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>Position</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:engadvising@utk.edu">engadvising@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>Chair</th>
<th>Email</th>
<th>Phone</th>
<th>Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosystems Engineering &amp; Soil Science</td>
<td>Dr. Eric Drumm, Dept. Head</td>
<td><a href="mailto:bess@utk.edu">bess@utk.edu</a></td>
<td>865-974-7266</td>
<td>101 Biosystems Engr &amp; Env Science Bldg</td>
</tr>
<tr>
<td></td>
<td>Dr. Daniel Yoder, Program Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical &amp; Biomolecular Engineering</td>
<td>Dr. Bamin Khomami, Dept. Head</td>
<td><a href="mailto:cbe@utk.edu">cbe@utk.edu</a></td>
<td>865-974-2421</td>
<td>419 Dougherty Bldg</td>
</tr>
<tr>
<td></td>
<td>Dr. Brian Edwards, Associate Head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil &amp; Environmental Engineering</td>
<td>Dr. Dayakar Penumadu, Dept. Head</td>
<td><a href="mailto:cee@utk.edu">cee@utk.edu</a></td>
<td>865-974-2503</td>
<td>325 John D. Tickle Engineering Building</td>
</tr>
<tr>
<td></td>
<td>Dr. Chris Cox, Associate Head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering &amp; Computer Science</td>
<td>Dr. Leon Tolbert, Dept. Head</td>
<td><a href="mailto:deptinfo@eecs.utk.edu">deptinfo@eecs.utk.edu</a></td>
<td>865-974-3461</td>
<td>401 Min H. Kao Building</td>
</tr>
<tr>
<td></td>
<td>Dr. Syed Islam, Associate Head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial and Systems Engineering</td>
<td>Dr. John Kobza, Dept. Head</td>
<td><a href="mailto:iiedept@utk.edu">iiedept@utk.edu</a></td>
<td>865-974-3333</td>
<td>525 John D. Tickle Engineering Building</td>
</tr>
<tr>
<td></td>
<td>Dr. Mingzhou Jin, Program Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials Science &amp; Engineering</td>
<td>Dr. Kurt Sickafus, Dept. Head</td>
<td><a href="mailto:mse@utk.edu">mse@utk.edu</a></td>
<td>865-974-5335</td>
<td>414 Ferris Hall</td>
</tr>
<tr>
<td></td>
<td>Dr. Claudia Rawn, Program Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical, Aerospace, and Biomedical Engineering</td>
<td>Dr. Matthew Mench, Dept. Head</td>
<td><a href="mailto:mabeinfo@utk.edu">mabeinfo@utk.edu</a></td>
<td>865-974-5115</td>
<td>443 Dougherty Bldg.</td>
</tr>
<tr>
<td></td>
<td>Dr. Gary V. Smith, Associate Head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr. J. A. M. Boulet, Mechanical Program Coordinator</td>
<td></td>
<td>865-974-8376</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr. Robert Bond, Aerospace Program Coordinator</td>
<td></td>
<td>865-974-7640</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr. Jindong Tan, Biomedical Program Coordinator</td>
<td></td>
<td>865-974-5250</td>
<td></td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>Dr. J. Wesley Hines, Dept. Head</td>
<td><a href="mailto:utne@utk.edu">utne@utk.edu</a></td>
<td>865-974-2525</td>
<td>315 Pasqua Bldg.</td>
</tr>
<tr>
<td></td>
<td>Dr. Ronald Pevey, Program Coordinator</td>
<td></td>
<td></td>
<td></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
208 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
116 Student Services Building
865-974-1111

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

One Stop Shop
Hodges Library Ground Floor
865-974-1111

Parking Services
2121 Stephenson Drive
865-974-6031

Registrar Office
209 Student Services Building
865-974-1111

Student Counseling Center
1800 Volunteer Boulevard
865-974-2196

Student Government Association
315 E University Center
865-974-2377

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

University Housing
405 Student Services Building
865-974-2571

Veterans Benefits
209 Student Services Building
865-974-1500

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

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

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

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

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.
Advising Mission:
The University of Tennessee, Knoxville places academic advising within the teaching/learning mission of the institution and recognizes it to be a critical component of students' educational experience and undergraduate success. Faculty, administrators, and professional staff promote academic advising as a shared responsibility with students. Academic advising serves to develop and enrich students' educational plans in ways that are consistent with their personal values, goals, and career plans, preparing them for a life of learning in a global society.

I. STUDENT LEARNING OUTCOMES:

Students will demonstrate they know
- Curricular requirements, progression standards, UTrack requirements, and course sequencing related to a chosen/ intended academic program in order to graduate in a timely fashion
- The career and professional development opportunities available as well as on-campus support for identification and exploration of career paths (Career Services Office, Engineering Professional Practice Office)

Students will demonstrate they can
- Develop an academic plan and assess degree progress through graduation (Banner DARS, Undergraduate catalog)
- Critically reflect upon academic and career goals
- Develop skills and strategies for academic success that include accessing and using institutional resources, policies, and procedures
- Take responsibility for making decisions regarding their academic success

Students will demonstrate they value/appreciate
- The importance of academic planning and their role in the process
- The importance of enhancing their degree with cocurricular/extracurricular and inter/intracultural experiences
- Their responsibilities as educated citizens of UT and of a democratic, diverse, and global society
- The educational process and learning across the lifespan

II. ADVISING POLICY:

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

Once students in the College of Engineering finish the first year coursework, they progress to their major and are assigned to a faculty advisor in their department. This is typically after students complete Math 141-142 (Honors 147-148) and EF 151-152 (Honors 157-158). For Computer Science, these progression courses are Physics 135-136 (Honors 137-138) and Computer Science 102 and 140. In all cases progression to the major includes being in Good Academic Standing (2.00 or better cumulative GPA). For most students this will be at the end of freshmen year, but for some it might be the following year in December if they finish these courses in the Fall semester.

III. STUDENT EXPECTATIONS:

- Schedule an advising appointment early each semester. To make an advising appointment, either call 865-974-4008 or come to room 202 Estabrook Hall and schedule one in person.
- Keep any advising appointments you make. If you are more than ten minutes late to your scheduled appointment, you will be required to reschedule at another time.
- Cancel any advising appointments that you are unable to attend, as these appointments will be used by other students.
- Review your curriculum in the Undergraduate Catalog and the Engineering Student Guidebook
- Ensure you are on track to meet progression standards or UTrack milestone requirements (if required for your major, including GPA or course requirements) by reviewing your DARS report and UTrack report.
- Write down your current schedule and a tentative plan for next semester.
- Write down any questions you have for your advisor.
- Consult with your advisor and the financial aid office before making drastic changes to an agreed- upon schedule.
- Consult with your advisor and the financial aid office 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.
- Make final decisions and take responsibility for your academic career.
- Pay attention to semester deadlines.
- Read any e-mails or letters that are sent to you by your advisor, advising center, or academic college.
- Bring ROTC academic plans to your advisor early enough so that those forms may be filled out before they are due.

(continued on next page)
IV. ADVISOR EXPECTATIONS:
• Be accessible to you during reasonable hours.
• Provide a means through which you can schedule appointments.
• Understand the curriculum, graduation requirements, and university policies.
• Understand the progression requirements and UTrack requirements for the different majors in their college.
• 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.
• 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.
• Help you identify special needs and acquaint you with services and programs provided by the college and the university.
• 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.

V. IMPORTANT DATES IN THE ACADEMIC CALENDAR
FALL/SPRING:
August:
• Be aware of drop/add dates and other deadlines especially financial deadlines

September–November:
• Schedule appointment with advisor to plan for Spring
• Attend Study Abroad Fair hosted by Programs Abroad Office
• Attend Fall Job Fair hosted by Career Services (September)
• Attend Co-Op Fair hosted by Engineering Professional Practice (September)

October–November:
• Register for classes once eligible

December:
• Final exams

January:
• Be aware of drop/add dates and other deadlines especially financial
• Attend Study Abroad Fair

February–March:
• Schedule an appointment to meet with your advisor to plan Summer/Fall
• Attend Spring Job Fair hosted by Career Services (March)
• Attend Co-Op Fair hosted by Engineering Professional Practice (March)

March – April:
• Register for classes once eligible (summer and fall)

May:
• Final exams

VI. ADVISING RESOURCES:
• Academic Calendar: registrar.tennessee.edu/academic_calendar/index.shtml
• Banner DARS—look in UT Student Academic Links in myutk.utk.edu
• Career Services Center: career.utk.edu
• Undergraduate Catalog: catalog.utk.edu
• MyUTK: myutk.utk.edu
• Student Success Center: studentsuccess.utk.edu
• Study Abroad Office: studyabroad.utk.edu
• Engineering Professional Practice: www.coop.utk.edu/index.html

Contact information for individual colleges:
Agricultural Sciences & Natural Resources
125 Morgan Hall
Phone: 865-974-7303

Architecture & Design
224 Art & Architecture Building
Phone: 865-974-3232

Arts & Sciences
313 Ayres Hall
Appointments: 865-974-4483
Phone: 865-974-4481

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

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

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

Engineering
202 Estabrook Hall
Phone: 865-974-4008

Nursing
203 Nursing Building
Phone: 865-974-7606

Social Work
303 Henson Hall
Phone: 865-974-3351
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 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. Research opportunities are available to Honors women to illustrate how their chosen majors can be intellectually challenging, personally satisfying, and beneficial to society and to continue on with engineering as a major.

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

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

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

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

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

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

RISER Math Camp
RISER Math camp is designed for incoming freshmen with an ACT math score of 27 or SAT math score of 610. The camp will include intensive math tutorial classes and study sessions, introduction to UT 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 3-13, 2014
• Selective admission
• Camp commitment fee is $50
• 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: ef.engr.utk.edu/RISER

Applications for Math Camp may be returned to an advisor at orientation, or by mail to:
RISER Math Camp
202 Estabrook Hall
University of Tennessee
Knoxville, TN 37996-2353

or by email to: ferguson@utk.edu

The Math Camp application deadline is July 14, 2014.

Math Camp applicants will be notified in July of the status of their application.

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

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

**Barriers to Academic Performance and Choices**

*Life happens to all of us.*

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

<table>
<thead>
<tr>
<th>Presenting Issue</th>
<th>Choice of the Successful Student</th>
<th>Choice of the Less Successful Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don't know how to manage my time.</td>
<td>Recognizes that work outside of class is important to success. 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, 116 Student Services Building, 865-974-1111, onestop.utk.edu/your-money.

The returning/transfer student scholarship application is on MyUTK. Application deadline is February 1.

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

Student Organizations and Honor Societies

www.engr.utk.edu/currentstudents/orgs.html

Student Organizations
- American Institute of Aeronautics and Astronautics
- American Institute of Chemical Engineers
- American Nuclear Society
- American Society of Agricultural and Biological Engineers
- American Society of Civil Engineers
- American Society of Mechanical Engineers
- Association of Computing Machinery
- College of Engineering Ambassadors
- Engineers Without Borders/Volunteers Without Borders
- Institute of Electrical and Electronics Engineers
- Institute of Industrial Engineers
- Institute of Transportation Engineers
- Material Advantage
- National Society of Black Engineers
- Society of Automotive Engineers
- Society of Plastics Engineers
- Society of Women Engineers

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

Technology

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

Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP)

Tennessee State University, LeMoyne-Owen College, Middle Tennessee State University, University of Memphis, University of Tennessee and Vanderbilt University partnered to form the Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP). The goal of the TLSAMP program is to increase the number of under-represented minority students studying and graduating in Science, Technology, Engineering and Math (STEM).

The objectives to support the goal of the alliance are to:

• Recruit under-represented minority students to pursue science or engineering as a career;
• Improve the quality of the learning environment for under-represented minority science and engineering students at all schools; and
• Ensure that a large number of undergraduate students are prepared to enter graduate school.

Programs/Services
• TLSAMP Seminars
• Collaborative Learning
• Drop-In Center
• Graduate School Preparations

• Mentoring
• Undergraduate Summer Research
• Research Symposium
• Summer Bridge Program

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

National GEM Consortium

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

Each year, GEM identifies and recruits more than 1,000 undergraduate students, graduate students and working professionals from these underrepresented groups for admission to advanced degree programs at the nation’s top universities. GEM provides graduate students with much-needed financial support that is often the deciding factor in pursuing graduate education through three graduate fellowship tracks:

• Master of Science in Engineering
• PhD in Science
• PhD in Engineering
Cooperative Education / Career Services

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

Cooperative Education (Co-op) Program
Students have the opportunity to gain real world experience in their engineering field of study by working 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 six months of calendar time to their total undergraduate experience.

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

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

Before students go on their first assignment, they must complete 30 hours of course work and be in good academic standing though the specific GPA requirements will vary depending on the needs of the employers.

Career Services, located at 100 Dunford Hall, is a university-wide department designed to help students explore majors and related career fields, plan and implement career goals, prepare for a job search, conduct on-campus interviews, and identify additional employment opportunities and resources.

Services for Engineering students include:

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

Career Resources
• Career Resource Center: review a collection of career books, periodicals, pamphlets, and videotapes with information on careers, job search skills, employment opportunities, and salary ranges
• Career Services Website: a variety of valuable career articles, resume and cover letter samples and links to hundreds of other career-related Internet resources
• Workshops: held each semester on resume writing, cover letters, job fair success, interviewing, etiquette, company visit/second interview, graduate school, and other career topics
• Resume Critiques: resumes can be dropped off for overnight critiques at the Career Services offices or students can drop-by for a personalized review Monday-Thursday from 3 p.m.–5 p.m. during Fall and Spring Semester
• Part-Time Employment Listings/Consultant: information on part-time positions for students

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

College of Engineering Career Consultant:
Schedule an appointment with April Gonzalez or Justin Rice, who work directly with engineering students, faculty and employers, by calling 865-974-5435 or e-mailing agonza16@utk.edu or jrice22@utk.edu.

