2013-2014
STUDENT GUIDEBOOK
www.engr.utk.edu
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

---

**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.
## Contacts

### ADMINISTRATIVE CONTACTS

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
<th>Office</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>
<td>101 Perkins Hall</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>
<td>202 Estabrook Hall</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>
<td>103 Estabrook Hall</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>
<td>102 Estabrook Hall</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>
<td>100 Estabrook Hall</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>
<td>310 Perkins Hall</td>
</tr>
</tbody>
</table>

### ACADEMIC DEPARTMENTS

<table>
<thead>
<tr>
<th>Department</th>
<th>Email</th>
<th>Dept. Head</th>
<th>Program Coordinators</th>
<th>Phone</th>
<th>Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosystems Engineering &amp; Soil Science</td>
<td><a href="mailto:bess@utk.edu">bess@utk.edu</a></td>
<td>Dr. Eric Drumm</td>
<td>Dr. Daniel Yoder</td>
<td>(865) 974-7266</td>
<td>101 Biosystems Engr &amp; Env Science Bldg 2506 E. J. Chapman Drive</td>
</tr>
<tr>
<td>Chemical &amp; Biomolecular Engineering</td>
<td><a href="mailto:cbe@utk.edu">cbe@utk.edu</a></td>
<td>Dr. Bamin Khomami</td>
<td>Dr. Brian Edwards</td>
<td>(865) 974-2421</td>
<td>419 Dougherty Bldg.</td>
</tr>
<tr>
<td>Civil &amp; Environmental Engineering</td>
<td><a href="mailto:cee@utk.edu">cee@utk.edu</a></td>
<td>Dr. Dayakar Penumadu</td>
<td>Dr. Chris Cox</td>
<td>(865) 974-2503</td>
<td>223 Perkins Hall</td>
</tr>
<tr>
<td>Electrical Engineering &amp; Computer Science</td>
<td><a href="mailto:deptinfo@eecs.utk.edu">deptinfo@eecs.utk.edu</a></td>
<td>Dr. Leon Tolbert</td>
<td>Dr. Syed Islam</td>
<td>(865) 974-3461</td>
<td>401 Min H. Kao Building</td>
</tr>
<tr>
<td>Industrial and Systems Engineering</td>
<td><a href="mailto:iiedept@utk.edu">iiedept@utk.edu</a></td>
<td>Dr. Rupy Sawhney</td>
<td>Dr. Mingzhou Jin</td>
<td>(865) 974-3333</td>
<td>416 East Stadium Hall</td>
</tr>
<tr>
<td>Materials Science &amp; Engineering</td>
<td><a href="mailto:mse@utk.edu">mse@utk.edu</a></td>
<td>Dr. Kurt Sickafus</td>
<td>Dr. Kevin Kit</td>
<td>(865) 974-5335</td>
<td>434 Dougherty Bldg.</td>
</tr>
<tr>
<td>Mechanical, Aerospace, and Biomedical Engineering</td>
<td><a href="mailto:mabeinfo@utk.edu">mabeinfo@utk.edu</a></td>
<td>Dr. William Hamel</td>
<td>Dr. Gary V. Smith</td>
<td>(865) 974-5115</td>
<td>414 Dougherty Bldg.</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td><a href="mailto:utne@utk.edu">utne@utk.edu</a></td>
<td>Dr. J. Wesley Hines</td>
<td>Dr. Ronald Pevey</td>
<td>(865) 974-2525</td>
<td>315 Pasqua Bldg.</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**
(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
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
RISER Program

Research and Instructional Strategies For Engineering Retention — RISER

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 freshmen year.

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.

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

<table>
<thead>
<tr>
<th>Student Organizations</th>
<th>Honor Societies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• American Institute of Aeronautics and Astronautics</td>
<td>• Chi Epsilon, Civil Engineering Honor Society</td>
</tr>
<tr>
<td>• American Institute of Chemical Engineers</td>
<td>• Eta Kapp Nu, Electrical Engineering Honor Society</td>
</tr>
<tr>
<td>• American Nuclear Society</td>
<td>• Pi Tau Sigma, National Mechanical Engineering Honor Society</td>
</tr>
<tr>
<td>• American Society of Agricultural and Biological Engineers</td>
<td>• Tau Beta Pi, National Engineering Honor Society</td>
</tr>
<tr>
<td>• American Society of Civil Engineers</td>
<td></td>
</tr>
<tr>
<td>• American Society of Mechanical Engineers</td>
<td></td>
</tr>
<tr>
<td>• Association of Computing Machinery</td>
<td></td>
</tr>
<tr>
<td>• College of Engineering Ambassadors</td>
<td></td>
</tr>
<tr>
<td>• Engineers Without Borders/Volunteers Without Borders</td>
<td></td>
</tr>
<tr>
<td>• Institute of Electrical and Electronics Engineers</td>
<td></td>
</tr>
</tbody>
</table>

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.
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

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

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

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.

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
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 UT’s international one-for-one student exchange programs, including ISEP. Attend an information session at the Programs Abroad Office (1620 Melrose Hall). Information sessions are held at 2:00 pm every Monday-Friday during the academic year. During the general information session, we discuss the programs available to you, what to look for in a program, how to use the resource center, using financial aid, transferring credits, programs requirements, and will answer your questions. If you are unable to attend an information session due to a conflict at 2:00 pm, please contact our office and we will be glad to schedule an appointment for you (865.974.3177 or 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.
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.
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- and 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/
Aerospace Engineering
http://www.engr.utk.edu/mabe/

What is Aerospace Engineering?

Aerospace engineering uses the basic sciences and mathematics to develop the foundation for the design, development, production, testing and applied research associated with aerospace vehicles. These vehicles include aircraft, spacecraft and missiles. Auxiliary and propulsion systems are also an integral part of this education. These include guidance, control, environmental, ramjet, rocket, turbojet, turbo-fan and piston engine/propeller systems. The educational objectives of the aerospace 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 Aerospace 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.

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 students with a solid foundation in mathematics, the basic and engineering sciences and engineering design methods;
- to provide students with a comprehensive integration of engineering methods of problem-solving and design with the biological sciences;
- to develop the skills needed for work in the medical device industry, including a thorough coverage of engineering materials, biomaterials, biomechanics, medical device design and work in interdisciplinary teams;
- to provide essential laboratory experience with commonly used biomedical devices and systems and to provide coverage of methods for the design of experiments in medical and life science applications.

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

Career Opportunities in Biomedical Engineering

Biomedical engineers work in a variety of settings including the biomedical product manufacturing industry, biomedical research and development organizations, hospitals (as clinical engineers), for governmental agencies (e.g., FDA, NASA, DOD), and in biomedical product technical sales. Work in many of the more challenging technical areas (e.g., cell and tissue engineering) requires an advanced degree.
Career Information
What can I do with this engineering major?

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
Career Information
What can I do with this engineering major?

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.

- Will analyze and design complex devices and systems containing hardware and software components with consideration of economic, ethical, safety, environmental, and social issues; will be able to use modern engineering techniques, skills and tools.

- Will communicate effectively, function on multi-disciplinary teams, and engage in lifelong learning.

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

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.
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.

It is this emphasis on people, science and technology that distinguishes industrial engineering from the other engineering disciplines. The industrial engineer’s objective is to achieve the best possible results for the benefit of humankind, in terms of safety, quality and productivity. Industrial engineers create value through a total systems approach, scientific method, engineering design, and integration of new technologies. In common with all engineering disciplines, industrial engineering is based on mathematics and the physical sciences. However, industrial engineering also emphasizes the life sciences and social sciences. This concern for the human element leads to system designs that enhance the quality of life for all people, both as producers and consumers of products and services. Students in the Industrial Engineering program can also gain hands-on experience and forge beneficial relationships with industry, business, and agencies through the College’s cooperative engineering program or internships. The department’s faculty is also very active in research and offers opportunities for students to get involved working with various research centers on campus.

The educational objectives of the Industrial Engineering Program are to prepare our students to:
- have successful professional careers that employ industrial and systems engineering concepts and principles,
- pursue life-long learning,
- achieve positions of leadership.

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

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.

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.

Career Opportunities in Electrical 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 Information
What can I do with this engineering major?

Career Information
What can I do with this engineering major?

Career Information
What can I do with this engineering major?

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

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?
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

**Aerospace Engineering Catalog 2013**

#### Fall 2013

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 141 or 147 (4)</td>
<td>FA, SP, SU</td>
<td>Math 130 or Math ACT 25 or Math SAT 630</td>
</tr>
<tr>
<td>EF 151 or 157 (4)</td>
<td>FA, SP</td>
<td>Coreq- Math 141 or 147 and EF 105</td>
</tr>
<tr>
<td>EF 105 (1)</td>
<td>FA, SP</td>
<td>Coreq- EF 151 or 157</td>
</tr>
<tr>
<td>English 101 or 118 (3)</td>
<td>FA, SP, SU</td>
<td>Prereq- EF 105 or 106 and Math 141 or 142 or 148</td>
</tr>
<tr>
<td>Chem 120 or 128 (4)</td>
<td>FA, SP, SU</td>
<td>Math 130</td>
</tr>
</tbody>
</table>

Total: 16 hours

#### Spring 2013

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 142 or 148 (4)</td>
<td>FA, SP, SU</td>
<td>Prereq- Math 141 or 147</td>
</tr>
<tr>
<td>EF 152 or 158 (4)</td>
<td>FA, SP</td>
<td>Coreq- EF 151 or 157</td>
</tr>
<tr>
<td>ME 202 (2)</td>
<td>FA, SP, SU</td>
<td>Coreq- EF 152 or 158 and Math 142 or 148</td>
</tr>
<tr>
<td>English 102 (3)</td>
<td>FA, SP, SU</td>
<td>Prereq- English 101 or 118</td>
</tr>
<tr>
<td>Gen Ed (3)</td>
<td>FA, SP, SU</td>
<td>Coreq- Math 142 or 148</td>
</tr>
</tbody>
</table>

