 2360 Cherohala Blvd., Knoxville, TN</td>
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<tr>
<td>UT Space Institute — 411 B.H. Goethert Parkway, Tullahoma, TN</td>
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