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

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

**UT Programs Abroad Office (PAO)**

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

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

**Study Abroad for Engineering Students**

Engineering study abroad programs allow you to stay one semester or shorter in an English speaking or foreign language-based schools throughout the world. You can choose between individual trips or pre-arranged trips, where you would live and travel with a small group of UT students. Prior to applying for an Engineering Study Abroad Program, you should schedule an advising session at the College of Engineering Advising Office. You are eligible to apply for the Study Abroad Program after freshman year or after the first semester at UT, if you are a transfer student. Most programs require a minimum 2.5 to 2.75 GPA. For non-English language programs, it is required that you have minimum 4 semesters of equivalent of foreign language (faculty-led programs are exceptions). UT Study Abroad programs include 5 types of programs: UT faculty-led, Exchange, Direct, Third Party, and Academic Internships.

**Engineering Study Abroad Fellowship**

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

**Engineering Outreach Office**

The Office of Engineering Outreach’s mission is to work with organizations across campus, throughout the community, and around the world to develop these “powerful learning opportunities” for engineering students. Through specialized coursework, opportunities to teach younger students, opportunities to be mentored by professionals, and study abroad, the outreach office seeks the continual development of our students’ sense of “engineering in the world.” Emphasis is also placed on student interaction with the next generation of potential engineering students, promoting their abilities as problem solvers and involved citizens.

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

**Global Engineering Initiatives**

The College of Engineering offers the opportunity for insight-abroad experiences for students for periods of a week to ten days, scheduled during school breaks. This enables the engineering major to have a short abroad experience without interrupting classes or delaying graduation.

The flagship program for this initiative is the Engineering Alternative Spring Break, an annual trip to a foreign location to participate in an engineering project of local impact. On trips during other times of the year, engineering students may participate in a field-relevant service project in a foreign location, see engineers at work outside of the United States, or observe engineering applications and methods employed abroad. This may happen through a visit to an engineering university, lectures on specific engineering challenges, tour of a plant or manufacturing facility, or observations of pertinent engineering developments in locations overseas. Students will also visit sites of cultural and historic significance.

Although these programs are not credit-bearing, they satisfy the Honors’ “Ready for the World” requirement and are a significant addition to a resume. A limited number of scholarships are offered to defray travel costs.

**Contact:**
Judith Mallory, International Coordinator  
Engineering Academic and Student Affairs  
130 Estabrook Hall  
Phone: 865-974-9234  
E-mail: jmallory@utk.edu  
Web: [www.engr.utk.edu/global](http://www.engr.utk.edu/global)
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, 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 (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 myutk.utk.edu. Deadline dates may be adjusted if the deadline falls on a holiday, weekend day or spring recess.

\[
\begin{align*}
W &= \bar{r} \cdot \bar{\theta} \\
P &= \bar{r} \cdot \bar{\omega} \\
KE &= \frac{1}{2} I \omega^2
\end{align*}
\]
Grades that do not Influence Grade Point Average

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

- NC (No Credit) indicates failure to complete a course satisfactorily when taken on an S/NC basis.
- S (Satisfactory) is assigned for C or better work when a course is taken on an S/NC grading basis.
- W (Withdrawal) is assigned in courses when a student has officially withdrawn from the university. W is also assigned in courses when a student withdraws from a course between the 11th and 84th calendar day of classes. Regulations concerning withdrawal from courses or from the university appear under Changes in Registration.

Satisfactory/No Credit Grading System

The purpose of this system is to encourage the student to venture beyond the limits of those courses in which the student usually does well and, motivated by intellectual curiosity, explore subject matter in which performance may be somewhat less outstanding than work in other subjects. To this end, Satisfactory/No Credit (S/NC) grading has been developed for undergraduate courses (100-, 200-, 300 and 400-level courses).

- Neither grade is counted in a student’s grade point average, but, like all other grades, is entered on the permanent record.
- S is given for C or better work on the traditional grading scale and NC is given for grades of C-, D+, D, D- and F.
- The student only receives credit in the course if an S is received.
- A student may not repeat a course for S/NC if the student received a conventional grade (A, A-, B+, B, B-, C+, C, C-, D+, D, D- and F).
- If the student elects non-conventional grading, grades of A, A-, B+, B, B-, C+, C, C-, D+, D, D- or F as NC.
- The grade of I for incomplete work will be recorded as an SI, which will not be computed in the average.
- A student is permitted to change the system of grading in a course through the add deadline.
- The changing of an S/NC grade to a conventional letter grade or vice versa is not permitted unless an error is determined by the Office of the University Registrar.

Repeating Courses

General Repeat Policy

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

- Courses may be repeated twice, for a total of three attempts per course.
- A grade of W does not count as one of the three attempts.
- Grades of C-, D+, D, D-, F, Incomplete, and NC are counted as one of the three attempts.
- No course may be repeated if a grade of C or better has already been earned.
- Each repeated course is counted only once in determining credit hours presented for graduation.
- With limited exceptions (see Grade Replacement Policy), all grades earned in repeated courses will count in calculating the GPA.
- Exceptions to the number of times a course may be repeated will be allowed only with prior written permission from the head of the department where the course is being offered and the student’s college dean or designee.

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

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

Office of the University Registrar

209 Student Services Building
Knoxville, TN 37996-0200
Phone 865-974-1111
Fax 865-974-2606
registrar.tennessee.edu
Aerospace Engineering
mabe.utk.edu

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
mabe.utk.edu

What is Biomedical Engineering?
Biomedical engineering is the application of engineering principles and methods to the solution of problems in the life sciences. This broad field spans applications at the molecular level (genetic engineering); at the cellular level (e.g., cell and tissue engineering); and in intact organisms, including humans in particular. 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.
Biosystems Engineering
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
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.
Career Information

What can I do with this engineering major?

Civil and Environmental Engineering
cue.utk.edu

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?

Civil and Environmental Engineering
cue.utk.edu

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 Information
What can I do with this engineering major?

Computer Engineering
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, 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
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.
Careers in Electrical Engineering

What can I do with this engineering major?

**Electrical Engineering**

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.

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

**Career Opportunities in Electrical Engineering**

The growth trends for employment of electrical engineering graduates are expected to increase.

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.

**Industrial Engineering**

ise.utk.edu

**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 systems 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 including 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.
Materials Science & Engineering

www.engr.utk.edu/mse

What is Materials Science and Engineering?

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

Materials engineers can be found working in all technological fields, usually as part of a multidisciplinary team. For this reason, materials engineers receive a broad engineering education that includes design, mechanics, chemistry, physics, mathematics and electronics. The processing and testing of materials are core subjects in the MSE curriculum that stresses “hands-on” learning though 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
www.engr.utk.edu/mabe

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

The mechanical engineering program at UT offers fundamental education in the engineering sciences and engineering design. The engineering science component educates students in the fundamental principles of engineering, while the engineering design component emphasizes design methodology, enhances creative skills and develops student ability to solve open-ended problems of the type common to industry. The undergraduate experience is broad-based and includes, in the first two years, general education in mathematics, sciences and preliminary design courses that are common with curricula in other engineering programs. The discipline of a rigorous technical program along with education in the humanities and social sciences provides a good foundation for a rich and rewarding career in a dynamic marketplace.

The objectives of the mechanical engineering degree program are:

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

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

Mechanical engineers have been and will continue to be in great demand in all of the areas listed above.
Career Information
What can I do with this engineering major?

Nuclear Engineering
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.

\[ \begin{align*}
  v_2 &= v_1 + a\Delta t \\
  s_2 &= s_1 + \left(\frac{v_1 + v_2}{2}\right)\Delta t \\
  s_2 &= s_1 + v_1\Delta t + \frac{1}{2}a\Delta t^2 \\
  s_2 &= s_1 + \frac{v_2^2 - v_1^2}{2a}
\end{align*} \]
## Aerospace Engineering Catalog 2014

<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 133/137</td>
<td>EF 152/158 or Physics 138</td>
<td>ME 202 or CS 102 or MSE 201 or CBE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>

### Full Status Progression
A lower-division student may apply for progression to upper division after completing EF 152/158, CHEM 120/128, MATH 231, ME 202, ME 231, and ME 321 with a grade of C or better in each, and an overall GPA of at least 2.4. Students who have not satisfied the requirements for full status will be dropped from departmental class rolls in upper-division courses.

### Provisional Status Progression
Students who have completed EF 152/158, CHEM 120/128, MATH 231, ME 202, ME 231 and ME 321 with a grade of C or better may apply for provisional status. The granting of provisional status is based on the availability of space in departmental programs in upper-division. Students who have not progressed to upper-division will be dropped from departmental class rolls.

### Transfer Students
Students transferring more than 26 hours from another institution are considered transfer students. Transfer students must meet the same criteria as non-transfer students, using transfer grades for acceptable substitutions. Transfer courses with grades below a C will not be accepted to fulfill any degree requirements.

### 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. In addition, the University Academic Good Standing Policies apply to all students.

### AE 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. 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: (For students pursuing a five year BS/MS program)

<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 141 or 147 FA, SP, SU Prereq-Math 130 or Math ACT 28 or Math SAT 630</td>
<td>EF 151 or 157 FA, SP Coreq-Math 141 or 147 and EF 150</td>
<td>English 101 or 118 FA, SP, SU</td>
<td>Chem 120 or 128 FA, SP, SU Math 130</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 142 or 148 FA, SP, SU Prereq-Math 141 or 147</td>
<td>EF 152 or 158 FA, SP Coreq-EF 151 or 157 and Math 142 or 148</td>
<td>English 102 FA, SP, SU</td>
<td>Gen Ed (3) FA, SP, SU</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 241 or 247 FA, SP, SU Prereq-Math 142 or 148</td>
<td>Math 200 (1) FA, SP Coreq-Math 142 or 148</td>
<td>ME 231 (3) FA, SP, SU Coreq-Math 142 or 148</td>
<td>Physics 231 (3) FA, SP, SU</td>
<td>Econ 201 or 207 (4) FA, SP, SU</td>
<td>AE 201 (1) FA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 331 (3) FA, SP, SU Prereq-Math 142 or 148</td>
<td>MSE 201 (3) FA, SP, SU</td>
<td>EF 230 (2) FA, SP</td>
<td>ME 321 (3) FA, SP, SU Coreq-Math 142 or 148</td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>Gen Ed (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 331 (3) FA, SP, SU Prereq-Math 142 or 148</td>
<td>MSE 201 (3) FA, SP, SU</td>
<td>ME 344 (3) FA, SP, SU</td>
<td>ME 351 (3) FA</td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>Gen Ed (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AE 345 (3) FA, SP, SU Prereq-ME 321</td>
<td>AE 345 (3) FA</td>
<td>AE 345 (3) FA</td>
<td>AE 351 (3) FA, 363 (3) FA</td>
<td>AE 400 (1) FA OC Coreq-AE 426 and Senior</td>
<td>ME courses below</td>
</tr>
</tbody>
</table>

Departmental Electives Choose from: ME 315, 355, 360, 405, 451, 463, 466, 470, 472, 475, 477, 476, 480. Other courses require prior approval by the department.
## Biomedical Engineering Catalog 2014

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Requirements</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 hours</td>
<td>Math 141 or 147 (4) or Math 150 or Math ACT or SAT 630</td>
<td>EF 151 or 157 (4) or SP</td>
</tr>
<tr>
<td></td>
<td>EF 105 (1) or EF 151 or EF 157 (4) or EF 150 or EF 157</td>
<td>English 101 or 118 or SP or SU</td>
</tr>
<tr>
<td></td>
<td>Chem 120 or 128 (4) or SP</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 hours</td>
<td>Math 142 or 148 (4) or Math 147 or Math 150 or SAT 630</td>
<td>EF 152 or 158 or SP or EF 152 or 158 or EF 150 or 158</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 or EF 152 or 158 or EF 150 or 158</td>
<td>English 102 or SP or EF 152 or 158 or EF 150 or 158</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 or EF 152 or 158 or EF 150 or 158</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 hours</td>
<td>Math 231 (3) or Math 120 or Math ACT or SAT 630</td>
<td>EF 152 or 158 or SP or EF 152 or 158 or EF 150 or 158</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 or EF 152 or 158 or EF 150 or 158</td>
<td>English 102 or SP or EF 152 or 158 or EF 150 or 158</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 or EF 152 or 158 or EF 150 or 158</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 hours</td>
<td>Math 241 or 242 (4) or Math 147 or Math 150 or SAT 630</td>
<td>EF 152 or 158 or SP or EF 152 or 158 or EF 150 or 158</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 or EF 152 or 158 or EF 150 or 158</td>
<td>English 102 or SP or EF 152 or 158 or EF 150 or 158</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 or EF 152 or 158 or EF 150 or 158</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 hours</td>
<td>BME 305 or 300 (3) or Math 150 or Math ACT or SAT 630</td>
<td>AE 341/342 (3) or Math 150 or Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>BME 474 (3) or Math 150 or Math ACT or SAT 630</td>
<td>ECE 301 (3) or Math 247</td>
</tr>
<tr>
<td></td>
<td>BME 474 (3) or Math 150 or Math ACT or SAT 630</td>
<td>Gen Ed (3) or Math 247</td>
</tr>
<tr>
<td></td>
<td>BME 474 (3) or Math 150 or Math ACT or SAT 630</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 hours</td>
<td>BME 315 (3) or Math 150 or Math ACT or SAT 630</td>
<td>AE 341/342 (3) or Math 150 or Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>BME 474 (3) or Math 150 or Math ACT or SAT 630</td>
<td>ECE 301 (3) or Math 247</td>
</tr>
<tr>
<td></td>
<td>BME 474 (3) or Math 150 or Math ACT or SAT 630</td>
<td>Gen Ed (3) or Math 247</td>
</tr>
<tr>
<td></td>
<td>BME 474 (3) or Math 150 or Math ACT or SAT 630</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 hours</td>
<td>BME 430 (3) or Math 150 or Math ACT or SAT 630</td>
<td>BME 400 (3) or Math 150 or Math ACT or SAT 630</td>
</tr>
<tr>
<td></td>
<td>BME 455 (3) or Math 150 or Math ACT or SAT 630</td>
<td>BME 240 (3) or Math 150 or Math ACT or SAT 630</td>
</tr>
<tr>
<td></td>
<td>BME 473 or 477 (3) or Math 150 or Math ACT or SAT 630</td>
<td>Econ 201 or 207 (3) or Math 150 or Math ACT or SAT 630</td>
</tr>
<tr>
<td></td>
<td>BME 473 or 477 (3) or Math 150 or Math ACT or SAT 630</td>
<td>Gen Ed (3) or Math 150 or Math ACT or SAT 630</td>
</tr>
<tr>
<td></td>
<td>BME 473 or 477 (3) or Math 150 or Math ACT or SAT 630</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 hours</td>
<td>Gen Ed (3) or Math 150 or Math ACT or SAT 630</td>
<td>BME 400 (3) or Math 150 or Math ACT or SAT 630</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) or Math 150 or Math ACT or SAT 630</td>
<td>BME 455 (3) or Math 150 or Math ACT or SAT 630</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) or Math 150 or Math ACT or SAT 630</td>
<td>BME 473 or 477 (3) or Math 150 or Math ACT or SAT 630</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) or Math 150 or Math ACT or SAT 630</td>
<td>Technical Elective (3) or Math 150 or Math ACT or SAT 630</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) or Math 150 or Math ACT or SAT 630</td>
<td></td>
</tr>
</tbody>
</table>

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

**Full Status Progression**
A lower-division student may apply for progression to upper division after completing EF 152/158, CHEM 120/128, MATH 231, ME 202, ME 231, ME 321 and BME 271 with a grade of C or better, and an overall GPA of at least 2.4. Students who have not satisfied the requirements for full status will be dropped from departmental class rolls.