Total: 16 hours

#### Fall 2013

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 241 or 247 (4)</td>
<td>FA, SP, SU</td>
<td>Prereq- Math 142 or 148</td>
</tr>
<tr>
<td>Math 200 (1)</td>
<td>FA, SP, SU</td>
<td>Prereq- Math 142 or 148</td>
</tr>
<tr>
<td>ME 231 (3)</td>
<td>FA, SP, SU</td>
<td>Coreq- EF 152 or 158 and ME 202</td>
</tr>
<tr>
<td>Physics 231 (3)</td>
<td>FA, SP, SU</td>
<td>Prereq- Math 142 or 148</td>
</tr>
<tr>
<td>Gen Ed (3)</td>
<td>FA, SP, SU</td>
<td>Coreq- EF 152 or 158</td>
</tr>
<tr>
<td>Math 241 or 247</td>
<td>FA, SP, SU</td>
<td>Prereq- Math 142 or 148</td>
</tr>
</tbody>
</table>

Total: 17 hours

#### Spring 2013

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 231 (3)</td>
<td>FA, SP, SU</td>
<td>Prereq- Math 142 or 148</td>
</tr>
<tr>
<td>MSE 201 (3)</td>
<td>FA, SP, SU</td>
<td>Prereq- Chem 120 or 128</td>
</tr>
<tr>
<td>EF 230 (2)</td>
<td>FA, SP</td>
<td>Prereq- EF 152 or 158</td>
</tr>
<tr>
<td>ME 321 (3)</td>
<td>FA, SP, SU</td>
<td>Prereq- ME 202 and Math 142 or 148</td>
</tr>
<tr>
<td>Gen Ed (3)</td>
<td>FA, SP, SU</td>
<td>Coreq- Math 142 or 148</td>
</tr>
<tr>
<td>Gen Ed (3)</td>
<td>FA, SP, SU</td>
<td>Coreq- Math 142 or 148</td>
</tr>
</tbody>
</table>

Total: 17 hours

#### Fall 2013

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 331 (3)</td>
<td>FA, SP</td>
<td>Prereq- Math 241 or 247</td>
</tr>
<tr>
<td>AE 341 or 347 (3)</td>
<td>FA, SP, SU</td>
<td>Prereq- ME 231 and Math 241 or 247</td>
</tr>
<tr>
<td>AE 370 or 377 (4)</td>
<td>FA</td>
<td>Coreq- AE 341 or 347</td>
</tr>
<tr>
<td>ECE 301 (3)</td>
<td>FA, SP</td>
<td>Prereq- Math 231</td>
</tr>
<tr>
<td>ME 391 or 397 (3)</td>
<td>FA, SP, SU</td>
<td>Prereq- EF 152 or 158 and Math 231,251 or 200 and EF 230</td>
</tr>
<tr>
<td>AE 351 (3)</td>
<td>SP</td>
<td>Prereq- AE 341/347 and ME 331</td>
</tr>
</tbody>
</table>

Total: 16 hours

#### Spring 2013

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE 422 (3)</td>
<td>FA</td>
<td>Prereq- AE 351 and 370</td>
</tr>
<tr>
<td>AE 425 (3)</td>
<td>FA</td>
<td>Prereq- AE 351</td>
</tr>
<tr>
<td>AE 424 (3)</td>
<td>FA</td>
<td>Prereq- AE 351</td>
</tr>
<tr>
<td>AE 426 (2)</td>
<td>FA</td>
<td>Prereq- AE 351, 370/377, 363</td>
</tr>
<tr>
<td>AE 410 (2)</td>
<td>FA, WC</td>
<td>Prereq- Coreq AE 426 and Senior</td>
</tr>
<tr>
<td>Dept. Elective (3)</td>
<td></td>
<td>ME courses below</td>
</tr>
</tbody>
</table>

Total: 17 hours

### 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 ME 321, and PHYSICS 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 ME 321, and PHYSICS 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 upper-division 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 the first 12 hours of 300-level required 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 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.

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>
<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 130/137</td>
<td>EF 102/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201 or CBE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>

UTRACK Milestones: 2013
<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>16 hours</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Math 130 or Math ACT 28 or Math SAT 630</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EF 151 or 157 (4) FA, SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: EF 151 or 157</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coreq: Math 141 or 147</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EF 152 (1) FA, SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: EF 152 or 158</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coreq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coreq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: English 101 or 118</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: EF 151 or 157</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coreq: Math 130</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chem 120 or 128 (4) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Chem 120 or 128</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>17 hours</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math 142 or 147 (4) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Math 141 or 147</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 (4) FA, SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: EF 151 or 157</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coreq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ME 202 (2) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: EF 152 or 158</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coreq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>English 102 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: English 101 or 118</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Chem 130 or 138</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>17 hours</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math 231 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ME 231 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: EF 152 or 158</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coreq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stat 251 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physics 231 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: English 101 or 118</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EE 230 (1) FA, SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Chem 110 or 130</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td><strong>14 hours</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math 360 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ME 241 (3) FA, SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: ME 202 or 202 or 142</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coreq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ME 201 (3) FA, SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Chem 120 or 128</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BME 271 (3) SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: BME 270 and Math 231</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>16 hours</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BME 363 or 367 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: BME 271 plus Math 231</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or BME 363 or 367</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AE 341/347 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: BME 231 or 231 or Math 241 or 247</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BME 414 (3) FA, SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: MEE 201</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECE 351 (3) FA, SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Math 231</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SR, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts &amp; Humanities</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td><strong>15 hours</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BME 343 (3) SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: BME 271 and BME 363</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or AE 341 &amp; ECE 301</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or BME 363 or 367</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BME 469 (3) SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: BME 200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physics 230 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: Physics 231</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SR, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts &amp; Humanities</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>16 hours</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: BME 455</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU (Cultures &amp; Civilizations)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BME 469 (3) SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: BME 455</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BME Elective (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq: BME 455</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Technical Elective (3) FA, SP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BME Elective (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EE 262 (3) FA, SP</td>
<td></td>
</tr>
</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 two remaining years upper-division. Students must apply for progression to departmental upper division courses, which depend on academic performance. Factors considered include overall grade point average, academic standing 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, MATH 231, ME 321, and PHYS 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 321, 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 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 who have completed CHEM 120, ME 202, MATH 231, ME 321, and PHYS 231 with a grade of C or better and have an overall GPA of 2.4 or better may apply for full status.

#### 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.

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</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1</td>
<td>Math 130 or higher or one SS or one AH or one CC</td>
<td></td>
</tr>
<tr>
<td>Term 2</td>
<td>Math 130 or higher</td>
<td></td>
</tr>
<tr>
<td>Term 3</td>
<td>EF 151/157 or Physics 130/137</td>
<td></td>
</tr>
<tr>
<td>Term 4</td>
<td>EF 154 or Physics 130</td>
<td></td>
</tr>
<tr>
<td>Term 5</td>
<td>ME 202 or CSE 102 or MSE 201</td>
<td></td>
</tr>
<tr>
<td>Term 6</td>
<td>No Milestones</td>
<td></td>
</tr>
</tbody>
</table>
### Engineering Majors

[http://catalog.utk.edu](http://catalog.utk.edu)

#### Biosystems Engineering Catalog 2013

<table>
<thead>
<tr>
<th>Term</th>
<th>Subject</th>
<th>Course Number</th>
<th>Credits</th>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 16 hours</td>
<td>Math</td>
<td>Math 141 or 147</td>
<td>4</td>
<td>FA, SP, SU</td>
<td>Coreq: Math 130 or Math ACT 28 or Math SAT 630</td>
</tr>
<tr>
<td></td>
<td>EF</td>
<td>EF 151 or 157</td>
<td>4</td>
<td>FA, SP</td>
<td>Coreq: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>English</td>
<td>English 101 or 118</td>
<td>3</td>
<td>FA, SP, SU</td>
<td>Coreq: English 101 or 118</td>
</tr>
<tr>
<td></td>
<td>Chem</td>
<td>Chem 120 or 128</td>
<td>4</td>
<td>FA, SP, SU</td>
<td>Coreq: EF 151 or 157</td>
</tr>
<tr>
<td>Spring 17 hours</td>
<td>Math</td>
<td>Math 142 or 148</td>
<td>4</td>
<td>FA, SP, SU</td>
<td>Coreq: Math 130 or Math ACT 28 or Math SAT 630</td>
</tr>
<tr>
<td></td>
<td>EF</td>
<td>EF 152 or 158</td>
<td>4</td>
<td>FA, SP, SU</td>
<td>Coreq: EF 152 or 158 and Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>English</td>
<td>English 102</td>
<td>3</td>
<td>FA, SP, SU</td>
<td>Coreq: English 101 or 118</td>
</tr>
<tr>
<td></td>
<td>Gen Ed</td>
<td>Cultures &amp; Civilizations</td>
<td>3</td>
<td>FA, SP, SU</td>
<td>Coreq: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 104</td>
<td>1</td>
<td>SP</td>
<td>Coreq: EF 151 or 157</td>
</tr>
<tr>
<td>Fall 17 hours</td>
<td>Math</td>
<td>Math 241 or 247</td>
<td>4</td>
<td>FA, SP, SU</td>
<td>Coreq: Math 130 or Math ACT 28 or Math SAT 630</td>
</tr>
<tr>
<td></td>
<td>ME</td>
<td>ME 231</td>
<td>3</td>
<td>FA, SP, SU</td>
<td>Coreq: Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 201</td>
<td>1</td>
<td>FA</td>
<td>Coreq: BSE 221</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 221</td>
<td>3</td>
<td>FA</td>
<td>Coreq: Chem 120 or 128</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 231</td>
<td>3</td>
<td>FA</td>
<td>Coreq: Math 141 or 147</td>
</tr>
<tr>
<td>Spring 17 hours</td>
<td>Math</td>
<td>Math 242</td>
<td>4</td>
<td>FA, SP, SU</td>
<td>Coreq: Math 130 or Math ACT 28 or Math SAT 630</td>
</tr>
<tr>
<td></td>
<td>Biology</td>
<td>Biology 140 or 148</td>
<td>4</td>
<td>FA, SP, SU</td>
<td>Coreq: Chemistry 130 or 138</td>
</tr>
<tr>
<td></td>
<td>ESS</td>
<td>ESS 210</td>
<td>4</td>
<td>SP</td>
<td>Coreq: BSE 221</td>
</tr>
<tr>
<td></td>
<td>ME</td>
<td>ME 321</td>
<td>3</td>
<td>FA, SP, SU</td>
<td>Coreq: ME 202 and Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 321</td>
<td>3</td>
<td>SP</td>
<td>Coreq: BSE 221</td>
</tr>
<tr>
<td>Fall 16 hours</td>
<td>PNL</td>
<td>PNL 244</td>
<td>3</td>
<td>FA, SP</td>
<td>Coreq: ME 231 and 321</td>
</tr>
<tr>
<td></td>
<td>AE</td>
<td>AE 341 or 347</td>
<td>3</td>
<td>FA, SP, SU</td>
<td>Coreq: ME 231 and Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>ECE</td>
<td>ECE 301</td>
<td>3</td>
<td>FA, SP, M</td>
<td>Coreq: Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 401</td>
<td>2</td>
<td>SP</td>
<td>Coreq: Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 451</td>
<td>4</td>
<td>SP</td>
<td>Coreq: Math 200 or Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>Gen Ed</td>
<td>Gen Ed 3 (FA, SP, SU)</td>
<td>3</td>
<td>Social Science</td>
<td>Coreq: BSE 401 and 444</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 402</td>
<td>6</td>
<td>SP</td>
<td>Coreq: BSE 401 and 444</td>
</tr>
<tr>
<td></td>
<td>Gen Ed</td>
<td>Gen Ed 3 (FA, SP, SU)</td>
<td>3</td>
<td>Social Science</td>
<td>Coreq: BSE 401 and 444</td>
</tr>
<tr>
<td></td>
<td>Gen Ed</td>
<td>Gen Ed 6 (FA, SP, SU)</td>
<td>6</td>
<td>Social Science</td>
<td>Coreq: BSE 401 and 444</td>
</tr>
<tr>
<td></td>
<td>Gen Ed</td>
<td>Gen Ed 3 (FA, SP, SU)</td>
<td>3</td>
<td>Social Science</td>
<td>Coreq: BSE 401 and 444</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 451</td>
<td>4</td>
<td>SP</td>
<td>Coreq: ECE 301</td>
</tr>
<tr>
<td></td>
<td><em>Technical Elective</em></td>
<td>(3 FA, SP, SU)</td>
<td>3</td>
<td>Social Science</td>
<td>Coreq: BSE 401 and 444</td>
</tr>
<tr>
<td>Spring 17 hours</td>
<td>Econ</td>
<td>Econ 201</td>
<td>4</td>
<td>FA, SP, SU</td>
<td>Coreq: ME 231 and 321</td>
</tr>
<tr>
<td></td>
<td><em>Technical Elective</em></td>
<td>(3 FA, SP, SU)</td>
<td>3</td>
<td>Social Science</td>
<td>Coreq: BSE 401 and 444</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 411</td>
<td>3</td>
<td>SP</td>
<td>Coreq: BSE 321</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 431</td>
<td>3</td>
<td>SP</td>
<td>Coreq: BSE 321</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 451</td>
<td>4</td>
<td>SP</td>
<td>Coreq: ECE 301</td>
</tr>
<tr>
<td></td>
<td><em>Technical Elective</em></td>
<td>(3 FA, SP, SU)</td>
<td>3</td>
<td>Social Science</td>
<td>Coreq: BSE 401 and 444</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>BSE 444</td>
<td>3</td>
<td>FA</td>
<td>Coreq: BSE 401 and 404</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.