**Provisional Status Progression**
Students who have completed EF 152/158, CHEM 120/128, MATH 231, ME 202, ME 231, ME 321, and BME 271 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.

**Transfer Students**
Students transferring more than 26 hours from another institution are considered transfer students. Transfer students must meet the same criteria as non-transfer students, using transfer grades for acceptable substitutions. Transfer courses with grades below a C will not be accepted to fulfill any degree requirements.

**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.

**BME 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**

<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 126/138</td>
<td>ME 202 or CS 102 or MSE 201</td>
<td>No Milestones</td>
<td></td>
</tr>
</tbody>
</table>
### Engineering Majors

http://catalog.utk.edu

#### Biosystems Engineering Catalog 2014

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong> 16 hours</td>
<td>Math 141 or 147 (4)</td>
<td>FA, SP</td>
<td></td>
</tr>
<tr>
<td>Prereq: Math 130 or Math ACT 28 or Math SAT 600</td>
<td>EF 151 or 157 (4)</td>
<td>FA, SP</td>
<td></td>
</tr>
<tr>
<td>Coreq: EF 151 or 157 and Math 142</td>
<td>EF 105 (1)</td>
<td>FA, SP</td>
<td></td>
</tr>
<tr>
<td>Coreq: EF 151 or 157</td>
<td>English 101 or 118 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Coreq: EF 151 or 157</td>
<td>Chem 120 or 128 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong> 17 hours</td>
<td>Math 142 or 148 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: Math 141 or 147</td>
<td>EF 152 or 158 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: EF 151 or 157 and Math 142</td>
<td>EF 105 (1)</td>
<td>FA, SP</td>
<td></td>
</tr>
<tr>
<td>Coreq: EF 151 or 157 and Math 142</td>
<td>English 102 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Coreq: English 101 or 118</td>
<td>Gen Ed (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Coreq: Cultures &amp; Civilizations</td>
<td>BSE 104 (1)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>Coreq: EF 151 or 158</td>
<td><strong>Fall</strong> 17 hours</td>
<td>Math 241 or 247 (4)</td>
<td>FA, SP, SU</td>
</tr>
<tr>
<td>Prereq: Math 142 or 148</td>
<td>ME 231 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: ME 231 with C or better and Math 241 or 247</td>
<td>ME 331 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: ME 231 with C or better and Math 241 or 247</td>
<td>BSE 201 (1)</td>
<td>FA</td>
<td></td>
</tr>
<tr>
<td>Coreq: English 101 or 118</td>
<td>BSE 221 (3)</td>
<td>FA</td>
<td></td>
</tr>
<tr>
<td>Prereq: Chem 120 or 128</td>
<td>BSE 231 (3)</td>
<td>FA</td>
<td></td>
</tr>
<tr>
<td>Prereq: Chem 120 or 128 and Math 141 or 147</td>
<td><strong>Spring</strong> 16 hours</td>
<td>Math 231 (3)</td>
<td>FA, SP, SU</td>
</tr>
<tr>
<td>Prereq: Math 142 or 148</td>
<td>Biology 160 or 168 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Coreq: Chemistry 130 or 138</td>
<td>ESS 210 (4)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>Coreq: English 101 or 118</td>
<td>ME 321 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: ME 202 with C or better and Math 142 or 148</td>
<td>BSE 321 (3)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>Coreq: BSE 221</td>
<td><strong>Fall</strong> 16 hours</td>
<td>Phil 244 (3)</td>
<td>FA, SP</td>
</tr>
<tr>
<td>Arts &amp; Humanities</td>
<td>AE 341 or 347 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: ME 231 with C or better and Math 241 or 247</td>
<td>ECE 301 (3)</td>
<td>FA, SP, M</td>
<td></td>
</tr>
<tr>
<td>Prereq: Math 231</td>
<td>Stats 251 (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Prereq: Math 231 or 142</td>
<td>English 360 (3)</td>
<td>(WC) FA, SP</td>
<td></td>
</tr>
<tr>
<td>Prereq: English 102 or 118</td>
<td>Math 200 (1)</td>
<td>FA</td>
<td></td>
</tr>
<tr>
<td>Minimum level: junior</td>
<td><strong>Spring</strong> 16 hours</td>
<td>BSE 411 (3)</td>
<td>SP</td>
</tr>
<tr>
<td>Prereq: ME 231 and 321</td>
<td>BSE 416 (3)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>Prereq: ME 231 and 321</td>
<td>BSE 431 (3)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>Prereq: BSE 321</td>
<td>BSE 451 (4)</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>Prereq: ECE 301</td>
<td>Technical Elective (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong> 15 hours</td>
<td>Econ 201 or 207 (4)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Social Science</td>
<td>Technical Elective (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong> 15 hours</td>
<td>Gen Ed (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Social Science</td>
<td>Gen Ed (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities</td>
<td>Gen Ed (3)</td>
<td>FA, SP, SU</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities</td>
<td><em>Technical Electives</em> - 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; ESS 334, 434, 442, 444, 454; Geog 410, 411; Geol 485, IE 304; Math 403, 405, 411, 431; ME 363 or 367, 365, 366, 391 or 397, 405, 451, 466; Phys 323. BSE Graduation requirements: a) achieve at least a 2.0 GPA in all BSE courses; b) only one BSE course with a grade of D+ or D may be used toward graduation; c) no BSE course with a grade of D may be used for graduation; d) achieve at least a 2.0 GPA in the required math courses. UTRACK Milestones: 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 135/137 Term 4: EF 132/138 or Physics 120/128 or BSE 201 Term 5: ME 202 or CS 102 or MSE 201 or CBE 201 Term 6 through 8: No Milestones.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Biosystems Engineering Catalog 2014

#### Pre-Professional Concentration

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>16 hours</strong></td>
</tr>
<tr>
<td></td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
</tr>
<tr>
<td></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>
</tr>
<tr>
<td></td>
<td>Conreq- Math 141 or 147 and EF 105</td>
</tr>
<tr>
<td></td>
<td>EF 105 (1) FA, SP</td>
</tr>
<tr>
<td></td>
<td>Conreq- EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Conreq- Math 130</td>
</tr>
<tr>
<td></td>
<td>Chem 120 or 128 (4) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 151 or 157</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>17 hours</strong></td>
</tr>
<tr>
<td></td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- Math 141 or 147</td>
</tr>
<tr>
<td></td>
<td>EF 152 or 158 (4) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Conreq- EF 152 or 158 and EF 151</td>
</tr>
<tr>
<td></td>
<td>ME 202 (2) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Conreq- Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>English 102 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 151 or 158</td>
</tr>
<tr>
<td></td>
<td>Chem 130 or 138 (4) FA, SP, SU</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td><strong>16 hours</strong></td>
</tr>
<tr>
<td></td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>ME 231 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- EF 152 or 158 and ME 202 with grades of C or better</td>
</tr>
<tr>
<td></td>
<td>ME 331 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Conreq- Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>BSE 201 (1) FA</td>
</tr>
<tr>
<td></td>
<td>BSE 211 (3) FA</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>15 hours</strong></td>
</tr>
<tr>
<td></td>
<td>Math 231 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>Biology 160 or 168 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Conreq- Chemistry 120 or 128</td>
</tr>
<tr>
<td></td>
<td>Chem 350 or 358 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- Chem 130 or 138</td>
</tr>
<tr>
<td></td>
<td>ME 321 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- ME 202 with C or better and Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>BSE 321 (3) SP</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td><strong>16 hours</strong></td>
</tr>
<tr>
<td></td>
<td>Phil 244 (3) FA, SP</td>
</tr>
<tr>
<td></td>
<td>Arts &amp; Humanities</td>
</tr>
<tr>
<td></td>
<td>AE 341 or 347 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Conreq- Math 231 with C or better and Math 241 or 247</td>
</tr>
<tr>
<td></td>
<td>ECE 301 (3) FA, SP, M</td>
</tr>
<tr>
<td></td>
<td>Conreq- Math 231</td>
</tr>
<tr>
<td></td>
<td>Stats 251 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>English 360 (3) (WC) FA, SP</td>
</tr>
<tr>
<td></td>
<td>Prereq- English 102 or 118</td>
</tr>
<tr>
<td></td>
<td>Math 200 (1) FA</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>15 hours</strong></td>
</tr>
<tr>
<td></td>
<td>BSE 411 (3) SP</td>
</tr>
<tr>
<td></td>
<td>BSE 431 (3) SP</td>
</tr>
<tr>
<td></td>
<td>BSE 451 (4) SP</td>
</tr>
<tr>
<td></td>
<td>Conreq- BSE 321</td>
</tr>
<tr>
<td></td>
<td>Conreq- ECE 301</td>
</tr>
<tr>
<td></td>
<td>Chem 360 or 368 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- Chem 350 or 358</td>
</tr>
<tr>
<td></td>
<td>Chem 360 (2) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Prereq- Chem 360 or 368</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td><strong>15 hours</strong></td>
</tr>
<tr>
<td></td>
<td>Econ 201 or 207 (4) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>or AREC 201 (4)</td>
</tr>
<tr>
<td></td>
<td>Social Science</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Cultures &amp; Civilizations</td>
</tr>
<tr>
<td></td>
<td>BSE 401 (2) (OC) FA</td>
</tr>
<tr>
<td></td>
<td>Prereq- Three of BSE 411, 416, 431, 451</td>
</tr>
<tr>
<td></td>
<td>Coreq- BSE 404 and 444</td>
</tr>
<tr>
<td></td>
<td>BSE 404 (3) FA</td>
</tr>
<tr>
<td></td>
<td>Prereq- Three of BSE 411, 416, 431, 451</td>
</tr>
<tr>
<td></td>
<td>Coreq- BSE 401 and 404</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>15 hours</strong></td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Social Science</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Arts &amp; Humanities</td>
</tr>
<tr>
<td></td>
<td>BSE 402 (6) SP</td>
</tr>
<tr>
<td></td>
<td>Prereq- BSE 401 and 404 and 444</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Cultures &amp; Civilizations</td>
</tr>
</tbody>
</table>

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

**UTRACK Milestones:**

<table>
<thead>
<tr>
<th>Term</th>
<th>Requirement</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 139/137</td>
</tr>
<tr>
<td>4</td>
<td>EF 152/158 or Physics 136/138</td>
</tr>
<tr>
<td>5</td>
<td>ME 202 or CS 102 or MSE 201 or CBE 201</td>
</tr>
<tr>
<td>6</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
## Chemical and Biomolecular Engineering Catalog 2014

### Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Prereq</th>
<th>Coreq</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Math 141 or 147 (4) FA, SP, SU&lt;br&gt;Prereq- Math 130 or Math ACT 28 or Math SAT 630</td>
<td>EF 151 or 157 (4) FA, SP&lt;br&gt;Creq- Math 141 or 147 and EF 105</td>
</tr>
<tr>
<td>15</td>
<td>Math 142 or 148 (4) FA, SP, SU&lt;br&gt;Prereq- Math 141 or 147</td>
<td>EF 152 or 158 (4) FA, SP&lt;br&gt;Creq- EF 151 or 157 and Math 142 or 148</td>
</tr>
<tr>
<td>16</td>
<td>CBE 201 (4) FA&lt;br&gt;Prereq- EF 152/158 &amp; Chem 130/138&lt;br&gt;Creq- Math 231</td>
<td>Math 300 (1) FA, SP&lt;br&gt;Prereq- EF Math 152/158</td>
</tr>
<tr>
<td>19</td>
<td>Chemistry 300 or 358 (3) FA, SR, SU&lt;br&gt;Prereq- Chemistry 130 or 138</td>
<td>Math 241 or 247 (4) FA, SP, SU&lt;br&gt;Prereq- Math 142/148</td>
</tr>
<tr>
<td>15</td>
<td>CBE 340 (3) FA&lt;br&gt;Prereq- CBE 201, 240 and 250&lt;br&gt;Restrictions: 2.3 GPA</td>
<td>Bio Option I *(3) FA, SP, SU&lt;br&gt;Grading: Satisfactory/No Credit&lt;br&gt;Prereq- CBE 240 or 250</td>
</tr>
<tr>
<td>15</td>
<td>CBE 445 (3) FA&lt;br&gt;Prereq- CBE 340, 350 and 360</td>
<td>Chem Option I *(3) FA, SP, SU&lt;br&gt;Grading: Satisfactory/No Credit&lt;br&gt;Prereq- CBE 445 or 480</td>
</tr>
</tbody>
</table>

### Spring

<table>
<thead>
<tr>
<th>Hours</th>
<th>Prereq</th>
<th>Coreq</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Physics 231 (3) FA, SP, SU&lt;br&gt;Prereq- CBE 201, 240 and 250&lt;br&gt;Creq- Math 231</td>
<td>Gen Ed (3) FA, SP, SU&lt;br&gt;Arts and Humanities</td>
</tr>
<tr>
<td>15</td>
<td>CBE 360 (3) FA&lt;br&gt;Prereq- CBE 201, 240 and 250&lt;br&gt;Creq- Math 231</td>
<td>Gen Ed (3) FA, SP, SU&lt;br&gt;Arts and Humanities</td>
</tr>
<tr>
<td>15</td>
<td>CBE 365 (3) WC (4) FA&lt;br&gt;Prereq- CBE 301, 340, 350, 360&lt;br&gt;Restrictions: 2.3 GPA</td>
<td>Gen Ed (3) FA, SP, SU&lt;br&gt;Cultures and Civilizations</td>
</tr>
<tr>
<td>15</td>
<td>CBE 401 (1) SP&lt;br&gt;Prereq- CBE 350, 445, 480&lt;br&gt;Creq- CBE 488 or 490</td>
<td>Gen Ed (3) FA, SP, SU&lt;br&gt;Cultures and Civilizations</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-division status is based on availability of space in the departmental programs. Students who have been admitted to upper-division courses and who have been accepted under a provisional status must continue to meet the GPA requirements of the department.

Any student with an overall GPA below 2.1 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 courses.

Students also have opportunities for an Honors Concentration. See the Undergraduate Catalog for details and requirements.
Chemical and Biomolecular Engineering Catalog 2014
Biomolecular Concentration

**Fall**
16 hours  
Math 141 or 147 (4) FA, SP, SU  
Prep: Math 130 or Math ACT 28  
Chem 130 or 128 (4) FA, SP, SU  
Prep: Chem 120 or 128  
English 101 or 118 (3) FA, SP, SU  
Prep: English 101 or 118  
EF 151 or 157 (1) FA, SP  
Prep: EF 151 or 157  
EF 103 (3) FA, SP  
Prep: EF 103  

**Spring**
15 hours  
Math 142 or 148 (4) FA, SP, SU  
Prep: Math 141 or 147  
Chem 130 or 128 (4) FA, SP, SU  
Prep: Math 130 or 132  
English 112 (3) FA, SP, SU  
Prep: English 101 or 118  
EF 152 or 158 (4) FA, SP  
Prep: EF 152 or 158  

**Fall**
16 hours  
Math 211 (3) FA, SP, SU  
Prep: Math 142 or 148  
Chem 211 (3) FA, SP, SU  
Prep: EF 151 or EF 157  
Chem 130 or 128 (3) FA, SP, SU  
Prep: Chem 120 or 128  
Biological 161 or 168 (3) FA, SP, SU  
Prep: EF 152 or 158  
Chem 120 or 128 (3) FA, SP  
Prep: EF 151 or 157  

**Spring**
15 hours  
Math 241 or 247 (4) FA, SP, SU  
Prep: Math 142 or 148  
Chem 239 (4) SP, SU  
Prep: EF 152 or 158  
Pub 131 (3) FA, SP, SU  
Prep: Math 142 or 148  
EF 101 (1) FA, SP  
Prep: EF 101  

**Fall**
15 hours  
Chemistry 350 or 358 (3) FA, SP, SU  
Prep: EF 152 or 158  
Chem 350 (3) FA, SP, SU  
Prep: EF 152 or 158  
Physics 231 or 233 (3) FA, SP, SU  
Prep: EF 231 or 233  
EF 231 or 233 (3) FA, SP, SU  
Prep: EF 231 or 233  

**Spring**
19 hours  
Chemistry 350 or 358 (3) FA, SP, SU  
Prep: EF 152 or 158  
Physics 231 or 233 (3) FA, SP, SU  
Prep: EF 152 or 158  
EF 231 or 233 (3) FA, SP, SU  
Prep: EF 231 or 233  

**Fall**
17 hours  
Chemistry 350 or 358 (3) FA, SP, SU  
Prep: EF 152 or 158  
Chem 350 (3) FA, SP, SU  
Prep: EF 152 or 158  
Chem 330 (3) FA, SP, SU  
Prep: EF 330 or 338  
Chem 350 or 358 (3) FA, SP, SU  
Prep: EF 152 or 158  

**Spring**
16 hours  
Chemistry 451 (3) SP  
Prep: EF 340 or 348  
Chem 480 or 488 (3) SP, SU  
Prep: EF 480 or 488  
Bio-Optimist (3) FA, SP, SU  
Prep: EF 340 or 348  
Chem 415 (3) SP  
Prep: EF 415 or 420  


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

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

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

Any student with an overall GPA below 2.1 will not be admitted to upper-division chemical and biomolecular engineering courses. Students who have not been admitted to upper-division or provisional status will be dropped from upper-division departmental classes.

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

**U-TRACK Milestones:**
<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 or 157</td>
<td>ME 202 or CS 130</td>
<td></td>
<td>No Milestones</td>
</tr>
<tr>
<td>or one AH or one CC</td>
<td>or one AH or one CC</td>
<td>or Physics 130</td>
<td>or CS 130 or 201</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Chemical and Biomolecular Engineering Catalog 2014**

http://catalog.utk.edu
### Civil Engineering Catalog 2014

#### Fall

<table>
<thead>
<tr>
<th>Hours</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>16</td>
<td>English 101 or 119 (3) FA, SP, SU</td>
<td>Chem 130 or 132 (4) FA, SP, SU</td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>EF 151 or 157 (4) FA, SP</td>
<td>EF 158 (1) FA, SP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hours</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>15</td>
<td>English 102 (3) FA, SP, SU</td>
<td>Chem 130 or 132 (4) FA, SP, SU</td>
<td>Math 142 or 148 (4) FA, SP, SU</td>
<td>EF 153 or 158 (4) FA, SP</td>
<td>EF 151 or 157</td>
</tr>
</tbody>
</table>

#### Spring

<table>
<thead>
<tr>
<th>Hours</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>16</td>
<td>Math 231 (3) FA, SP, SU</td>
<td>STATS 251 (3) FA, SP, SU</td>
<td>ECON 201 or 207 (4) FA, SP, SU</td>
<td>ME 202 (2) FA, SP, SU</td>
<td>CE 210 (4) FA, SP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hours</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>15</td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
<td>CE 391 (3) FA, SP</td>
<td>CE 362 (2) FA, SP</td>
<td>Science Elective *(2-4) FA, SP, SU</td>
<td>CE 305 (OC &amp; WC) (2) FA, SP, SU</td>
</tr>
</tbody>
</table>

#### Fall

<table>
<thead>
<tr>
<th>Hours</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>16</td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>CE 381 (3) FA, SP</td>
<td>CE 321 (3) FA, SP</td>
<td>CE 371 (3) FA, SP</td>
<td>CE 355 (3) FA, SP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hours</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>17</td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>CE 440 or 447 (3) FA, SP, SU</td>
<td>CE 442 (3) FA, SP</td>
<td>Technical Elective **(3) FA, SP, SU</td>
<td>CE 405 (3) FA, SP</td>
</tr>
</tbody>
</table>

#### Spring

<table>
<thead>
<tr>
<th>Hours</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>16</td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>CE Genoen. Elective **(3) FA, SP, SU</td>
<td>CE Genoen. Lab **(1) FA, SR, SU</td>
<td>CE Genoen. Lab **(1) FA, SP, SU</td>
<td>CE Genoen. Lab **(1) FA, SR, SU</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hours</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>15</td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>CE Genoen. Elective **(3) FA, SP, SU</td>
<td>CE Genoen. Lab **(1) FA, SR, SU</td>
<td>CE Genoen. Lab **(1) FA, SP, SU</td>
<td>CE Genoen. Lab **(1) FA, SR, SU</td>
</tr>
</tbody>
</table>

---

**Science Elective**: Students select from Biology 101, 102, 150 or 158, 160 or 168; Geography 131; Geology 101, 103, 107; Environ. Engineering 513; Environ. Soln Science 462.

**CE Concentration Electives/Labs**: Students must select 12 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 455 or 458, CE 456), water resources sequence (CE 440 or 461, CE 466).

**Interest Areas/Technical Electives**

- All areas (BSET 414 (AutoCad), Construction CE 540, CE 541, CE 543)
- Environmental Chem 230, Chem 331, Chem 350, Microbiology 210
- Geotechnical CE 451, CE 531, CE 532, CE 535, Earth and Planetary Science 470 (Geophysics), Geology 310, 330, 340, 370, and 470
- Materials CE 321, CE 522, CE 525
- Structures CE 462, CE 470, CE 474, CE 576
- Transportation CE 451, CE 453, CE 551, CE 552
- Water Resources CE 465, CE 490
- Business Accounting 200 or 207

---

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

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**

<table>
<thead>
<tr>
<th>Term</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1</td>
<td>Math 130 or higher or one SS or one at one CC</td>
</tr>
<tr>
<td>Term 2</td>
<td>Math 130 or higher</td>
</tr>
<tr>
<td>Term 3</td>
<td>EF 151/157 or Physics 135/137</td>
</tr>
<tr>
<td>Term 4</td>
<td>EF 152/158 or Physics 130/138</td>
</tr>
<tr>
<td>Term 5</td>
<td>ME 202 or CE 102 or MSE 201 or CBE 201</td>
</tr>
<tr>
<td>Term 6 through 8</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
### Computer Engineering Catalog 2014

#### Fall
- **Math 141 or 147 (4)**
- **EF 151 or 157 (4)**
- **CS 102 (4)**
- **English 101 or 118 (3)**

*15 hours*

**Prereq:** Math 130 or Math ACT 28

**Coreq:** Math 141 or 147 and EF 105 or CS 102

#### Spring
- **Math 142 or 148 (4)**
- **EF 152 or 158 (4)**
- **CS 160 (4)**
- **English 102 (3)**

*15 hours*

**Prereq:** Math 141 or 147

**Prereq:** EF 152 or 158

**Prereq:** CS 102 or ECE 206

**Prereq:** English 101 or 118

#### Fall
- **Math 231 (3)**
- **ECE 201 (3)**
- **CS 140 (4)**
- **Physics 231 (3)**
- **ECE 255 (3)**

*16 hours*

**Prereq:** Math 142 or 148

**Prereq:** EF 201

**Prereq:** Math 142 or 148

**Prereq:** CS 160

**Coreq:** Math 231

#### Spring
- **Math 241 or 247 (4)**
- **ECE 202 (3)**
- **Math 251 or 257 (3)**
- **Physics 232 (4)**
- **Chem 120 or 128 (4)**

*18 hours*

**Prereq:** Math 142 or 148

**Prereq:** ECE 201

**Prereq:** Math 142 or 148

**Prereq:** Physics 231

**Prereq:** Math 130

**Coreq:** Math 241 or 247

#### Fall
- **ECE 315 (3)**
- **ECE 335 (3)**
- **CS 302 (4)**
- **ECE 313 or 317 (3)**
- **ECE 395 (1)**
- **Gen. Ed. (3)**

*17 hours*

**Prereq:** ECE 300 or 202

**Prereq:** ECE 300 or 202

**Prereq:** CS 140

**Prereq:** Math 142 or 148

**Prereq:** ECE 300 or ECE 202

**Cultures and Civilizations**

#### Spring
- **ECE 351 or 357 (3)**
- **CS 311 (3)**
- **Upper Elective *(3)**
- **Gen. Ed. (3)**

*15 hours*

**Prereq:** ECE 255

**Prereq:** CS 160 and Math 142 or 148

**Prereq:** CS 160 and 302

**Arts and Humanities**

#### Fall
- **ECE 401 (OC&WC) (2)**
- **ECE 451 or 457 (3)**
- **Upper Elective *(3)**
- **Upper Elective *(3)**
- **Gen. Ed. (3)**
- **Gen. Ed. (3)**

*17 hours*

**Prereq:** ECE 315 or 351

**Prereq:** ECE 255, 355 or CS 160

**Arts and Humanities**

**Social Science**

#### Spring
- **ECE 402 (OC&WC) (3)**
- **Upper Elective *(3)**
- **Upper Elective *(3)**
- **Gen. Ed. (3)**

*15 hours*

**Prereq:** ECE 401

**Arts and Humanities**

**Social Science**

---

*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 courses have been grouped into 6 suggested tracks. The electives have been grouped into 6 suggested tracks.

- **Networking & Embedded Systems:** ECE 453, ECE 454, ECE 455, CS 530, ECE 553, ECE 555, ECE 556
- **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 420, CS 425, ECE 517, CS 526, CS 527, CS 528, CS 529, ECE 571
- **Software Systems:** CS 340, CS 360, CS 370, CS 456, CS 461, CS 462, CS 465, CS 461, CS 462, CS 465, CS 525, CS 541, CS 560, CS 565, CS 581
- **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 431, ECE 432, ECE 433, ECE 325, ECE 421 or 427, ECE 481 or 487, ECE 491

---

**Progression**

The department requires a C in every computer engineering, computer science, electrical engineering, and mathematics course used for the undergraduate degree. Students taking ECE 201 must also have a C or better in EF 152 or 158.

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

Students who take ECE 300 (ECE 201-202) over 2 semesters may be evaluated for the Computer Engineering major. The sections have been grouped into 6 suggested tracks.

The courses have been grouped into 6 suggested tracks. The electives have been grouped into 6 suggested tracks.

[32]
### Engineering Majors

**Department of Electrical Engineering and Computer Science**

**Computer Science Catalog 2014**

<table>
<thead>
<tr>
<th>Term</th>
<th>Fall</th>
<th>Spring</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-16 hours</td>
<td>CS 102 (4) FA, SP</td>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>Physics 135 or 137 (4-6) FA</td>
<td>English 131 or 133 (3) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Pre-req: CS 102</td>
<td>Pre-req: Math 130 or Math ACT 28 or Math SAT 630</td>
<td>Pre-req: Math 141 or 147</td>
<td>Pre-req: English 131 or 133</td>
</tr>
</tbody>
</table>

| 15-14 hours| CS 149 (4) FA, SP | Math 142 or 148 (4) FA, SP, SU | Math 136 or 138 (4-5) FA | English 132 (2) FA, SP, SU |
|            | Pre-req: CS 102 | Pre-req: Math 142 or 148 | Pre-req: Math 142 or 148 | Pre-req: English 132 |

| 12 hours   | CS 907 (4) FA, SP | Math 251 or 253 (3) FA, SP, SU | Gen. Ed. (3) FA, SP, SU | Arts and Humanities |
|            | Pre-req: CS 560 | Pre-req: Math 142 or 146 | Pre-req: Math 142 or 146 | |

| 17 hours   | CS 491 (5) FA, SP | CS Upper Division Elective (5) FA, SP, SU | CS Upper Division Elective (2) FA, SP, SU | English 355 or 360 (WC) (3) FA, SP, SU |
|            | Pre-req: CS 360 | Pre-req: Math 142 or 148 | Pre-req: Math 142 or 148 | Pre-req: ENGL 102 or 118 |

| 15 hours   | CS 492 (3) SP (OC & WC) | CS Upper Division Elective (3) FA, SP, SU | CS Upper Division Elective (3) FA, SP, SU | English 450 or 452 (3) FA, SP, SU |
|            | Pre-req: CS 431 | Pre-req: Math 142 or 148 | Pre-req: Math 142 or 148 | Pre-req: ENGL 102 or 118 |

| 15 hours   | CS 493 (3) SP (OC & WC) | CS Upper Division Elective (3) FA, SP, SU | CS Upper Division Elective (3) FA, SP, SU | English 450 or 452 (3) FA, SP, SU |
|            | Pre-req: CS 431 | Pre-req: Math 142 or 148 | Pre-req: Math 142 or 148 | Pre-req: ENGL 102 or 118 |

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, EE 453, 454, Software: CS 430, 461, 465
- **Hardware**: EE 451, 455
- **Scientific Computing**: CS 370 or 377, 471, 472, Math 231, Artificial Intelligence: CS 420 or 427, 425, ECE 471
- **Artificial Intelligence**: CS 420 or 427, EE 471

Computer Science 494 and 495 may be taken to satisfy the upper division electives. Up to two (2) Computer Science 5xx or Electrical Computer Engineering 5xx courses may count as upper division electives.