*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, 350 or 358, 360 or 368; ES 334, 434, 442, 444, 446; Geog 410, 411, 412, 413; IE 304; Math 403, 405, 411, 413; ME 363 or 367, 365, 366, 397; ME 363 or 367, 365, 366, 397; MS 305, 405, 415, 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:**

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

---

26
## Pre-Professional Concentration

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>4</td>
<td>Prereq: Math 130 or Math ACT 28 or Math SAT 630</td>
</tr>
<tr>
<td></td>
<td>EF 151 or 157 (4) FA, SP</td>
<td>4</td>
<td>Coreq: Math 141 or 147 and EF 105</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: English 151 or 157</td>
</tr>
<tr>
<td></td>
<td>EF 120 or 128 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: EF 151 or 158</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
<td>4</td>
<td>Prereq: Math 141 or 147 and EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: EF 152 or 158 and Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>English 102 or 118 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: English 152 or 158</td>
</tr>
<tr>
<td></td>
<td>EF 120 or 128 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: EF 151 or 158</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>4</td>
<td>Prereq: Math 130 or Math ACT 28 or Math SAT 630</td>
</tr>
<tr>
<td></td>
<td>EF 151 or 157 (4) FA, SP</td>
<td>4</td>
<td>Coreq: Math 141 or 147 and EF 105</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: English 151 or 157</td>
</tr>
<tr>
<td></td>
<td>EF 120 or 128 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: EF 151 or 158</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
<td>4</td>
<td>Prereq: Math 141 or 147 and EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: EF 152 or 158 and Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>English 102 or 118 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: English 152 or 158</td>
</tr>
<tr>
<td></td>
<td>EF 120 or 128 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: EF 151 or 158</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
<td>4</td>
<td>Prereq: Math 142 or 146 and EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>ME 231 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>ME 331 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: EF 152 or 158 and Math 142 or 148</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 231 (3) FA, SP, SU</td>
<td>3</td>
<td>Prereq: Math 142 or 146 and EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Biology 140 or 148 (6) FA, SP, SU</td>
<td>6</td>
<td>Coreq: Chemistry 120 or 128</td>
</tr>
<tr>
<td></td>
<td>Chem 350 or 358 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: Chem 130 or 138</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: EF 152 or 158 and Math 142 or 148</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>Phil 244 (3) FA, SP</td>
<td>3</td>
<td>Prereq: Arts &amp; Humanities</td>
</tr>
<tr>
<td></td>
<td>AE 341 or 347 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: Math 231</td>
</tr>
<tr>
<td></td>
<td>ECE 301 (3) FA, SP</td>
<td>3</td>
<td>Coreq: Math 231</td>
</tr>
<tr>
<td></td>
<td>Stats 351 (3) FA, SP</td>
<td>3</td>
<td>Coreq: Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>English 360 (3) (WC) FA, SP</td>
<td>3</td>
<td>Coreq: English 102 or 118</td>
</tr>
<tr>
<td></td>
<td>Math 200 (1) FA, SP</td>
<td>1</td>
<td>Coreq: Math 142 or 148</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>BSE 411 (3) SP</td>
<td>3</td>
<td>Prereq: Math 231 or 321</td>
</tr>
<tr>
<td></td>
<td>BSE 413 (3) SP</td>
<td>3</td>
<td>Prereq: BSE 321</td>
</tr>
<tr>
<td></td>
<td>BSE 451 (4) SP</td>
<td>4</td>
<td>Prereq: ECE 301</td>
</tr>
<tr>
<td></td>
<td>Chem 360 or 368 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: Chem 350 or 358</td>
</tr>
<tr>
<td></td>
<td>BSE 444 (3) FA</td>
<td>3</td>
<td>Prereq: BSE 411 or 416</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>Econ 201 or 207 (4) FA, SP, SU</td>
<td>4</td>
<td>Prereq: Arts &amp; Humanities</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: BSE 404 and 444</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>3</td>
<td>Prereq: BSE 401 and 404 and 444</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:

1. Achieve at least a 2.0 GPA in all BSE courses.
2. Only one BSE course with a grade of C-, D+, or D may be used toward graduation.
3. 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 BSE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
### Chemical and Biomolecular Engineering Catalog 2013

#### Fall
<table>
<thead>
<tr>
<th>Hours</th>
<th>Course Code</th>
<th>Course Description</th>
<th>Prerequisites</th>
<th>Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Math 141 or 147</td>
<td>FA, SP, SU</td>
<td>Math 130</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- Math 130 or Math ACT 28 or Math SAT 630</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Math 142 or 148</td>
<td>FA, SP, SU</td>
<td>Prereq- Math 141 or 147</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- English 101 or 118</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Math 231</td>
<td>FA, SP, SU</td>
<td>Prereq- Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 151 or 157</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Math 310 or 319</td>
<td>FA, SP, SU</td>
<td>Prereq- Chem 130 or 138</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- Math 142 or 148</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Chemistry 350 or 358</td>
<td>FA, SP, SU</td>
<td>Prereq- Chemistry 130 or 138</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>CBE 340</td>
<td>FA, SP, SU</td>
<td>Prereq- CBE 201 and 250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 350 and Chem 130/138</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>CBE 445</td>
<td>FA</td>
<td>Prereq- CBE 340</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 340</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>CBE 450</td>
<td>FA</td>
<td>Prereq- CBE 340</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 340</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>CBE 460</td>
<td>FA</td>
<td>Prereq- CBE 340</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 340</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Spring
<table>
<thead>
<tr>
<th>Hours</th>
<th>Course Code</th>
<th>Course Description</th>
<th>Prerequisites</th>
<th>Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Math 241 or 248</td>
<td>FA, SP, SU</td>
<td>Prereq- Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 152 or 158 &amp; Chem 130/138</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Math 310 or 319</td>
<td>FA, SP, SU</td>
<td>Prereq- Chem 130 or 138</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- Math 142 or 148</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Chemistry 350 or 358</td>
<td>FA, SP, SU</td>
<td>Prereq- Chemistry 130 or 138</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>CBE 340</td>
<td>FA, SP, SU</td>
<td>Prereq- CBE 201 and 250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 350 and Chem 130/138</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>CBE 445</td>
<td>FA</td>
<td>Prereq- CBE 340</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 340</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>CBE 450</td>
<td>FA</td>
<td>Prereq- CBE 340</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 340</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>CBE 460</td>
<td>FA</td>
<td>Prereq- CBE 340</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 340</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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-divison 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 ability to perform satisfactorily in upper-division classes by completing a total of seven departmental courses with a grade of C or better in each course. 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.

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.

### 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>
</table>
| Math 130 or higher | Math 130 or higher | EF 151 or EF 157 or Physics 130/137 | EF 152/158 or Physics 130/137 | ME 202 or C S 102 or MSE 201 or CBE 201 | No Milestones

*Chem Option I: Any 200 level or above BCMB courses; any 200-level or above CHEM courses; Environmental Engineering 554, 562, MSE 340, MSE 350, any 200-level or above AMME courses.