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

**UTRACK Milestones**

<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 115/117</td>
<td>EF 103/108 or Physics 130/138</td>
<td>ME 302 or CS 112 or MSE 201 or CSE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
## Engineering Majors

http://catalog.utk.edu

### Department of Electrical Engineering and Computer Science

#### Electrical Engineering Catalog 2014

<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>Math 141 or 147 (4) FA, SP</td>
<td>Prereq: Math 130 or Math 28 ACT or Math 630 SAT</td>
<td>EF 151 or 157 (4) FA, SP</td>
<td>CS 102 (4) FA, SP</td>
</tr>
<tr>
<td>15 hours</td>
<td>English 101 or 118 (3) FA, SP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 142 or 148 (4) FA, SP</td>
<td>Prereq: Math 141 or 147</td>
<td>EF 152 or 158 (4) FA, SP</td>
<td>CS 160 (4) FA, SP</td>
</tr>
<tr>
<td>15 hours</td>
<td>English 102 (3) FA, SP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>Math 231 (3) FA, SP</td>
<td>Prereq: Math 142 or 148</td>
<td>ECE 251 (3) FA, SP</td>
<td>Physics 231 (3) FA, SP, SU</td>
</tr>
<tr>
<td>16 hours</td>
<td>Chem 120 or 128 (4) FA, SP</td>
<td>Coreq: Math 142 or 148</td>
<td>Coreq: Math 241 or 247</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 241 or 247 (4) FA, SP</td>
<td>Prereq: Math 142 or 148</td>
<td>Math 251 or 257 (3) FA, SP, SU</td>
<td>Physics 232 (4) FA, SP</td>
</tr>
<tr>
<td>17 hours</td>
<td>English 102 (3) FA, SP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>ECE 315 (3) FA, SU</td>
<td>Prereq: ECE 300 or 202</td>
<td>ECE 325 (3) FA, SP</td>
<td>ECE 335 (3) FA, SP</td>
</tr>
<tr>
<td>16 hours</td>
<td>Physics 231 (3) FA, SP</td>
<td>Prereq: ECE 300 or 202</td>
<td>Prereq: ECE 300 or 202</td>
<td>Prereq: ECE 300 or 202</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>ECE 316 (3) SP, SU</td>
<td>Prereq: ECE 315</td>
<td>ECE 342 (3) FA, SP</td>
<td>Gen. Ed. (3) FA, SP, SU</td>
</tr>
<tr>
<td>15 hours</td>
<td>Physics 232 (4) FA, SU</td>
<td>Prereq: ECE 315</td>
<td>Gen. Ed. (3) FA, SP, SU</td>
<td>Social Science</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
<td>Senior Elective</td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
<td>ECE 401 (OC &amp; WC) (2) FA</td>
</tr>
<tr>
<td>17 hours</td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
<td>Senior Elective</td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
<td>Prereq: ECE 315 or 351</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
<td>Senior Elective</td>
<td>Tech. Elective *(3) FA, SP, SU</td>
<td>ECE 482 (OC &amp; WC) (3) SP</td>
</tr>
<tr>
<td>15 hours</td>
<td>Tech. Elective *(3) FA, SP, SU</td>
<td>Senior Elective</td>
<td>Tech. Elective *(3) FA, SP, SU</td>
<td>Prereq: ECE 401</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
<td>Senior Elective</td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
</tr>
<tr>
<td>17 hours</td>
<td>Tech. Elective *(3) FA, SP, SU</td>
<td>Senior Elective</td>
<td>Tech. Elective *(3) FA, SP, SU</td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
<td>Senior Elective</td>
<td>Tech. Elective *(3) FA, SP, SU</td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
</tr>
<tr>
<td>15 hours</td>
<td>Tech. Elective *(3) FA, SP, SU</td>
<td>Senior Elective</td>
<td>Tech. Elective *(3) FA, SP, SU</td>
<td>ECE Sr. Elective *(3) FA, SP, SU</td>
</tr>
</tbody>
</table>

*Acceptable Senior Electrical and Computer Engineering courses: Choose four (4) Electrical Engineering Senior electives with faculty advisor's consent. Up to two (2) Computer Science 5xx or Electrical Computer Engineering 5xx may count as upper division electives.

**Technical Electives:** Computer Science 140, 311 or Math 300; 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.

### UTRACK Milestones:

<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 350/137</td>
<td>EF 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201 or CE 201</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.
### Department of Electrical Engineering and Computer Science
#### Electrical- Power & Energy Systems Concentration Catalog 2014

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 141 or 147 (4)</td>
<td></td>
<td></td>
<td>Math 130 or Math 26 ACT or Math 630 SAT</td>
</tr>
<tr>
<td>EF 151 or 157 (4)</td>
<td></td>
<td></td>
<td>Math 141 or 147 and EF 110 or CS 102</td>
</tr>
<tr>
<td>CS 102 (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 101 or 118 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 142 or 146 (4)</td>
<td></td>
<td></td>
<td>Math 141 or 147 and EF 110 or CS 102</td>
</tr>
<tr>
<td>EF 152 or 158 (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 160 (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 102 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 231 (3)</td>
<td></td>
<td></td>
<td>Math 142 or 148 and EF 152 or 158</td>
</tr>
<tr>
<td>Math 251 or 257 (3)</td>
<td></td>
<td></td>
<td>Math 142 or 148 and EF 152 or 158</td>
</tr>
<tr>
<td>Physics 231 (3)</td>
<td></td>
<td></td>
<td>Physics 231 or Math 142 or 148 and EF 152 or 158</td>
</tr>
<tr>
<td>Chem 120 or 128 (4)</td>
<td></td>
<td></td>
<td>Math 130</td>
</tr>
<tr>
<td>ECE 201 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 241 or 247 (4)</td>
<td></td>
<td></td>
<td>Math 142 or 148 and EF 152 or 158</td>
</tr>
<tr>
<td>ECE 255 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics 232 (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 313 or 317 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 315 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 325 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 335 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 341 or 347 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 395 (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 316 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 336 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 342 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 401 (OC&amp;W) (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen. Ed. (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE Sr. Elective <em>(3)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Elective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE Sr. Elective <em>(3)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Elective</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE Sr. Elective <em>(3)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Elective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech. Elective *(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 402 (OC&amp;W) (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Acceptable Senior ECE: Select 4 courses from the following ECE 325, 415, 421 or 427, 422, 481 or 487, 482, 521, 522, 523, or 525.

Technical Electives: COSC 140, COSC 311 or MATH 300, COSC 370; CHEM 130/138; IE 405; MSE 201, MSE 410; ME 231, ME 321, ME 331, ME 344; NE 342 or NE 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:**

<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 135/137</td>
<td>EF 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>

> Department of Electrical Engineering and Computer Science

*Engineering Majors*  
http://catalog.utk.edu
## Industrial Engineering Catalog 2014

### Fall
<table>
<thead>
<tr>
<th>16 hours</th>
<th>Engineering Majors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 141 or 147 (4) FA, SP, SU</td>
<td>Prereq: Math 130 or Math ACT 28 or Math SAT 630</td>
</tr>
<tr>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>Prereq: Math 101 or 118</td>
</tr>
<tr>
<td>Chem 120 or 128 (4) FA, SP, SU</td>
<td>Prereq: Math 130</td>
</tr>
<tr>
<td>EF 151 or 157 (4) FA, SP</td>
<td>Coreq: EF 151 or EF 157</td>
</tr>
<tr>
<td>EF 105 (1) FA, SP</td>
<td>Coreq: EF 151 or EF 157</td>
</tr>
</tbody>
</table>

### Spring
<table>
<thead>
<tr>
<th>16 hours</th>
<th>Engineering Majors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 142 or 148 (4) FA, SP, SU</td>
<td>Prereq: Math 141 or 147</td>
</tr>
<tr>
<td>English 102 (4) FA, SP, SU</td>
<td>Prereq: English 101 or 118</td>
</tr>
<tr>
<td>Gen Ed (3) FA, SP, SU</td>
<td>Social Science</td>
</tr>
<tr>
<td>EF 152 or 158 (4) FA, SP</td>
<td>Prereq: EF 151 or EF 157</td>
</tr>
<tr>
<td>ME 202 (3) FA, SP, SU</td>
<td>Coreq: EF 152 or EF 158 and Math 142 or 148</td>
</tr>
</tbody>
</table>

### Fall
<table>
<thead>
<tr>
<th>17 hours</th>
<th>Engineering Majors only</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE 250 (1) FA</td>
<td>Prereq: Math 142 or 148</td>
</tr>
<tr>
<td>IE 200 (3) FA</td>
<td>Prereq: Engineering or Biosystems major</td>
</tr>
<tr>
<td>IE 405 (3) FA, SP, SU</td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
</tr>
<tr>
<td>Phys 231 (3) FA, SP, SU</td>
<td>Prereq: Math 142 or 148</td>
</tr>
<tr>
<td>MSE 201 (3) FA, SP, SU</td>
<td>Coreq: Math 142 or 148</td>
</tr>
</tbody>
</table>

### Spring
<table>
<thead>
<tr>
<th>16 hours</th>
<th>Engineering Majors</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 201 or 207 (4) FA, SP, SU</td>
<td>Social Science</td>
</tr>
<tr>
<td>Math 231 (3) FA, SP, SU</td>
<td>Math 200 (1) FA</td>
</tr>
<tr>
<td>Math 200 (1) FA</td>
<td>Cannot receive credit if previous C or better in Math 251</td>
</tr>
<tr>
<td>ME 151 (3) FA, SP, SU</td>
<td>Coreq: Math 241 or 247</td>
</tr>
<tr>
<td>IE 202 (3) SP</td>
<td>Prereq: EF 152 or EF 157</td>
</tr>
<tr>
<td>EF 230 (2) FA, SP</td>
<td>Coreq: IE 200 or Stats 251</td>
</tr>
</tbody>
</table>

### Fall
<table>
<thead>
<tr>
<th>16 hours</th>
<th>Engineering Majors</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE 350 (WC) (1) FA</td>
<td>Prereq: IE 250</td>
</tr>
<tr>
<td>IE 401 or 407 (3) FA</td>
<td>Prereq: IE 202 or 405</td>
</tr>
<tr>
<td>IE 301 (3) FA</td>
<td>Prereq: Math 200</td>
</tr>
<tr>
<td>IE 360 (3) FA</td>
<td>Prereq: IE 200 or Stats 251</td>
</tr>
<tr>
<td>IE 304 (3) FA</td>
<td>Minimum student level — junior</td>
</tr>
<tr>
<td>IE 402 (3) FA</td>
<td>Coreq: IE 300</td>
</tr>
</tbody>
</table>

### Spring
<table>
<thead>
<tr>
<th>15 hours</th>
<th>Engineering Majors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Ed (3) FA, SP, SU</td>
<td>Arts &amp; Humanities (Pref Phil 244)</td>
</tr>
<tr>
<td>ECE 301 (3) FA, SP, M</td>
<td>Prereq: Math 231</td>
</tr>
<tr>
<td>ECE 310 or 317 (3) SP</td>
<td>Prereq: IE 301 &amp; IE 200 or Stats 251</td>
</tr>
<tr>
<td>IE 340 (3) SP</td>
<td>IE 302 and 300</td>
</tr>
<tr>
<td>IE 421 or 428 (3) SP</td>
<td>Coreq: IE 402</td>
</tr>
</tbody>
</table>

### Fall
<table>
<thead>
<tr>
<th>15 hours</th>
<th>Engineering Majors</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE 450 (1) FA</td>
<td>Prereq: IE 350</td>
</tr>
<tr>
<td>IE 404 (2) FA, SP, SU</td>
<td>Prereq: IE 300, 301</td>
</tr>
<tr>
<td>IE 405 (3) FA</td>
<td>IE 404 or 408</td>
</tr>
<tr>
<td>IE 472 (3) SP</td>
<td>Coreq: IE 406 or 408</td>
</tr>
<tr>
<td>IE 427 (3) FA, SP</td>
<td>IE Technical Elective (3) FA, SP</td>
</tr>
<tr>
<td>IE 423 (3) FA, SP</td>
<td>Petition required in advance</td>
</tr>
<tr>
<td>IE 422 (2) OC &amp; WC (4) FA, SP, SU</td>
<td>Industrial Elective (3) FA, SP</td>
</tr>
<tr>
<td>IE 404 and English 102 or 118</td>
<td>Coreq: IE 310 or 317</td>
</tr>
<tr>
<td>IE 404 or 408 (3) SP</td>
<td>Prereq: IE 200 or Stats 251</td>
</tr>
<tr>
<td>IE 406 or 408 (3) SP</td>
<td>Petition required in advance</td>
</tr>
<tr>
<td>IE 423, IE 457, IE 483, IE 484, IE 493, IE 494, IE 495</td>
<td>The same course may not be used to count for both IE Technical Elective and IE Elective.</td>
</tr>
<tr>
<td>IE 423, IE 457, IE 483, IE 484, IE 493, IE 494, IE 495</td>
<td>Students also have opportunities for an Honors Concentration and/or a five year BS/MS program. See the Undergraduate Catalog for details and requirements.</td>
</tr>
<tr>
<td>IE 423, IE 457, IE 483, IE 484, IE 493, IE 494, IE 495</td>
<td>UTRACK Milestones:</td>
</tr>
</tbody>
</table>

<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 152/158 or Physics 136/138</td>
<td>ME 202 or CS 102 or MSE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>

*IE Technical Electives chosen from AE 341 or 347, BME 300, BUAD 381, BUAD 410, BULW 301, COSC 102, ECE 255, ECON 311, ECON 312, ECON 313, ECON 322, ECON 351, ECON 353, ECON 354, ECON 361, FINC 300, FINC 425, FINC 455, IE 423, IE 430, IE 457, IE 458, IE 483, IE 484, IE 493, IE 494, IE 495. Some courses may require a prerequisite or corequisite that is not part of the IE program. |

**Industrial Electives chosen from AE 423, IE 430, IE 457, IE 483, IE 484, IE 493, IE 494. 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.
### Materials Science and Engineering Catalog 2014

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall 16 hours</strong></td>
<td>English 101 or 118 (3) FA, SP, SU Chem 120 or 128 (4) FA, SP, SU Math 130 Math 141 or 147 (4) FA, SP, SU EF 151 or 157 (4) FA, SP, SU EF 105 (1) FA, SP, SU</td>
</tr>
<tr>
<td><strong>Spring 16 hours</strong></td>
<td>English 102 (3) FA, SP, SU Prereq: English 101 or 118 Chem 130 or 138 (4) FA, SP, SU Prereq: Math 141 or 147 EF 152 or 158 (4) FA, SP Prereq: EF 151 or 157</td>
</tr>
<tr>
<td><strong>Fall 17 hours</strong></td>
<td>MSE 201 (3) FA, SP, SU Prereq: Chemistry 120 or 128 MSE 210 (1) FA, SP, SU Math 241 or 247 (4) FA, SP, SU Prereq: Math 142 or 148 Physics 231 (3) FA, SP, SU Prereq: Physics 231 EF 151/157 (4) FA, SP Prereq: EF 152 or 158</td>
</tr>
<tr>
<td><strong>Spring 15 hours</strong></td>
<td>MSE 230 (1) SP Math 250 (1) FA, SP Prereq: MSE 201 or 210 MSE 231 (3) FA, SP, SU Prereq: Math 142 or 148 Physics 232 (4) FA, SP, SU Prereq: Physics 231 MSE 250 (3) SP Prereq: Math 142 or 148 and EF 250 MSE 251 (1) SP Prereq: Math 241 or 247</td>
</tr>
<tr>
<td><strong>Fall 16 hours</strong></td>
<td>MSE 301 (1) FA Prereq: MSE 201 and 210 MSE 301 (1) FA Prereq: MSE 201 and 210 MSE 320 (3) FA Prereq: MSE 201 and 260 MSE 340 (3) FA Prereq: MSE 201 MSE 347 (3) FA Prereq: MSE 201</td>
</tr>
<tr>
<td><strong>Spring 16 hours</strong></td>
<td>MSE 304 (1) SP Prereq: MSE 300, 301, 340, 360 MSE 330 (3) SP Prereq: MSE 300, 301, 340, 360 MSE 360 or 367 (3) FA Prereq: MSE 201 MSE 367 (3) FA Prereq: MSE 201 Arts and Humanities</td>
</tr>
<tr>
<td><strong>Fall 16 hours</strong></td>
<td>MSE 4XX (3) FA, SP, SU Prereq: MSE 201 and 210 MSE 4XX (3) FA, SP, SU Prereq: Physics 232 MSE 480 (3) FA Prereq: Physics 232 Gen. Ed. (3) FA, SP, SU Gen. Ed. (3) FA, SP, SU</td>
</tr>
<tr>
<td><strong>Spring 15 hours</strong></td>
<td>MSE 4XX (3) FA, SP, SU Prereq: Physics 232 MSE 4XX (3) FA, SP, SU Prereq: Physics 232 MSE 4XX (3) FA, SP, SU Prereq: MSE 304, 340, 347, 350, 367, 370, 390, 409, 410, 411, 421, 425, 432, 440, 445, 450, 451, 455, 457, 460, 466, 474, 484, 485, 486, 494, 495.</td>
</tr>
</tbody>
</table>

**Technical electives:** ECE 301 (strongly recommended), BOMB 230, BOL 180 or 168; 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.

**MSE 4XX Electives:** Materials Science and Engineering electives: 408, 410, 411, 421, 425, 432, 440, 445, 450, 451, 455, 457, 460, 466, 474, 484, 485, 486, 494, 495.

**Upper Division Status:**
A lower division student formally applies for upper division status after completing 50 hours of lower division engineering curriculum coursework 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 coursework work with an overall GPA of 2.0 or 2.4 may apply for provisional status.

**MSE Graduation Requirements:**
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.
### Materials Science and Engineering Catalog 2014

#### BIOMATERIALS CONCENTRATION

**Fall**
- **16 hours**
  - English 101 or 118 (3) FA, SP, SU
  - Chem 120 or 128 (4) FA, SP, SU
  - Math 141 or 147 (4) FA, SP, SU
  - EF 151 or 157 (4) FA, SP
  - EF 156 (1) FA, SP

**Spring**
- **16 hours**
  - English 102 (3) FA, SP, SU
  - Math 142 or 148 (4) FA, SP, SU
  - EF 152 or 158 (4) FA, SP
  - MSE 101 (1) SP

**Fall**
- **17 hours**
  - MSE 201 (3) FA, SP, SU
  - MSE 241 or 247 (4) FA, SP, SU
  - Physics 231 (3) FA, SP, SU
  - Econ 201 or 207 (4) FA, SP, SU

**Spring**
- **16 hours**
  - MSE 202 (1) SP
  - Math 200 (1) FA, SP
  - MSE 290 (1) FA, SP

**Fall**
- **16 hours**
  - MSE 300 (3) FA
  - MSE 320 (3) FA
  - MSE 340 or 347 (3) FA
  - Gen. Ed. (3) FA, SP, SU

**Spring**
- **17 hours**
  - MSE 304 (1) SP
  - MSE 390 or 397 (3) SP
  - MSE 370 (3) SP
  - MSE 302 (3) SP

**Fall**
- **16 hours**
  - MSE 474 (3) FA, SP, SU
  - MSE 405 (WC) (4) FA, SP

**Spring**
- **15 hours**
  - MSE Elective (3) FA, SP, SU
  - Gen. Ed. (3) FA, SP, SU

---

**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.

**MSE Graduation Requirements**

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:**

<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 139/137</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>
# Materials Science and Engineering Catalog 2014

## NANOMATERIALS CONCENTRATION

### Fall

<table>
<thead>
<tr>
<th>16 hours</th>
<th>English 101 or 118 (3) FA, SP, SU</th>
<th>Chem 120 or 128 (4) FA, SP, SU, Math 130</th>
<th>Math 141 or 147 (4) FA, SP, SU</th>
<th>EF 151 or 157 (4) FA, SP</th>
<th>EF 108 (1) FA, SP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prereq: English 101 or 118</td>
<td>Prereq: Math 130 or Math ACT 28</td>
<td>Prereq: Math 141 or 147</td>
<td>Coreq: Math 141 or 147</td>
<td>Coreq: EF 151 or 157</td>
</tr>
</tbody>
</table>

### Spring

| 16 hours | English 152 (3) FA, SP, SU, Prereq: English 101 or 118 | Chem 130 or 138 (4) FA, SP, SU, Prereq: Chem 120 or 128 | Math 142 or 148 (4) FA, SP, SU, Prereq: Math 141 or 147 | EF 152 or 158 (4) FA, SP, Prereq: EF 151 or 157 | MSE 101 (1) SP |

### Fall

<table>
<thead>
<tr>
<th>17 hours</th>
<th>MSE 201 (3) FA, SP, SU, Prereq: Chemistry 120 or 138</th>
<th>MSE 210 (1) FA, SP, Prereq: MSE 201</th>
<th>Math 241 or 247 (4) FA, SP, SU, Coreq: Math 140 or 148</th>
<th>Physics 231 (3) FA, SP, SU, Coreq: Math 140 or 148</th>
<th>Ecom 301 or 207 (4) FA, SP, SU, Coreq: EF 230 or 158</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prereq: MSE 201</td>
<td></td>
<td>Prereq: Physics 231</td>
<td>Coreq: Math 241 or 247</td>
<td>Prereq: EF 152 or 158, Chem 130/138, and Math 241/247, MSE 201</td>
</tr>
</tbody>
</table>

### Spring

<table>
<thead>
<tr>
<th>15 hours</th>
<th>MSE 290 (1) SP, Math 200 (1) FA, Math 241 or 247 (4) FA, SP, SU, Coreq: Math 140 or 148</th>
<th>Math 231 (3) FA, SP, SU, Coreq: Math 142 or 148</th>
<th>Physics 232 (4) FA, SP, SU, Coreq: Physics 231</th>
<th>MSE 250 (3) SP, Coreq: Math 142 or 140 and EF 230</th>
<th>MSE 248 (3) SP, Coreq: EF 152 or 158, Chem 130/138, and Math 241/247, MSE 201</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cannot receive credit if previous C or better in math 231 or 247</td>
<td>Prereq: Math 142 or 148</td>
<td>Prereq: Physics 231</td>
<td>Coreq: Math 241 or 247</td>
<td>Prereq: EF 152 or 158, Chem 130/138, and Math 241/247, MSE 201</td>
</tr>
</tbody>
</table>

### Fall

<table>
<thead>
<tr>
<th>16 hours</th>
<th>MSE 300 (1) FA, Prereq: MSE 201 and 210</th>
<th>MSE 301 (3) FA, Prereq: Math 123/148, 231, EF 230</th>
<th>MSE 323 (3) FA, Prereq: MSE 201 and 260</th>
<th>MSE 340 or 347 (3) FA, Prereq: MSE 201</th>
<th>MSE 360 or 367 (3) FA, Gen. Ed. (3) FA, SP, SU, Arts and Humanities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prereq: Physics 231</td>
<td>Prereq: Math 142 or 148</td>
<td>Prereq: MSE 301 and 260</td>
<td>Prereq: MSE 201</td>
<td>Prereq: MSE 201</td>
</tr>
</tbody>
</table>

### Spring

<table>
<thead>
<tr>
<th>16 hours</th>
<th>MSE 304 (1) SP, Prereq: MSE 300, 320, 340, 360</th>
<th>MSE 390 or 399 (3) SP, Prereq: MSE 201</th>
<th>MSE 370 (3) SP, Prereq: MSE 340 and 360</th>
<th>MSE 352 (3) SP, Prereq: MSE 201</th>
<th>MSE 350 or 357 (3) SP, Technical Elective* (3) FA, SP, SU, Petition required in advance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prereq: MSE 201</td>
<td>Prereq: MSE 340 and 360</td>
<td>Coreq: MSE 320</td>
<td>Prereq: MSE 201</td>
<td>Prereq: MSE 201, Petition required in advance</td>
</tr>
</tbody>
</table>

### Fall

<table>
<thead>
<tr>
<th>16 hours</th>
<th>MSE 408 (3) FA, SP, Technical Elective* (3) FA, SP, SU, Petition required in advance</th>
<th>MSE 405 (WC) (4) FA, SP, Coreq: MSE 201</th>
<th>MSE 480 (3) FA, Gen. Ed. (3) FA, SP, SU, Arts and Humanities</th>
<th>Gen. Ed. (3) FA, SP, SU, Culture and Civilizations</th>
<th>Gen. Ed. (3) FA, SP, SU, Social Science</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prereq: Physics 231</td>
<td>Prereq: Math 123/148, 231, EF 230</td>
<td>Maximum level junior</td>
<td>Prereq: MSE 301 and 260</td>
<td>Prereq: MSE 201</td>
</tr>
</tbody>
</table>

### Spring

<table>
<thead>
<tr>
<th>16 hours</th>
<th>MSE 410 (3) FA, SP, see below</th>
<th>Technical Elective* (3) FA, SP, SU, Petition required in advance</th>
<th>MSE 489 (OC) (3) FA, Prereq: MSE 304, 340, 347, 360, 320, and 360</th>
<th>Gen. Ed. (3) FA, SP, SU, Culture and Civilizations</th>
<th>Gen. Ed. (3) FA, SP, SU, Arts and Humanities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>see below</td>
<td>Petition required in advance</td>
<td>Prereq: MSE 304, 340/347, 360/320, 370, 360/367, and 360/368</td>
<td>Prereq: MSE 301 and 260</td>
<td>Prereq: MSE 201</td>
</tr>
</tbody>
</table>

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

**Progression**

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

**Upper Division Status**

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

**Provisional Status**

Students who have completed 50 hours of lower-division engineering curriculum course work with an overall GPA between 2.0 and 2.4 may apply for provisional status. The granting of provisional upper-division status is based on the availability of space in the departmental programs after upper-division status students have been accommodated. Provisional students are required to demonstrate their ability to perform satisfactorily in upper-division courses by attaining a minimum GPA of 2.0 in at least 8 hours of 300-level required courses specified by the department. Further progression to upper-division courses is dependent upon this minimum level of performance.

**MSE Graduation Requirements**

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 a five year BS/MS program. See the Undergraduate Catalog for details and requirements.