** Biology Option I: BCMB 230, BCMB 231, BCMB 401, BCMB 402, BCMB 412, BIOL 240, BIOL 250, MICR 210, MICR 310, CBE 455

*** One technical elective must be a chemical and biomolecular engineering course, with the exclusion of CBE 457.
### Chemical and Biomolecular Engineering Catalog 2013

#### Biomolecular Concentration

<table>
<thead>
<tr>
<th>Term</th>
<th>Course 1</th>
<th>Course 2</th>
<th>Course 3</th>
<th>Course 4</th>
<th>Course 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 16h</td>
<td>Math 141</td>
<td>Chem 130</td>
<td>English 101</td>
<td>EF 151</td>
<td>EF 106</td>
</tr>
<tr>
<td></td>
<td>or 147</td>
<td>or 128</td>
<td>or 101</td>
<td>or 147</td>
<td>or 151</td>
</tr>
<tr>
<td></td>
<td>FA, SP,</td>
<td>FA, SP,</td>
<td>FA, SP,</td>
<td>FA, SP,</td>
<td>FA, SP,</td>
</tr>
<tr>
<td></td>
<td>SU</td>
<td>SU</td>
<td>SU</td>
<td>SU</td>
<td>SU</td>
</tr>
<tr>
<td>Spring 15h</td>
<td>Math 142</td>
<td>Chem 130</td>
<td>English 102</td>
<td>EF 152</td>
<td>Fall 17h</td>
</tr>
<tr>
<td></td>
<td>or 148</td>
<td>or 138</td>
<td>or 102</td>
<td>or 158</td>
<td>or 151</td>
</tr>
<tr>
<td></td>
<td>FA, SP,</td>
<td>FA, SP,</td>
<td>FA, SP,</td>
<td>FA, SP,</td>
<td>or 157</td>
</tr>
<tr>
<td></td>
<td>SU</td>
<td>SU</td>
<td>SU</td>
<td>SU</td>
<td>or 157</td>
</tr>
</tbody>
</table>

#### Fall 17h

- Math 231 (3) FA, SP, SU
- CBE 291 (4) FA, SU
- Coreq: EF 151 or 157

#### Spring 15h

- Math 241 or 247 (4) FA, SP, SU
- CBE 290 (4) SP, SU
- Coreq: EF 152 or 158

#### Fall 15h

- CBE 342 (3) SP, SU
- Coreq: EF 230 or 240

#### Spring 19h

- CBE 350 (3) FA
- Physics 231 (3) FA, SP, SU
- Coreq: EF 154 or 158

#### Fall 16h

- CBE 445 (3) FA
- Coreq: EF 340

#### Spring 16h

- CBE 481 (3) SP
- Coreq: EF 360

### Progression to Upper Division

#### Provisionsal 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 and an overall GPA of 2.3 or better.

#### 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.

### 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 Physics 135/137
- Term 4: EF 153/158 or Physics 136/138
- Term 5: ME 302 or CS 102 or MSE 201 or CBE 201
- Term 6 through 8: No Milestones

* *Biology Option I: Choose one BOME 230, 321, 401, 412; Biology 250; BOME 455; Microbiology 210, 310.*
## Civil Engineering Catalog 2013

### Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>English 101 or 118 (3)</th>
<th>Math 130 or 128 (4)</th>
<th>Chemical Engineering 131 or 128 (4)</th>
<th>Math 141 or 147 (4)</th>
<th>Physics 131 or 137 (4)</th>
<th>Coreq 141 or 147 and 148</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>English 101 or 118</td>
<td>Math 130 or 128</td>
<td>Chemical Engineering 131 or 128</td>
<td>Math 141 or 147</td>
<td>Physics 131 or 137</td>
<td>Coreq 141 or 147 and 148</td>
</tr>
</tbody>
</table>

### Spring

<table>
<thead>
<tr>
<th>Hours</th>
<th>English 101 or 118 (3)</th>
<th>Math 130 or 128 (4)</th>
<th>Chemical Engineering 131 or 128 (4)</th>
<th>Math 141 or 147 (4)</th>
<th>Physics 131 or 137 (4)</th>
<th>Coreq 141 or 147 and 148</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>English 101 or 118</td>
<td>Math 130 or 128</td>
<td>Chemical Engineering 131 or 128</td>
<td>Math 141 or 147</td>
<td>Physics 131 or 137</td>
<td>Coreq 141 or 147 and 148</td>
</tr>
</tbody>
</table>

### Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>English 101 or 118 (3)</th>
<th>Math 130 or 128 (4)</th>
<th>Chemical Engineering 131 or 128 (4)</th>
<th>Math 141 or 147 (4)</th>
<th>Physics 131 or 137 (4)</th>
<th>Coreq 141 or 147 and 148</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>English 101 or 118</td>
<td>Math 130 or 128</td>
<td>Chemical Engineering 131 or 128</td>
<td>Math 141 or 147</td>
<td>Physics 131 or 137</td>
<td>Coreq 141 or 147 and 148</td>
</tr>
</tbody>
</table>

### Spring

<table>
<thead>
<tr>
<th>Hours</th>
<th>English 101 or 118 (3)</th>
<th>Math 130 or 128 (4)</th>
<th>Chemical Engineering 131 or 128 (4)</th>
<th>Math 141 or 147 (4)</th>
<th>Physics 131 or 137 (4)</th>
<th>Coreq 141 or 147 and 148</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>English 101 or 118</td>
<td>Math 130 or 128</td>
<td>Chemical Engineering 131 or 128</td>
<td>Math 141 or 147</td>
<td>Physics 131 or 137</td>
<td>Coreq 141 or 147 and 148</td>
</tr>
</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.

**Science Elective**
- Students select from Biology 101, 102, 130 or 138, 140 or 148; Geology 101, 103, 107; Environ Engineering 513; Environ. Soil Science 462.

**CE Concentration Electives/Labs**
- Students must select 2 of the following concentration sequences: environmental sequence (CE 481 or 487; CE 482), geotechnical sequence (CE 430 or 437; CE 432), structural sequence (CE 461 or 467; CE 463), transportation sequence (CE 451 or 453; CE 456), water resources sequence (CE 494 or 497; CE 496).

**Interest Areas/Technical Electives**
- Construction: CE 540, CE 541, CE 543
- Geotechnical: CE 531, CE 532, CE 535; Geology 310, 330, 340, 370, and 471
- Materials: CE 521, CE 522, CE 525
- Structures: CE 462, CE 472, CE 474, CE 576
- Transportation: CE 451, CE 453, CE 551, CE 552
- Water Resources: CE 483, CE 520, CE 535
- Business: Accounting 200 or 207

**Graduation 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 SS (4.0) or one AH or one CC</td>
<td>Math 130 or higher</td>
<td>EF 151 or 157 or Physics 135 or 137</td>
<td>EF 151 or 157 or Physics 135 or 137</td>
<td>MSE 201 or MSE 202 or MSE 203</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>

---

*Science Elective* - Students select from Biology 101, 102, 130 or 138, 140 or 148; Geography 131 or 410; Geology 101, 103, 107; Environ Engineering 513; Environ. Soil Science 462.

**CE Concentration Electives/Labs** - Students must select 2 of the following concentration sequences: environmental sequence (CE 481 or 487; CE 482), geotechnical sequence (CE 430 or 437; CE 432), structural sequence (CE 461 or 467; CE 463), transportation sequence (CE 451 or 453; CE 456), water resources sequence (CE 494 or 497; CE 496).

**Interest Areas/Technical Electives**

- Construction: CE 540, CE 541, CE 543
- Geotechnical: CE 531, CE 532, CE 535; Geology 310, 330, 340, 370, and 471
- Materials: CE 521, CE 522, CE 525
- Structures: CE 462, CE 472, CE 474, CE 576
- Transportation: CE 451, CE 453, CE 551, CE 552
- Water Resources: CE 483, CE 520, CE 535
- Business: Accounting 200 or 207

**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.

**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 SS (4.0) or one AH or one CC</td>
<td>Math 130 or higher</td>
<td>EF 151 or 157 or Physics 135 or 137</td>
<td>EF 151 or 157 or Physics 135 or 137</td>
<td>MSE 201 or MSE 202 or MSE 203</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
Department of Electrical Engineering and Computer Science
Computer Engineering Catalog 2013

Fall 15 hours
Math 141 or 147 (4) FA, SP
Prep: Math 130 or Math ACT 28
or Math SAT 630
EF 152 (3) FA, SP
Prep: Math 142 or 148
CS 140 (3) FA, SP
Prep: CS 102
English 101 or 118 (3) FA, SP

Spring 15 hours
Math 142 or 148 (4) FA, SP
Prep: Math 141 or 147
EF 152 or 158 (4) FA, SP
Prep: EF 152/158 and Math 142/148
CS 140 (4) FA, SP
Prep: CS 102
English 132 (3) FA, SP, SU
Prep: English 101 or 118

Fall 16 hours
Math 231 (3) FA, SP
Prep: Math 142 or 148
ECE 201 (3) FA, SP
Prep: ECE 201 or Math 142/148
CS 140 (4) FA, SP
Prep: CS 102
Physics 231 (3) FA, SP
Prep: Physics 231
ECE 255 (3) FA, SP, SU
Prep: CS 160

Spring 15 hours
Math 241 or 247 (4) FA, SP
Prep: Math 142 or 148
ECE 202 (3) FA, SP
Prep: CS 102
Math 251 or 257 (3) FA, SP
Prep: Math 142 or 148
Physics 232 (4) FA, SP, SU
Prep: Physics 231
Chem 120 or 128 (4) FA, SP, SU
Math 130

Fall 17 hours
ECE 315 (5) FA, SP
Prep: ECE 300 or 202
ECE 335 (3) FA, SP
Prep: ECE 300 or 302
CS 321 (4) FA, SP
Prep: CS 140
ECE 333 or 317 (3) FA, SP
Prep: Math 142 or 148
ECE 378 (3) FA, SP
Prep: ECE 300 or ECE 202
Gen. Ed. (3) FA, SP, SU
Cultures and Civilizations

Spring 15 hours
ECE 351 or 357 (3) FA, SP
Prep: ECE 230
CS 311 (3) FA, SP
Prep: CS 140, CS 160 and Math 142 or 148
CS 361 (3)
Prep: CS 160 and 302
Upper Elective *(3) FA, SP, SU
Gen. Ed. (3) FA, SP, SU
Arts and Humanities

Fall 17 hours
ECE 401 (OC&WC)(2) FA
Prep: ECE 300 or 202
ECE 402 (OC&WC)(3) SP
Prep: ECE 402
Upper Elective *(3) FA, SP, SU
Gen. Ed. (3) FA, SP, SU
Arts and Humanities

Spring 15 hours
ECE 451 or 457 (3) FA, SP
Prep: ECE 310 or 351
ECE 451 or 459 (3) FA, SP
Prep: ECE 451 or 459
Upper Elective *(3) FA, SP, SU
Gen. Ed. (3) FA, SP, SU
Arts and Humanities

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:

Term 1: Math 130 or higher or one SS
Term 2: Math 130 or higher
Term 3: Math 101/105 or Physics 135/137
Term 4: EF 122/123 or Physics 136/138
Term 5: ME 202 or CS 105 or ECE 201
Term 6: No Milestones

*Among the five Computer Engineering Upper Division Electives, you must choose courses that cover 3 tracks with one of the tracks being Networking & Embedded Systems. The course distribution among the 3 tracks should follow the 2:2:1 pattern, among which at most 2 courses can be at the 3xx-level.