## UTRACK Milestones:

<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 course QC</td>
<td>Math 130 or higher</td>
<td>EF 151/157 or Physics 139/137</td>
<td>EF 152/158 or Physics 139/138</td>
<td>ME 202 or CS 102 or MSE 201 or CBE 201</td>
<td>No Milestones</td>
</tr>
</tbody>
</table>
### Mechanical Engineering Catalog 2014

#### Fall
- **16 hours**
  - **Math 141 or 147 (4) FA, SP, SU**
  - **Prereq: Math 130 or Math ACT 38 or Math SAT 630**
  - **EF 151 or 157 (4) FA, SP**
  - **Prereq: Math 141 or 147 and EP 105**
  - **EF 105 (5) FA, SP**
  - **Prereq: EF 151 or 157**
  - **English 101 or 118 (3) FA, SP, SU**
  - **Chem 120 or 128 (4) FA, SP, SU**

#### Spring
- **16 hours**
  - **Math 142 or 148 (4) FA, SP, SU**
  - **Prereq: Math 141 or 147**
  - **EF 152 or 158 (4) FA, SP, SU**
  - **Prereq: EF 152 or 158 and Math 142 or 148**
  - **ME 202 (2) FA, SP, SU**
  - **EF 160 (3) FA, SP, SU**
  - **Prereq: English 101 or 118**
  - **Gen Ed (3) FA, SP, SU**

#### Fall
- **16 hours**
  - **Math 241 or 247 (4) FA, SP, SU**
  - **Prereq: Math 142 or 148**
  - **ME 231 (3) FA, SP, SU**
  - **Prereq: EF 152 or 158 and ME 202 with grades of C or better**
  - **EF 230 (2) FA, SP**
  - **Prereq: EF 152 or 158**
  - **Gen Ed (3) FA, SP, SU**

#### Spring
- **16 hours**
  - **Math 231 (3) FA, SP, SU**
  - **Prereq: Math 142 or 148**
  - **Math 207 (3) FA, SP, SU**
  - **Prereq: Math 142 or 148**
  - **Physics 231 (3) FA, SP, SU**
  - **Prereq: Math 142 or 148**
  - **ME 203 (3) FA, SP, SU**
  - **Prereq: ME 202 with grades of C or better**
  - **ME 205 (3) FA, SP, SU**
  - **Prereq: CHEM 120 or 128 and Math 142 or 148**

#### Fall
- **15 hours**
  - **ME 331 (3) FA, SP, SU**
  - **Prereq: Math 241 or 247**
  - **AE 341 or 347 (3) FA, SP, SU**
  - **Prereq: ME 231 and Math 241 or 347**
  - **ME 398 (3) FA, SP, SU**
  - **Prereq: ME 321 with grades of C or better and ME 201**
  - **ECE 301 (3) FA, SP, M**
  - **Prereq: Math 231**
  - **ME 391 or 397 (3) FA, SP, SU**
  - **Prereq: EF 230, Math 251/257, and Math 341/347 and ME 231 with grade C or better**

#### Spring
- **15 hours**
  - **ME 475 or 477 (3) FA, SP**
  - **Prereq: AE 341**
  - **Technical Elective (3) FA, SP, SU**
  - **Petition required in advance with advisor and dept. head.**
  - **ME 464 (3) FA, SP, SU**
  - **Prereq: ME 341 and 391/397 and AE 341/347**
  - **ME 445 (3) FA, SP, SU**
  - **Prereq: ME 301/307**
  - **ME 410 (3) FA, SP, SU**
  - **Prereq: ME 365 or 367 and AE 341/347**
  - **ME 450 (3) FA, SP, SU**
  - **Prereq: ME 363 and 367 and Coreq: ME 486 or 475**

#### Fall
- **15 hours**
  - **ME 449 (3) FA, SP, SU**
  - **Prereq: ME 321, 344 and 345/347**
  - **ME 491 (3) FA, SP, SU**
  - **Prereq: ME 321, 344 and 345/347**
  - **ME 450 (3) FA, SP, SU**
  - **Prereq: ME 321 and 344/347**
  - **ME 464 (3) FA, SP, SU**
  - **Prereq: ME 365 or 367 and AE 341/347**
  - **ME 410 (3) FA, SP, SU**
  - **Prereq: ME 365 or 367 and AE 341/347**
  - **ME 450 (3) FA, SP, SU**
  - **Prereq: ME 363 and 367 and Coreq: ME 486 or 475**

### Full Status Progression
A lower-division student may apply for progression to upper division after completing EF 152/158, CHEM 120/128, MATH 231, ME 202, ME 231, and ME 321 with a grade of C or better in each, and an overall GPA of at least 2.4.

### Provisional Status Progression
Students who have completed EF 152/158, CHEM 120/128, MATH 231, ME 202, ME 231, ME 321 with a grade of C or better and have an overall GPA between 2.3 and 2.4 may apply for provisional status.

### Transfer Students
Students transferring more than 26 hours from another institution are considered transfer students. Transfer students must meet the same criteria as non-transfer students, using transferable courses for acceptable substitutions.

### ME 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.
# Nuclear Engineering Catalog 2014

## Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
</table>
| 16    | Math 141 or 147 (4) FA, SP, SU  
Prereq- Math 130 or Math ACT 28 or Math SAT 630  
English 101 or 118 (3) FA, SR, SU  
Chem 120 or 128 (4) FA, SP, SU  
Math 130  
Coreq- Math 141 or 147 and EF 105  
EF 151 or 157 (4) FA, SP, SU  
Coreq- EF 151 or 157  
EF 15 (1) FA, SP  
Coreq- EF 151 or 157 |

## Spring

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
</table>
| 15    | Math 142 or 148 (4) FA, SP, SU  
Prereq- Math 141 or 147  
English 102 (3) FA, SP, SU  
Chem 130 or 138 (4) FA, SP, SU  
Prereq- Chem 120 or 128  
EF 152 or 158 (4) FA, SP, SU  
Prereq- EF 151 or 157 |

## Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
</table>
| 16    | Math 231 (3) FA, SP, SU  
Prereq- Math 142 or 148  
NE 200 (2) FA  
ME 202 (2) FA, SR, SU  
Physics 231 (3) FA, SP, SU  
EF 152 (2) FA, SP  
EF 232 (2) FA, SP  
ECON 201 or 207 (4) FA, SP, SU  
Social Science |

## Spring

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
</table>
| 15    | 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, SP  
Prereq- Math 231  
Physics 232 (3) FA, SP, SU  
Prereq- Physics 231  
Gen Ed (3) FA, SP, SU  
Arts and Humanities |

## Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
</table>
| 16    | NE 342 or 347 (3) FA  
Prereq- ME 331  
NE 351 or 357 (3) FA  
NE 362 or 367 (3) FA  
Physics 341 (3) FA  
Prereq- Physics 231  
Gen Ed (3) FA, SP, SU  
Cultures and Civilizations |

## Spring

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
</table>
| 15    | NE 401 (4) SP  
Prereq- NE 470  
NE 360 (4) SP  
Prereq- NE 342  
NE 433 (3) SP  
NE 470 (3) FA, SP  
Gen Ed (3) FA, SP, SU  
Social Science |

## Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
</table>
| 17    | NE 482 or 487 (W/C) (4) FA  
Prereq- NE 401  
MSE 201 (3) FA, SP, SU  
Prereq- Chemistry 120 or 128  
ME 321 (3) FA, SR, SU  
Prereq- ME 202 with C or better and Math 142 or 148  
Technical Elective *(3) FA, SP, SU  
Prepetition required in advance  
Gen Ed (3) FA, SP, SU  
Cultures and Civilizations  
NE 471 (1) FA  
Prereq- NE 470 |

## Spring

<table>
<thead>
<tr>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
</table>
| 13    | NE 480 (0G) (1) SP  
Minimum student level — senior  
NE 406 or 407 (3) SP  
Prereq- Physics 202  
NE 472 (3) SP  
Prereq- NE 470 and 471  
Technical Elective *(3) FA, SP, SU  
Prepetition required in advance  
Gen Ed (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 900, 502 and 598 may also be used as technical electives.

### Full Status Progression

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 Progression

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.

### Nuclear Graduation Requirements

Students are required to maintain a cumulative grade point average of at least 2.0 in all nuclear engineering courses taken at the University of Tennessee, Knoxville used to satisfy the graduation requirement. No more than four (4) credit hours of nuclear engineering 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 are strongly recommended to meet with their faculty advisor every semester.

**UTRACK Milestones:**

- **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 139/137
- **Term 4**: EF 152/158 or Physics 136/138
- **Term 5**: ME 202 or CS 102 or MSE 201 or CBE 201
- **Term 6 through 8**: No Milestones
## Nuclear Engineering Catalog 2014

### Radiological Concentration

<table>
<thead>
<tr>
<th>Term</th>
<th>16-18 hours</th>
<th>Prereqs</th>
<th>Coreqs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>Math 141 or 147 (4) FA, SP</td>
<td>Math 130 or Math ACT 28 or Math SAT 630</td>
<td>Math 130</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>Pre-req: English 110 or 118</td>
<td>Pre-req: Chem 120 or 128</td>
</tr>
<tr>
<td></td>
<td>Chem 120 or 128 (4) FA, SP, SU</td>
<td>Pre-req: Math 130</td>
<td>Pre-req: EF 141 or 147 and EF 100</td>
</tr>
<tr>
<td></td>
<td>EF 151 or 157 (4) FA, SP</td>
<td>Pre-req: Math 141 or 147</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>EF 105 (1) FA, SP</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 142 or 148 (4) FA, SP</td>
<td>Pre-req: Math 141 or 147</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>English 102 (3) FA, SP, SU</td>
<td>Pre-req: English 101 or 118</td>
<td>Pre-req: Chem 130 or 138 (4) FA, SP, SU</td>
</tr>
<tr>
<td></td>
<td>Chem 130 or 138 (4) FA, SP, SU</td>
<td>Pre-req: Chem 120 or 128</td>
<td>Pre-req: EF 152 or 158 (4) FA, SP</td>
</tr>
<tr>
<td></td>
<td>Pre-req: EF 151 or 157</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>Math 231 (3) FA, SP, SU</td>
<td>Pre-req: Math 142 or 148</td>
<td>Pre-req: EF 152 or 158 and Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>Pre-req: Math 142 or 148</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Chem 231 (3) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 152 or 158 and Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>Physics 231 (3) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 152 or 158 and Math 142 or 148</td>
</tr>
<tr>
<td></td>
<td>EF 230 (2) FA, SP</td>
<td>Pre-req: EF 152 or 158 and Math 142 or 148</td>
<td>Pre-req: EF 152 or 158</td>
</tr>
<tr>
<td></td>
<td>ECON 201 or 207 (4) FA, SP, SU</td>
<td>Pre-req: EF 152 or 158 and Math 142 or 148</td>
<td>Pre-req: EF 152 or 158</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
<td>Pre-req: Math 142 or 148</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>Pre-req: Math 142 or 148</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Chem 241 or 247 (4) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Physics 232 (4) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
<td>Pre-req: Math 142 or 148</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>Pre-req: Math 142 or 148</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Chem 241 or 247 (4) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Physics 232 (4) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Math 241 or 247 (4) FA, SP, SU</td>
<td>Pre-req: Math 142 or 148</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>English 101 or 118 (3) FA, SP, SU</td>
<td>Pre-req: Math 142 or 148</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Chem 241 or 247 (4) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Physics 232 (4) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
<tr>
<td></td>
<td>Gen Ed (3) FA, SP, SU</td>
<td>Pre-req: EF 151 or 157</td>
<td>Pre-req: EF 151 or 157</td>
</tr>
</tbody>
</table>

*Technical Electives* are selected from upper-division mathematics, chemistry, physics and engineering courses and must be pre-approved by the department. Courses in Nuclear Engineering other than 500, 502 or 508 may also be used as technical electives. Pre-med, pre-vet, and pre-dentistry students should take Chem 350, Chem 360 and 369.

### Full Status Progression

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*, and PHYS 231* with a grade of C or better and have an overall GPA of at least 2.0 and 2.5.

### Provisional Status Progression

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 of at least 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.

### Nuclear Graduation Requirements

Students are required to maintain a cumulative grade point average of at least 2.0 in all nuclear engineering courses taken at the University of Tennessee, Knoxville used to satisfy the graduation requirement. No more than four (4) credit hours of nuclear engineering 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.

### Engineering Majors

See http://catalog.utk.edu for more information.
Undergraduate Minors Offered at the University of Tennessee, Knoxville 2014-2015

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
• English as a second language education
• Middle grades education
• Nutrition
• Public health
• Restaurant and food service management
• Retail and consumer sciences
• Retail technology
• Secondary education
• Tourism and hospitality management
• World language education

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 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
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 150-160 or 158-168, 159 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)

The following courses are not required by medical schools, but their content is included on MCAT 2015

- Biology 240
- Biochemistry and Cellular and Molecular Biology 401
- Psychology 110, Sociology 120

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

**Selection Criteria at UT Health Science Center**

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

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

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

**Seminar for Pre-Health Students**

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

<table>
<thead>
<tr>
<th>Course requirements</th>
<th>Number of courses</th>
<th>Required or suggested year of enrollment</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH 101</td>
<td>1</td>
<td>Required during first-year</td>
<td>1</td>
</tr>
<tr>
<td>100–400 level honors courses (three credit hours each)</td>
<td>7</td>
<td>Recommended courses selected throughout undergraduate study from varied interdisciplinary University Honors seminars approved for General Education (e.g., UH 257, 267, 277), departmental honors courses (e.g., Chem 128, 138; Math 147, 148, 247; EF 157, 158; Physics 137, 138), or approved Honors-by-Contract or graduate courses.</td>
<td>21</td>
</tr>
<tr>
<td>UH 498 or approved departmental substitute</td>
<td>1</td>
<td>Recommended during senior year Honors Thesis Project</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

Required Honors Curriculum for Haslam Scholars

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

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

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

For more about each of the scholarships handled by the Office of National Scholarships and Fellowships, visit on the first floor of the Howard Baker Center or call (865) 974-3518 to schedule an appointment.

ORNL Summer Research and Internship

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

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

For more information visit the website at www.ornl.gov Click on “jobs” on the left hand menu.