The following lists the acceptable set of electives that may be taken to satisfy the upper division electives for the Computer Engineering major. The electives have been grouped into 6 suggested tracks.

Networking & Embedded Systems: ECE 453, ECE 454, ECE 455, CS 530, ECE 553, ECE 556, ECE 558, Signals and Systems: ECE 316, ECE 471 or 477, ECE 472 or 478, ECE 505, ECE 506, ECE 571, ECE 572;

Machine Learning & Artificial Intelligence: ECE 471 or 477, CS 401, CS 403, CS 405, CS 517, CS 527, CS 528, CS 529, ECE 571, Software Systems: CS 340, CS 360, CS 370, CS 450, CS 481, CS 482, CS 485, CS 489, CS 461, CS 462, CS 465, CS 525, CS 541, CS 590, CS 565, CS 561, Control and Communications: ECE 316, ECE 415, ECE 416 or 417, ECE 341 or 347, ECE 342, ECE 441, ECE 442, ECE 443, Electronics and Power: ECE 316, ECE 336, ECE 343, ECE 432, ECE 433, ECE 325, ECE 421 or 427, ECE 481 or 487.

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 ECE 152 or 154.

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.
Department of Electrical Engineering and Computer Science  
Computer Science Catalog 2013

<table>
<thead>
<tr>
<th>Fall</th>
<th>15-16 hours</th>
<th>Spring</th>
<th>15-16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 110 (4) FA, SP</td>
<td>Math 141 or 147 (4) FA, SP</td>
<td>Math 142 or 146 (4) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: Math 130 or Math ACT 28 or Math SAT 630</td>
<td>Prereq: Math 142 or 147</td>
<td>Prereq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>Physics 136 or 138 (4-5) FA, SP</td>
<td>Physics 136 or 138 (4-5) SP</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall</th>
<th>16 hours</th>
<th>Spring</th>
<th>13 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 140 (4) FA, SP</td>
<td>Physics 141 or 147</td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: CS 110</td>
<td>Prereq: Math 142 or 148</td>
<td>Prereq: English 101 or 118</td>
<td></td>
</tr>
<tr>
<td>Biology 101 FA, SU or 130 FA, SP, SU or Physics 231 FA, SP, SU or</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall</th>
<th>16 hours</th>
<th>Spring</th>
<th>15 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 140 or 317 (5) FA, SP</td>
<td>Math 231 or 237 (5) FA, SP</td>
<td>Math 251 or 257 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: CS 140</td>
<td>Prereq: Math 142 or 148</td>
<td>Prereq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall</th>
<th>16 hours</th>
<th>Spring</th>
<th>16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 336 or 361 (5) FA, SP</td>
<td>Math 312 or 317 (5) FA, SP</td>
<td>Math 311 or 317 (5) FA, SP</td>
<td></td>
</tr>
<tr>
<td>Prereq: CS 110</td>
<td>Prereq: Math 142 or 148</td>
<td>Prereq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td>Chemistry 130 FA, SP or 130 FA, SP, SU or Physics 231 FA, SP, SU or</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall</th>
<th>17 hours</th>
<th>Spring</th>
<th>15 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 491 (5) (OC &amp; WC)</td>
<td>Math 330</td>
<td>Math 251 or 257 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: CS 330</td>
<td>Prereq: Math 142 or 148</td>
<td>Prereq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td>General Elective (5) FA, SP, SU</td>
<td>Arts and Humanities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall</th>
<th>12 hours</th>
<th>Spring</th>
<th>12 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 492 (5) (OC &amp; WC)</td>
<td>Math 331</td>
<td>Math 251 or 257 (3) FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: CS 330</td>
<td>Prereq: Math 142 or 148</td>
<td>Prereq: Math 142 or 148</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed. (3) FA, SP, SU</td>
<td></td>
<td></td>
<td></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 456, 462, ECE 453, 454; Software: CS 340, 461, 465; Hardware: ECE 451, 453; 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 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 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**: 
  - **Term 1**: Math 130 or higher or one SS or one AH or one CC
  - **Term 2**: Math 140 or Higher
  - **Term 3**: SP 150/157 or Physics 355/37
  - **Term 4**: SP 152/158 or Physics 130/138
  - **Term 5**: MSE 201 or CS 112 or MSE 201 or OCE 201
  - **Terms 6 through 8**: No Milestones
### Engineering Majors

**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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>Math 141 or 147 (4) FA, SP</td>
<td>4</td>
<td>Math 130 or Math 38 ACT or Math 630 SAT</td>
</tr>
<tr>
<td></td>
<td>EF 151 or 157 (4) FA, SP</td>
<td>4</td>
<td>Coreq: Math 141 or 147 and EF 105 or CS 102</td>
</tr>
<tr>
<td></td>
<td>CS 102 (4) FA, SP</td>
<td>4</td>
<td>English 101 or 118 (3) FA, SP, SU</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
<td>4</td>
<td>Math 141 or 147</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 (4) FA, SP</td>
<td>4</td>
<td>Coreq: Math 141 or 147 and or Math 630 SAT</td>
</tr>
<tr>
<td></td>
<td>CS 102 (4) FA, SP</td>
<td>4</td>
<td>English 102 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
<td>4</td>
<td>Math 141 or 147</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 (4) FA, SP</td>
<td>4</td>
<td>Coreq: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>CS 102 (4) FA, SP</td>
<td>4</td>
<td>English 101 or 118</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
<td>4</td>
<td>Math 141 or 147</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 (4) FA, SP</td>
<td>4</td>
<td>Coreq: Math 141 or 147 and or Math 630 SAT</td>
</tr>
<tr>
<td></td>
<td>CS 102 (4) FA, SP</td>
<td>4</td>
<td>English 102 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>Math 231 (3) FA, SP, SU</td>
<td>3</td>
<td>Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
<td>4</td>
<td>EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Physics 231 (3) FA, SP, SU</td>
<td>3</td>
<td>Coreq: Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>Math 231 (3) FA, SP, SU</td>
<td>3</td>
<td>Math 130</td>
</tr>
<tr>
<td></td>
<td>Math 235 or 237 (3) FA, SP, SU</td>
<td>3</td>
<td>EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Physics 232 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>ECE 313 (3) FA, SP</td>
<td>3</td>
<td>Math 241 or 148</td>
</tr>
<tr>
<td></td>
<td>ECE 314 (3) FA, SP</td>
<td>3</td>
<td>Math 241 or 148</td>
</tr>
<tr>
<td></td>
<td>Physics 232 (4) FA, SP, SU</td>
<td>4</td>
<td>Coreq: Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>ECE 315 (3) FA, SP</td>
<td>3</td>
<td>Math 241 or 148</td>
</tr>
<tr>
<td></td>
<td>ECE 401 (OC&amp;WC) (2) FA</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**Senior Electives** *(3)*: Mathematics 145, 147, 28, 630; Physics 135, 137, 231, 321, 331, 344, 405; Nuclear Engineering 342 or 347.

**Technical Electives:**
- Computer Science 140, 311 or Math 300, CS 370; Industrial 405; Mechanical Engineering 231, 321, 331, 344; Nuclear Engineering 342 or 347.

**Progression**

The department requires a C or better 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:**

| 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 130/138 |
| Term 5 | ME 202 or CS 102 or MSE 201 or CBE 201 |
| Term 6 through 8 | No Milestones |

*Acceptable Senior Electrical and Computer Engineering Sequences:*
- 415-416 or 417, 421 (or 427)-422, 431-432, 431-433, 441-442, 443, 446, 451 or 457, 453, 454, 451 or 457, 455, 453-454, 471 or 477, 472, 473, 478, 480 or 487-482

**Technical Electives:**
- 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**

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.
### Department of Electrical Engineering and Computer Science

#### Electrical Power & Energy Systems Concentration Catalog 2013

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
</tbody>
</table>
| 15 hours | Math 141 or 147 (4) FA, SP, SU Preq- Math 130 or Math 23 ACT or Math 530/544  
EF 151 or 157 (4) FA, SP  
Preq- EF 151 or 157  
Coreq: Math 141 or 147 and EF 151 or 157  
CS 102 (4) FA, SP  
Preq: CS 102  
English 101 or 118 (3) FA, SP, SU  
Preq: English 101 or 118 |
| **Spring** |                                                                                             |
| 15 hours | Math 142 or 148 (4) FA, SP, SU Preq- Math 144 or 147  
EF 152 or 158 (4) FA, SP  
Preq- EF 151 or 157  
Coreq: Math 142 or 148  
CS 102 (4) FA, SP  
Preq: CS 102  
English 102 (3) FA, SP, SU  
Preq: English 102 |
| **Fall** |                                                                                             |
| 16 hours | Math 231 (3) FA, SP, SU Preq- Math 142 or 148  
EF 152 or 158 (4) FA, SP, SU  
Preq- EF 151 or 157  
Coreq: Math 142 or 148  
Chem 130 or 132 (4) FA, SP, SU  
Preq: Math 130  
ECE 301 (3) FA, SP  
Preq: EF 152 or 158 and Math 142/48  
Coreq: Math 331 |
| **Spring** |                                                                                             |
| 17 hours | Math 241 or 247 (4) FA, SP, SU Preq- Math 142 or 148  
EF 152 or 158 (4) FA, SP, SU  
Preq- EF 151 or 157  
Coreq: Math 241 or 247  
CS 160 (4) FA, SP, SU  
Preq- CS 160  
Physics 231 (4) FA, SP, SU  
Preq- Physics 231  
Gen. Ed. (3) FA, SP, SU  
Preq- ECE 300 or ECE 202  |
| **Fall** |                                                                                             |
| 16 hours | ECE 315 (3) FA, SU Preq- ECE 300 or 202  
EF 152 or 158 (4) FA, SP, SU  
Preq- EF 151 or 157  
Coreq: Math 331  
ECE 325 (3) FA, SP, SU  
Preq- ECE 335 or 300 or 202  
Coreq: ECE 315  
ECE 335 (3) FA, SP, SU  
Preq- ECE 335 or 300 or 202  
Coreq: ECE 315  
ECE 341 or 347 (3) FA, SP, SU  
Preq- ECE 335 or 300 or 202  
Coreq: ECE 335  
ECE 395 (1) FA, SP  
Preq- ECE 335 or 300 or ECE 202  
Gen. Ed. (3) FA, SP, SU  
Social Science  
Gen. Ed. (3) FA, SP, SU  
Arts & Humanities  
Gen. Ed. (3) FA, SP, SU  
Cultures and Civilizations |
| **Spring** |                                                                                             |
| 15 hours | ECE 316 (3) SP, SU Preq- ECE 315  
EF 152 or 158 (4) FA, SP, SU  
Preq- EF 151 or 157  
Coreq: Math 331  
ECE 326 (3) FA, SP, SU  
Preq- ECE 326 or 315  
Coreq: ECE 315  
ECE 342 (3) FA, SP, SU  
Preq- ECE 342 or 315 and 313  
Gen. Ed. (3) FA, SP, SU  
Social Science  
Gen. Ed. (3) FA, SP, SU  
Arts & Humanities  
Gen. Ed. (3) FA, SP, SU  
Cultures and Civilizations  |
| **Fall** |                                                                                             |
| 16 hours | ECE Elective*(3) FA, SP, SU Preq- ECE 315  
Power & Energy Elective  
EF 152 or 158 (4) FA, SP, SU  
Preq- EF 151 or 157  
Coreq: Math 331  
ECE Elective*(3) FA, SP, SU  
Power & Energy Elective  
ECE Elective*(3) FA, SP, SU  
Power & Energy Elective  
ECE 401 (OC)(WC) (2) FA, SP  
Preq- ECE 315 or 351  
EF 402 (1) FA, SP  
minimum students level - senior  
Gen. Ed. (3) FA, SP, SU  
Arts and Humanities  
Gen. Ed. (3) FA, SP, SU  
Arts and Humanities  
Gen. Ed. (3) FA, SP, SU  
Cultures and Civilizations  |
| **Spring** |                                                                                             |
| 15 hours | ECE Elective*(3) FA, SP, SU Preq- ECE 315  
Power & Energy Elective  
Tech. Elective**(3) FA, SP, SU  
Entrepreneurship Elect.(3)  
IE 457 or ME 457  
ECE 402 (OC)(WC) (3)SP  
Preq- ECE 401  
Gen. Ed. (3) FA, SP, SU  
Cultures and Civilizations  
Gen. Ed. (3) FA, SP, SU  
Cultures and Civilizations  |

**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 138; E 405; MSE 201, 410; ME 231, 321, 331, 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 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:

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

#### Fall

| Hours | Course | Prereq | Coreq | Term 1 | Term 2 | Term 3 | Term 4 | Term 5 | Term 6
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>Math 130 or Math ACT 28 or Math SAT 620</td>
<td>Math 130 or 128 (4) FA, SP, SU</td>
<td>EF 151 or 157 (4) FA, SP</td>
<td>Coreq Math 141 or 147 and EF 105</td>
<td>EF 105 (5) FA, SP</td>
<td>Coreq EF 151 or 157</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
<td>Prereq: Math 142 or 147</td>
<td>English 102 (3) FA, SP, SU</td>
<td>EF 152 or 158 (4) FA, SP</td>
<td>Prereq EF 101 or 107</td>
<td>ME 202 (2) FA, SP, SU</td>
<td>Coreq SF 152 or 158 and Math 142 or 148</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Spring

| Hours | Course | Prereq | Coreq | Term 1 | Term 2 | Term 3 | Term 4 | Term 5 | Term 6
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
<td>Prereq: Math 141 or 147</td>
<td>Coreq: EF 151 or 157</td>
<td>EF 202 (2) FA, SP</td>
<td>Math 142 or 148</td>
<td>Coreq EF 152 or 157</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Math 200 (1) FA</td>
<td>Prereq: Math 141 or 147</td>
<td>EF 230 (2) FA, SP</td>
<td>Coreq EF 152 or 157</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Fall

| Hours | Course | Prereq | Coreq | Term 1 | Term 2 | Term 3 | Term 4 | Term 5 | Term 6
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>IE 250 (1) FA</td>
<td>Industrial majors only</td>
<td>IE 200 (3) FA</td>
<td>Prereq: Math 142 or 148</td>
<td>IE 450 (3) FA</td>
<td>Prereq: Math 142 or 148</td>
<td>IE 305 (3) FA</td>
<td>Prereq: Math 142 or 148</td>
<td>ME 331 (3) FA, SP, SU</td>
</tr>
<tr>
<td>16</td>
<td>ECON 201 or 207 (4) FA, SP, SU</td>
<td>Prereq: Math 142 or 148</td>
<td>Math 231 (3) FA, SP, SU</td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>Coreq: EF 152 or 158</td>
<td>ME 331 (3) FA, SP, SU</td>
<td>Coreq Math 241 or 247</td>
<td>IE 202 (3) FA, SP, SU</td>
<td>Coreq: EF 152 or 157</td>
</tr>
</tbody>
</table>

#### Spring

| Hours | Course | Prereq | Coreq | Term 1 | Term 2 | Term 3 | Term 4 | Term 5 | Term 6
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>IE 355 (WQ) (1) FA</td>
<td>Industrial majors only</td>
<td>IE 401 or 497 (3) FA</td>
<td>Prereq: Math 142 or 148</td>
<td>E 301 (3) FA</td>
<td>Prereq: Math 142 or 148</td>
<td>IE 300 (3) FA</td>
<td>Prereq: Math 142 or 148</td>
<td>IE 402 (3) FA</td>
</tr>
<tr>
<td>15</td>
<td>Arts &amp; Humanities</td>
<td>Prereq: Math 130 or higher</td>
<td>ECE 301 (3) FA, SP</td>
<td>C or better in Math 251</td>
<td>IE 340 (3) SP</td>
<td>Prereq: IE 202 and 300</td>
<td>IE 421 or 428 (3) FA</td>
<td>Coreq IE 402</td>
<td></td>
</tr>
</tbody>
</table>

| Hours | Course | Prereq | Coreq | Term 1 | Term 2 | Term 3 | Term 4 | Term 5 | Term 6
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>IE 450 (1) FA</td>
<td>Industrial majors only</td>
<td>IE 404 (2) FA, SP, SU</td>
<td>Prereq: IE 350</td>
<td>IE 404 (2) FA, SP, SU</td>
<td>Prereq: IE 350</td>
<td>IE 404 (2) FA, SP, SU</td>
<td>Prereq: IE 350</td>
<td>IE 404 (2) FA, SP, SU</td>
</tr>
<tr>
<td>17</td>
<td>IE 422 (2) (OC &amp; WC) FA, SP, SU</td>
<td>Prereq: Math 142 or 148</td>
<td>ECE 405 (3) SP</td>
<td>Coreq: IE 350</td>
<td>IE 422 (2) SP</td>
<td>Prereq: IE 350</td>
<td>IE 422 (2) SP</td>
<td>Prereq: IE 350</td>
<td>IE 422 (2) SP</td>
</tr>
</tbody>
</table>

**IE Technical Electives chosen from AE 341 or 347; BME 300; BIOL 381; BIOL 410; BIOL 301; GOBI 302; ECE 255; ECE 302; ECON 311; ECON 312; ECON 322; ECON 333; ECON 355; ECON 371; FINC 425; FINC 455; IE 433; IE 434; IE 437; IE 484; IE 485; NISG 310; NISG 451; MARK 300; MGT 300; MSE 340 or 347; MSE 350 or 367; MSE 360 or 367; MSE 390 or 397; MSE 405; MSE 421; MSE 363 or 367; ME 330; ME 350; ME 365; ME 366; ME 405; ME 342 or 347. Some courses may require a prerequisite or corequisite that is not part of the IE program.**

**Industrial Electives chosen from IE 423, IE 430, IE 457, IE 485, IE 494; IE 493, IE 494, 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

| Term 1 | Term 2 | Term 3 | Term 4 | Term 5 | Term 6
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 130 or higher or one SS</td>
<td>Math 130 or Higher</td>
<td>EF 151/157 or Physics 130/137</td>
<td>EF 102/105 or Physics 130/138</td>
<td>ME 202 or CS 102 or MSE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
### Materials Science and Engineering Catalog 2013

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 16 hours</td>
<td><strong>English 101 or 118 (3) FA, SP, SU</strong>&lt;br&gt;Chem 120 or 128 (4) FA, SP, SU&lt;br&gt;Math 141 or 147 (4) FA, SP, SU&lt;br&gt;EF 151 or 157 (4) FA, SP&lt;br&gt;MSE 101 (1) SP&lt;br&gt;Coreq: EF 151 or 157</td>
</tr>
<tr>
<td>Spring 16 hours</td>
<td><strong>English 102 (3) FA, SP, SU</strong>&lt;br&gt;Chem 130 or 138 (4) FA, SP, SU&lt;br&gt;Math 142 or 148 (4) FA, SP, SU&lt;br&gt;EF 152 or 158 (4) FA, SP&lt;br&gt;MSE 101 (1) SP&lt;br&gt;Coreq: EF 152 or 158</td>
</tr>
<tr>
<td>Fall 16 hours</td>
<td><strong>MSE 201 (3) FA, SP, SU</strong>&lt;br&gt;Prereq: Chemistry 120 or 128&lt;br&gt;MSE 210 (1) FA, SP, SU&lt;br&gt;Math 241 or 247 (4) FA, SP, SU&lt;br&gt;Physics 231 (3) FA, SP, SU&lt;br&gt;MSE 260 (3) FA&lt;br&gt;Coreq: EF 152 or 158, Chem 130/138, and Math 142 or 148, Coreq: MSE 201</td>
</tr>
<tr>
<td>Spring 15 hours</td>
<td><strong>MSE 200 (1) SP</strong>&lt;br&gt;Math 200 (1) FA, SP, SU&lt;br&gt;Math 231 (3) FA, SP, SU&lt;br&gt;Physics 232 (4) FA, SP, SU&lt;br&gt;MSE 200 (1) SP&lt;br&gt;Gen. Ed. (3) FA, SP, SU&lt;br&gt;Arts and Humanities</td>
</tr>
<tr>
<td>Fall 16 hours</td>
<td><strong>MSE 300 (1) FA</strong>&lt;br&gt;Prereq: MSE 201 and 210&lt;br&gt;Stats 251 (3) FA, SP, SU&lt;br&gt;Math 340 or 347 (3) FA&lt;br&gt;MSE 360 or 367 (3) FA&lt;br&gt;Gen. Ed. (3) FA, SP, SU&lt;br&gt;Arts and Humanities</td>
</tr>
<tr>
<td>Spring 16 hours</td>
<td><strong>MSE 304 (1) SP</strong>&lt;br&gt;Prereq: MSE 300, 320, 340 or 347, 360 or 367&lt;br&gt;MSE 390 or 397 (3) SP&lt;br&gt;Prereq: MSE 301&lt;br&gt;MSE 370 (3) SP&lt;br&gt;Prereq: MSE 340 and 380&lt;br&gt;MSE 302 (3) SP&lt;br&gt;Prereq: MSE 201&lt;br&gt;MSE 350 or 357 (3) SP&lt;br&gt;Prereq: MSE 201&lt;br&gt;Technical Electives* (3) FA, SP, SU&lt;br&gt;Petition required in advance</td>
</tr>
<tr>
<td>Fall 16 hours</td>
<td><strong>MSE 4XX (3) FA, SP, SU</strong>&lt;br&gt;See below&lt;br&gt;MSE 405 (WC) (4) FA, SP&lt;br&gt;Prereq: Physics 232&lt;br&gt;MSE 440 (3) FA&lt;br&gt;Minimum level junior&lt;br&gt;Gen. Ed. (3) FA, SP, SU&lt;br&gt;Culture and Civilizations</td>
</tr>
<tr>
<td>Spring 16 hours</td>
<td><strong>MSE 4XX (3) FA, SP, SU</strong>&lt;br&gt;See below&lt;br&gt;EF 401 (1) FA, SP&lt;br&gt;Minimum student level - senior&lt;br&gt;Technical Electives* (3) FA, SP, SU&lt;br&gt;Petition required in advance&lt;br&gt;MSE 499 (OC)* (3) SP&lt;br&gt;Prereq: MSE 304, 340 or 347, 360 or 367, 370, 390 or 357, and 480&lt;br&gt;Gen. Ed. (3) FA, SP, SU&lt;br&gt;Culture and Civilizations&lt;br&gt;Arts and Humanities</td>
</tr>
</tbody>
</table>

*Technical electives: ECE 301 (strongly recommended), BCMB 230, BIOL 140 or 148, BME 300, BME 409, CBE 475, CHEM 350 or 358; any MSE course; ME 321, NE 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>
<td>No Milestones</td>
</tr>
</tbody>
</table>

**Students also have opportunities for an Honors Concentration and/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.**
### Materials Science and Engineering Catalog 2013
#### BIOMATERIALS CONCENTRATION

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101 or 118 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Chem 120 or 128 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Math 130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 141 or 147 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>EF 151 or 157 (4)</td>
<td>FA, SP</td>
<td></td>
</tr>
<tr>
<td>EF 105 (1)</td>
<td>FA, SP</td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 102 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Chem 130 or 138 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Math 142 or 148 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>EF 152 or 158 (4)</td>
<td>FA, SP</td>
<td></td>
</tr>
<tr>
<td>MSE 101 (1)</td>
<td>SP</td>
<td></td>
</tr>
</tbody>
</table>

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE 201 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>MSE 210 (1)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Math 241 or 247 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Physics 231 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>MSE 290 (1)</td>
<td>SP</td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 200 (1)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Math 231 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Physics 232 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>MSE 250 (3)</td>
<td>SP</td>
<td></td>
</tr>
</tbody>
</table>

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE 300 (1)</td>
<td>FA</td>
<td></td>
</tr>
<tr>
<td>MSE 320 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>MSE 340 or 347 (3)</td>
<td>FA</td>
<td></td>
</tr>
<tr>
<td>MSE 360 or 367 (3)</td>
<td>FA</td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE 340 (3)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>MSE 390 or 397 (3)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>MSE 370 (3)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>MSE 392 (3)</td>
<td>SP</td>
<td></td>
</tr>
</tbody>
</table>

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE 474 (5)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>MSE 480 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>MSE 489 (OC) (3)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>EF 452 (1)</td>
<td>FA, SP</td>
<td></td>
</tr>
<tr>
<td>Technical Electives* (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>MSE 489 (OC) (3)</td>
<td>SP</td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE Elective (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>MSE 497 (5)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>EF 151/157 or Physics 135/137</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

**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</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Math 130 or higher or one SS or one CSE or one CC</td>
</tr>
<tr>
<td>2</td>
<td>Math 130 or higher</td>
</tr>
<tr>
<td>3</td>
<td>EF 151/157 or Physics 135/137</td>
</tr>
<tr>
<td>4</td>
<td>EF 152/158 or Physics 136/138</td>
</tr>
<tr>
<td>5</td>
<td>ME 302 or CS 102 or MSE 201 or CSE 301</td>
</tr>
<tr>
<td>6-8</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>

*Technical Electives must be chosen from the following courses: BME 405, BME 410, BSE 231, CSE 475, MSE 485 or MSE 486.*
## Materials Science and Engineering Catalog 2013

### NANOMATERIALS CONCENTRATION

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

#### Spring
- **16 hours**
  - English 102 (3) FA, SP, SU
  - Chem 120 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 105 (1) FA, SP

#### Fall
- **16 hours**
  - Math 130 or higher
  - Mech 130 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 151 or 157 (4) FA, SP

#### Spring
- **16 hours**
  - English 102 (3) FA, SP, SU
  - Chem 120 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 105 (1) FA, SP

#### Fall
- **16 hours**
  - Math 130 or higher
  - Mech 130 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 151 or 157 (4) FA, SP

#### Spring
- **16 hours**
  - English 102 (3) FA, SP, SU
  - Chem 120 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 105 (1) FA, SP

#### Fall
- **16 hours**
  - Math 130 or higher
  - Mech 130 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 151 or 157 (4) FA, SP

#### Spring
- **16 hours**
  - English 102 (3) FA, SP, SU
  - Chem 120 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 105 (1) FA, SP

#### Fall
- **16 hours**
  - Math 130 or higher
  - Mech 130 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 151 or 157 (4) FA, SP

#### Spring
- **16 hours**
  - English 102 (3) FA, SP, SU
  - Chem 120 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 105 (1) FA, SP

### Progression

**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

**Term 1**
- Math 130 or higher or one SS in one AH or one CC

**Term 2**
- Math 130 or higher

**Term 3**
- EF 151/157 or Physics 139/137

**Term 4**
- EF 152/158 or Physics 139/138

**Term 5**
- Math 302 or CSE 102 or MSE 201 or CSE 201

**Term 6 through 8**
- No Milestones
### Mechanical Engineering Catalog 2013

#### Fall
- **16 hours**
  - **Math 141 or 147 (4)**
    - Coreq: Math 141 or Math ACT 28 or Math SAT 630
  - **EF 151 or 157 (4)**
    - Coreq: Math 141 or EF 151 or 157
  - **English 101 or 118 (3)**
    - Coreq: English 101 or 118
  - **Chem 120 or 128 (4)**
    - Coreq: English 101 or 118
  - **Mechanical Engineering Catalog 2013 FA, SP, SU**

#### Spring
- **16 hours**
  - **Math 130**
    - Coreq: Math 141 or 147 and Math 142 or 148
  - **EF 151 or 157 (4)**
    - Coreq: English 101 or 118
  - **English 152 (3)**
    - Coreq: English 101 or 118
  - **EF 230 (2)**
    - Coreq: Math 152 or Math 142 or 148
  - **MSE 201 (3)**
    - Coreq: Math 152 or Math 142 or 148

#### 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 depend 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, ME 321, and PHYS 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 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 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

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>
<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</td>
<td>Math 130 or higher</td>
<td>EF 151/157 or Math 142</td>
<td>EF 152/158 or Physics 130/138</td>
<td>ME 212 or CS 102 or MSE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
## Nuclear Engineering Catalog 2013
### Traditional Track

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

#### Spring
- **15 hours**
  - Math 142 or 148 (4) FA, SP, SU
  - English 102 (3) FA, SP, SU
  - Chem 130 or 138 (4) FA, SP, SU
  - EF 152 or 158 (4) FA, SP
  - Prereq- English 101 or 118
  - Prereq- Chem 120 or 128
  - Co-req- Math 142 or 148

#### Fall
- **16 hours**
  - Math 231 (3) FA, SP, SU
  - NE 200 (2) FA
  - ME 202 (2) FA, SP, SU
  - Physics 231 (3) FA, SP, SU
  - EF 230 (2) FA, SP
  - ECON 201 or 207 (4) FA, SP, SU
  - Prereq- Math 142 or 148
  - Prereq- EF 152 or 158

#### Spring
- **15 hours**
  - Math 241 or 247 (4) FA, SP, SU
  - ME 331 (3) FA, SP, SU
  - ECE 301 (3) FA, SP
  - Physics 232 (4) FA, SP, SU
  - Gen Ed (3) FA, SP, SU
  - Prereq- EF 152 or 158
  - Coreq- Math 241 or 247

#### Fall
- **15 hours**
  - NE 342 or 347 (3) FA
  - NE 351 or 357 (3) FA
  - NE 362 or 367 (3) FA
  - Physics 341 (3) FA
  - Gen Ed (3) FA, SP, SU
  - Prereq- ME 331
  - Prereq- Math 231 and 241 or 247

#### Spring
- **16 hours**
  - NE 401 (3) SP
  - NE 402 or 427 (WC) (3) FA
  - NE 400 (4) SP
  - NE 470 (3) FA, SP
  - Gen Ed (3) FA, SP, SU
  - Prereq- NE 342
  - Petition required in advance

#### Fall
- **15 hours**
  - NE 400 (OC) (1) SP
  - NE 406 or 467 (3) SP
  - NE 472 (4) SP
  - Technical Elective *(3) FA, SP, SU
  - EF 402 (1) FA, SP
  - Gen Ed (3) FA, SP, SU

#### Spring
- **15 hours**
  - Minimum student level — senior
  - Technical Elective *(3) FA, SP, SU
  - Arts & Humanities

---

*Technical Electives are selected from upper division mathematics, chemistry, physics and engineering courses and must be pre-approved by the department advisor. Courses in Nuclear Engineering other than 500, 502 and 598 may also be used as technical electives.

**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*, 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>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 Art 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>

---

40
# Nuclear Engineering Catalog 2013

## Radiological Concentration

### Fall

- **16 hours**
  - **Math 231 (3) FA, SP, SU**
    - Prereq: Math 142 or 148
  - **NE 200 (2) FA**
    - COREQ: EF 151 or 157
  - **ME 202 (2) FA, SP, SU**
    - COREQ: Math 142 or 148
  - **Physics 231 (3) FA, SP, SU**
    - COREQ: Math 142 or 148
  - **EF 230 (2) FA, SP**
  - **ECON 201 or 207 (4) FA, SP, SU**
  - **Arts and Humanities**

### Spring

- **15 hours**
  - **Math 241 or 247 (4) FA, SP, SU**
    - Prereq: Math 142 or 148
  - **ME 331 (3) FA, SP, SU**
    - COREQ: Math 241 or 247
  - **ECE 301 (3) FA**
    - COREQ: Physics 231
  - **Physics 232 (4) FA, SP, SU**
    - COREQ: Math 241 or 247
  - **Gen Ed (3) FA, SP, SU**

### Fall

- **15 hours**
  - **NE 342 or 347 (3) FA**
    - Prereq: ME 331
  - **NE 351 or 357 (3) FA**
    - Prereq: Math 231 and 241 or 247
  - **NE 362 or 369 (3) FA**
    - Prereq: Physics 232
  - **Physics 341 (3) FA**
    - COREQ: Math 241 or 247
  - **Gen Ed (3) FA, SP, SU**

### Spring

- **15 hours**
  - **NE 401 (3) SP**
    - COREQ: NE 401
  - **Stats 251 (3) FA, SP, SU**
    - Prereq: Math 142 or 148
  - **NE 435 (3) SP**
  - **NE 470 (3) FA, SP**
    - COREQ: Math 241 or 247
  - **Social Science**

### Fall

- **15 hours**
  - **NE 402 or 427 (WC) (3) FA**
    - Prereq: NE 401
  - **NE 490 (3) FA**
    - Prereq: Math 402 or 427
  - **ME 321 (3) FA, SP, SU**
    - Prereq: Math 202 and Math 142 or 148
  - **Technical Elective *(3) FA, SP, SU**
    - Petition required in advance
  - **Gen Ed (3) FA, SP, SU**

### Spring

- **15 hours**
  - **NE 406 (OD) (1) SP**
    - Minimum student level - senior
  - **NE 406 or 467 (3) SP**
    - COREQ: Physics 232
  - **NE 472 (4) SP**
    - COREQ: NE 470
  - **Technical Elective *(3) FA, SP, SU**
    - Petition required in advance
  - **EF 402 (1) FA, SP**
    - MINIMUM STUDENT LEVEL - SENIOR
  - **Gen Ed (3) FA, SP, SU**
    - COREQ: Math 241 or 247

*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.

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 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 201</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/](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.
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.

### Required Honors Curriculum

<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><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>Required Honors Curriculum for Haslam Scholars</strong></td>
<td></td>
</tr>
</tbody>
</table>

<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><strong>Total</strong></td>
<td><strong>28</strong></td>
<td></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.

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 or Literature</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, 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>
Placement Exams

Freshman Math Placement
Based on ACT Math or SAT Math Placement Scores

<table>
<thead>
<tr>
<th>Math ACT</th>
<th>Math SAT</th>
<th>Math Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</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>

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:

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  
dcanfie1@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.
General Education Requirements

http://catalog.utk.edu

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
• 232: American Literature II-Civil War to Present
• 233: Major Black Writers
• 237: Honors-American Literature I-Colonial Era through the Civil War
• 238: Honors-American Literature II-Civil War to Present
• 247: Honors: Introduction to Poetry
• 248: Honors: Introduction to Drama
• 251: Introduction to Poetry
• 252: Introduction to Drama
• 253: Introduction to Fiction
• 254: Themes in Literature
• 258: Honors: Introduction to Fiction
• 281: Introduction to Film Studies

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-Classical 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
• 252: 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

**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 157 (Honors) (Physics 135/7 for Computer Science ONLY)
2. EF 152 or 158 (Honors) (Physics 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

College of Engineering General Education Requirements

Major
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)

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.

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.

*Note: If two or more of your courses are corequisites for one another, the Banner System will not allow you to register for those courses individually. You must register for all corequisite courses simultaneously.

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.
<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00-8:50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:05-9:55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:10-11:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15-12:05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:20-1:10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:25-2:15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:30-3:20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:35-4:25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4:40-5:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:45-6:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Tuesday</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:10-9:25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:40-10:55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:10-12:25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:40-1:55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:10-3:25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:40-4:55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:05-6:20</td>
<td></td>
<td></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 ................................................................. Thursday-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 .................................................... August 9, 2013
Spring 2014 Graduation Application Deadline ............................................ August 21-August 30, 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 Drop with a “W” - 1st Session Courses ....................................... September 2, 2013
First Session Classes End .......................................................... October 9, 2013
Fall Break (No Classes) .................................................................... October 10, 2013
Second Session Classes Begin ..................................................... October 17-18, 2013
Last Day to Add, Change Grading Options or Drop without a “W” - 2nd Session Courses ..................................................... October 14, 2013
Last Day to Add, Change Grading Options or Drop without a “W” - Full Session Courses ..................................................... October 14, 2013
Labor Day (No Classes) ................................................................... September 4, 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 4, 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.
# Engineering Campus Office Locations by Building

## Key for Engineering Buildings

<table>
<thead>
<tr>
<th>Building</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Berry Hall</strong></td>
<td></td>
</tr>
<tr>
<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>
</tr>
<tr>
<td>Department Mechanical, Aerospace, and Biomedical Engineering</td>
<td>414</td>
</tr>
<tr>
<td>National Office, Tau Beta Pi Engineering Honor Society</td>
<td>508</td>
</tr>
<tr>
<td><strong>Claxton</strong></td>
<td></td>
</tr>
<tr>
<td>Innovative Computing Laboratory</td>
<td>203</td>
</tr>
<tr>
<td><strong>East Stadium Hall</strong></td>
<td></td>
</tr>
<tr>
<td>Center for Materials Processing</td>
<td>513</td>
</tr>
<tr>
<td>Reliability &amp; Maintainability Center</td>
<td>507</td>
</tr>
<tr>
<td><strong>Estabrook Hall</strong></td>
<td></td>
</tr>
<tr>
<td>Engineering Fundamentals Division</td>
<td>103</td>
</tr>
<tr>
<td>Engineering Diversity Programs</td>
<td>204</td>
</tr>
<tr>
<td>Tennessee Louis Stokes Alliance for Minority Participation</td>
<td>204</td>
</tr>
<tr>
<td>Engineering Advising Services</td>
<td>202</td>
</tr>
<tr>
<td><strong>Min H. Kao Electrical Engineering &amp; Computer Science Building</strong></td>
<td></td>
</tr>
<tr>
<td>Department of Electrical Engineering &amp; Computer Science</td>
<td>401</td>
</tr>
<tr>
<td>Center for Intelligent Systems &amp; Machine Learning</td>
<td>616</td>
</tr>
<tr>
<td>CURENT</td>
<td>555</td>
</tr>
<tr>
<td><strong>Pasqua Hall</strong></td>
<td></td>
</tr>
<tr>
<td>Department of Nuclear Engineering</td>
<td>315</td>
</tr>
<tr>
<td><strong>Perkins Hall</strong></td>
<td></td>
</tr>
<tr>
<td>College of Engineering Administrative Offices</td>
<td></td>
</tr>
<tr>
<td>Communications</td>
<td>207</td>
</tr>
<tr>
<td>Computer Assistance</td>
<td>318-B</td>
</tr>
<tr>
<td>Dean's Office</td>
<td>124</td>
</tr>
<tr>
<td>Development</td>
<td>120</td>
</tr>
<tr>
<td>Finance &amp; Administrative Affairs</td>
<td>118</td>
</tr>
<tr>
<td>Academic and Student Affairs</td>
<td>101</td>
</tr>
<tr>
<td>Engineering Professional Practice</td>
<td>310</td>
</tr>
<tr>
<td>Faculty Affairs</td>
<td>119</td>
</tr>
<tr>
<td><strong>Science &amp; Engineering Research Facility (SERF)</strong></td>
<td></td>
</tr>
<tr>
<td>Scintillation Materials Research Center</td>
<td>301</td>
</tr>
<tr>
<td><strong>Senter Hall</strong></td>
<td></td>
</tr>
<tr>
<td>Ion Beam Materials Laboratory (IBML)</td>
<td>101</td>
</tr>
<tr>
<td><strong>Textiles &amp; Nonwovens Development Center (TANDEC)</strong></td>
<td></td>
</tr>
<tr>
<td>See individual directory listings</td>
<td></td>
</tr>
<tr>
<td><strong>John D. Tickle Engineering Building</strong></td>
<td></td>
</tr>
<tr>
<td>Department of Civil &amp; Environmental Engineering</td>
<td>325</td>
</tr>
<tr>
<td>Department of Industrial &amp; Systems Engineering</td>
<td>525</td>
</tr>
<tr>
<td><strong>UT Conference Center</strong></td>
<td></td>
</tr>
<tr>
<td>Center for Transportation Research</td>
<td>309</td>
</tr>
<tr>
<td><strong>Under Construction or Design</strong></td>
<td></td>
</tr>
<tr>
<td>Joint Institute for Advanced Materials (JIAM)</td>
<td></td>
</tr>
<tr>
<td><strong>Not Shown</strong></td>
<td></td>
</tr>
<tr>
<td>Biosystems Engineering &amp; Soil Science — 2506 E.J. Chapman Drive, Knoxville, TN</td>
<td></td>
</tr>
<tr>
<td>National Transportation Research Center — 2360 Cherohala Blvd., Knoxville, TN</td>
<td></td>
</tr>
<tr>
<td>UT Space Institute — 411 B.H. Goethert Parkway, Tullahoma, TN</td>
<td></td>
</tr>
</tbody>
</table>