For more honors and research information, contact:

Dr. Chris Pionke
Engineering Honors Director
102 Estabrook Hall
865-974-9810
cpionke@utk.edu

Office of Undergraduate Research
Sharon Pound
1534 White Ave.
865-974-1475
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 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>Biology</td>
<td>3</td>
<td>Biology 101</td>
</tr>
<tr>
<td>Biology</td>
<td>4</td>
<td>Biology 101-102</td>
</tr>
<tr>
<td>Biology</td>
<td>5</td>
<td>Biology 101-102 and 160</td>
</tr>
<tr>
<td>Calculus AB</td>
<td>3</td>
<td>Math 125</td>
</tr>
<tr>
<td>Calculus AB</td>
<td>4</td>
<td>Math 141</td>
</tr>
<tr>
<td>Calculus AB</td>
<td>5</td>
<td>Math 147</td>
</tr>
<tr>
<td>Calculus BC</td>
<td>3</td>
<td>Math 141</td>
</tr>
<tr>
<td>Calculus BC</td>
<td>4</td>
<td>Math 141-142</td>
</tr>
<tr>
<td>Calculus BC</td>
<td>5</td>
<td>Math 147-148</td>
</tr>
<tr>
<td>Chemistry</td>
<td>4 or 5</td>
<td>Chemistry 120-130</td>
</tr>
<tr>
<td>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 (Culture and Civilization)</td>
</tr>
<tr>
<td>European History</td>
<td>4 or 5</td>
<td>History LD-242 (Culture and Civilization)</td>
</tr>
<tr>
<td>French Language and Culture</td>
<td>3</td>
<td>French 211-212</td>
</tr>
<tr>
<td>French Language and Culture</td>
<td>4 or 5</td>
<td>French 212-333</td>
</tr>
<tr>
<td>German Language</td>
<td>4 or 5</td>
<td>German 201-202 or German 311-312</td>
</tr>
<tr>
<td>German Language</td>
<td>3</td>
<td>German 201-202</td>
</tr>
<tr>
<td>Government and Politics - Comparative</td>
<td>3, 4, or 5</td>
<td>Political Science 102</td>
</tr>
<tr>
<td>Government and Politics - US Exam</td>
<td>3, 4, or 5</td>
<td>Political Science 101</td>
</tr>
<tr>
<td>Human Geography</td>
<td>4 or 5</td>
<td>Geography 201</td>
</tr>
<tr>
<td>Latin Literature -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catullus/Cicero, Catullus/Horace,</td>
<td>3, 4, or 5</td>
<td>Latin 251-252</td>
</tr>
<tr>
<td>Catullus/Ovid, or Virgil</td>
<td></td>
<td></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>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>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

## 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, 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 I</td>
</tr>
<tr>
<td>32</td>
<td>720</td>
<td>Math 147 Honors Calculus I</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:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Calculus</td>
<td>Cal I/Honors</td>
<td>Cal II/Honors</td>
<td>Cal III/Honors</td>
<td>Diff. Eq.</td>
<td>Matrix/Honors</td>
</tr>
<tr>
<td>4 credit hrs.</td>
<td>4 credit hrs.</td>
<td>4 credit hrs.</td>
<td>4 credit hrs.</td>
<td>3 credit hrs.</td>
<td>3 credit hrs.</td>
</tr>
</tbody>
</table>

\[ mgh_0 + \frac{1}{2}mv_0^2 + \frac{1}{2}k\Delta x^2 + W_{\text{ext}} = mgh_f + \frac{1}{2}mv_f^2 + \frac{1}{2}k\Delta x_f^2 + E_{\text{int}} \]
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 W. Canfield
Modern Foreign Language Department
Room 7 Alumni Memorial Building
865-974-8193
lrc@utk.edu

Students interested in earning intermediate foreign language credits in Latin (Classics) contact:
Dr. Christopher Craig
Professor and Head
Department of Classics
1101 McClung Tower
865-974-2723
craig@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

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 Design/Graphic
- 150: The Idea of Graphic Design

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: Soundscape-Exploring Music in a Changing World

Philosophy
- 101: Introduction to Philosophy
- 107: Honors-Introduction to Philosophy
- 200: Special Topics
- 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

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
- 111: Geography of the Digital World
- 121: Human Geography: People and Places

Health and Physical Activity
- 268: Special Topics in Health and Physical Activity

Haslam Scholars Program
- 268: Foundations of Modernity

Political Science
- 101: US Government and Politics
- 202: Introduction to Political Science
- 107: Honors-US 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

Plant Sciences
• 491: International Study: History and Culture of International Gardens and Landscapes

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
• 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

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 211 and 212

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

Religious Studies
• Intermediate Biblical Hebrew 221 and 222

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/.

\[
\vec{V}_{B/A} = \vec{V}_{A/G} + \vec{V}_{B/G} \\
\vec{V}_{B/A} = \vec{V}_{B/G} - \vec{V}_{A/G} \\
\vec{V}_{B/A} = -\vec{V}_{A/B}
\]
General Education Requirements in Engineering

**College of Engineering General Education Requirements**

**Major**

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

**Communicating Orally**
1. See major requirements

**Natural Sciences**
1. EF 151 or 157 (Honors) (Physics 135/137 for Computer Science ONLY)
2. EF 152 or 158 (Honors) (Physics 136/138 for Computer Science ONLY)

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

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

**Arts and Humanities**
1. **Pick two from Catalog Arts and Humanities list**
2. **Pick two from Catalog Cultures and Civilizations list**

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

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

Communication Through Writing:
Aerospace - AE 449
Biomedical - BME 430
Biosystems - English 360
Chemical - CBE 415
Civil - CE 205
Computer, Electrical - ECE 401-402
Computer Science - CS 401-402
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 401-402
Computer Science - CS 401-402
Industrial - IE 422
Materials Science - MSE 489
Nuclear - NE 400
The Office of the University Registrar is pleased to present BannerDARS, the online version of DARS (Degree Audit Reporting System). Students and faculty advisors can access, view and print a degree audit report from anywhere they have Internet access.

To access BannerDARS, go to https://myutk.utk.edu
To login to BannerDARS, you will need your Net ID and password (this is the same Net ID and password that you use for MyUTK and Webmail).

To run a BannerDARS Audit, you will need to know the catalog year you are following for graduation and your degree program (major).

Not familiar with BannerDARS?
A BannerDARS report provides an easy way for a student and advisor to understand how a student’s classes are used to meet the requirements for a particular major. And when the time comes, the Office of the University Registrar uses the BannerDARS report to clear students for graduation.

In addition, “What IF” audits can be run to find out how a student’s courses would affect requirements in a new degree program if that student changes majors.

Take a moment and visit the site today. You’ll love the convenience of viewing your progress from anywhere you have an Internet connection.

For more information, please contact Alison Connor in the Office of the University Registrar at 974-0176 or aconnor@utk.edu.

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.

*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.

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

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

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

For more information, please visit http://registrar.tennessee.edu/bannermyutk.html, or contact the Office of the University Registrar at registrar@utk.edu or 865-974-2101.
<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Time</th>
<th>Wednesday</th>
<th>Time</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00-8:50</td>
<td></td>
<td>9:05-9:55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:05-9:55</td>
<td></td>
<td>10:10-11:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:10-11:00</td>
<td></td>
<td>11:15-12:05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15-12:05</td>
<td></td>
<td>12:20-1:10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:20-1:10</td>
<td></td>
<td>1:25-2:15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:25-2:15</td>
<td></td>
<td>2:30-3:20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:30-3:20</td>
<td></td>
<td>3:35-4:25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:35-4:25</td>
<td></td>
<td>4:40-5:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4:40-5:30</td>
<td></td>
<td>5:45-6:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:45-6:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Tuesday</th>
<th>Time</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:10-9:25</td>
<td></td>
<td>9:40-10:55</td>
<td></td>
</tr>
<tr>
<td>9:40-10:55</td>
<td></td>
<td>11:10-12:25</td>
<td></td>
</tr>
<tr>
<td>11:10-12:25</td>
<td></td>
<td>12:40-1:55</td>
<td></td>
</tr>
<tr>
<td>12:40-1:55</td>
<td></td>
<td>2:10-3:25</td>
<td></td>
</tr>
<tr>
<td>2:10-3:25</td>
<td></td>
<td>3:40-4:55</td>
<td></td>
</tr>
<tr>
<td>3:40-4:55</td>
<td></td>
<td>5:05-6:20</td>
<td></td>
</tr>
<tr>
<td>5:05-6:20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Academic Calendar

## Fall Semester 2014

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes Begin</td>
<td>Wednesday, August 20</td>
</tr>
<tr>
<td>Labor Day</td>
<td>Monday, September 1</td>
</tr>
<tr>
<td>1st Session Ends</td>
<td>Wednesday, October 8</td>
</tr>
<tr>
<td>2nd Session Begins</td>
<td>Thursday, October 9</td>
</tr>
<tr>
<td>Fall Break</td>
<td>Thursday - Friday, October 16-17</td>
</tr>
<tr>
<td>Thanksgiving</td>
<td>Thursday-Friday, November 27-28</td>
</tr>
<tr>
<td>Classes End</td>
<td>Tuesday, December 2</td>
</tr>
</tbody>
</table>

## Spring Semester 2015

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes Begin</td>
<td>Wednesday, January 7</td>
</tr>
<tr>
<td>MLK Holiday</td>
<td>Monday, January 19</td>
</tr>
<tr>
<td>1st Session Ends</td>
<td>Wednesday, February 25</td>
</tr>
<tr>
<td>2nd Session Begins</td>
<td>Thursday, February 26</td>
</tr>
<tr>
<td>Spring Break</td>
<td>Monday - Friday, March 16-20</td>
</tr>
<tr>
<td>Spring Recess</td>
<td>Friday, April 3</td>
</tr>
<tr>
<td>Classes End</td>
<td>Monday, April 27</td>
</tr>
<tr>
<td>Exams</td>
<td>Tuesday–Tuesday, April 28, 29, 30, May 1, 4, 5</td>
</tr>
<tr>
<td>Graduate Hooding</td>
<td>Thursday, May 7</td>
</tr>
<tr>
<td>University College Commencement Ceremonies</td>
<td>Wednesday-Saturday, May 6-9</td>
</tr>
</tbody>
</table>

## Official Graduation Date

<table>
<thead>
<tr>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturday, December 13</td>
</tr>
<tr>
<td>Saturday, December 13</td>
</tr>
</tbody>
</table>

## Summer Term 2015

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini Session Begins</td>
<td>Wednesday, May 6</td>
</tr>
<tr>
<td>Memorial Day Holiday</td>
<td>Monday, May 25</td>
</tr>
<tr>
<td>Mini Session Ends</td>
<td>Wednesday, May 27</td>
</tr>
<tr>
<td>Full and 1st Sessions Begin</td>
<td>Monday, June 1</td>
</tr>
<tr>
<td>1st Session Ends</td>
<td>Thursday, July 2</td>
</tr>
<tr>
<td>Independence Day Holiday</td>
<td>Friday, July 3</td>
</tr>
<tr>
<td>2nd Session Begins</td>
<td>Monday, July 6</td>
</tr>
<tr>
<td>Full and 2nd Sessions End</td>
<td>Thursday, August 6</td>
</tr>
</tbody>
</table>

## Summer Graduation Date*

<table>
<thead>
<tr>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday, August 14</td>
</tr>
</tbody>
</table>

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

Fall 2014 - Undergraduate
Priority Registration ............................................................... March 10–August 18, 2014
Fall 2014 Graduation Application Deadline ...................................... April 25, 2014
Spring 2015 Graduation Application Deadline ........................................... August 8, 2014
Late Registration .......................................................................................... August 20–August 29, 2014
Classes Begin ........................................................................................................ August 20, 2014
Last Day to Add, Change Grading Options or Drop without a “W” - 1st Session Courses .................................................................................................................. August 25, 2014
Last Day to Add, Change Grading Options or Drop without a “W” - Full Session Courses ............................................................................................ August 29, 2014
Labor Day (No Classes) ......................................................................................... September 1, 2014
Last Day to Adjust Hours for Financial Aid Awarding .................................. September 2, 2014
First Session Classes End ..................................................................................... October 8, 2014
Fall Break (No Classes) ......................................................................................... October 16-17, 2014
Second Session Classes Begin ............................................................................... October 9, 2014
Last Day to Add, Change Grading Options or Drop without “W” - 2nd Session Courses .................................................................................................. October 14, 2014
Last Day to Drop with a “W” - Full Term Courses ............................................... November 11, 2014
Last Day to Drop with “W” - 2nd Session Courses ................................................ November 17, 2014
Thanksgiving Holidays (No Classes) ............................................................... November 27-28, 2014
Total Withdrawal from the University Deadline ............................................. December 2, 2014
Classes End (Full and Second Session) .............................................................. December 2, 2014
Summer 2014 Graduation Application Deadline for Undergraduates ................... December 2, 2014
Study Day ........................................................................................................... December 3, 2014
Exam Period ....................................................................................................... December 4, 5, 8, 9, 10, 11, 2014
Commencement Rehearsal (Thompson Boling Assembly Center & Arena) .......... December 12, 2014
Commencement (Thompson Boling Assembly Center & Arena) ....................... December 13, 2014
Official Graduation Date on Transcript .............................................................. December 13, 2014

Financial Calendar for Fall Term 2014
Statement information available on MYUTK.UTK.EDU ...................................... August 8, 2014
Priority Registration Payment/Confirmation Deadline ......................................... August 18, 2014 at 4:30 p.m.
Late Registration/Late Fees Begin ........................................................................ August 20, 2014
Late Registration Payment/Confirmation Deadline ............................................... August 29, 2014

* 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 Map
# Key for Engineering Buildings

<table>
<thead>
<tr>
<th>Building</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berry Hall</td>
<td></td>
</tr>
<tr>
<td>See individual directory listings</td>
<td></td>
</tr>
<tr>
<td>Dougherty Hall</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>Claxton</td>
<td></td>
</tr>
<tr>
<td>Innovative Computing Laboratory</td>
<td>203</td>
</tr>
<tr>
<td>East Stadium Hall</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>Estabrook Hall</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>Min H. Kao Electrical Engineering &amp; Computer Science Building</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>Pasqua Hall</td>
<td></td>
</tr>
<tr>
<td>Department of Nuclear Engineering</td>
<td>315</td>
</tr>
<tr>
<td>Perkins Hall</td>
<td></td>
</tr>
<tr>
<td>College of Engineering Administrative Offices</td>
<td></td>
</tr>
<tr>
<td>Communications</td>
<td>114</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>118, 120</td>
</tr>
<tr>
<td>Finance &amp; Administrative Affairs</td>
<td>219</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>Science &amp; Engineering Research Facility (SERF)</td>
<td></td>
</tr>
<tr>
<td>Scintillation Materials Research Center</td>
<td>301</td>
</tr>
<tr>
<td>Senter Hall</td>
<td></td>
</tr>
<tr>
<td>Ion Beam Materials Laboratory (IBML)</td>
<td>101</td>
</tr>
<tr>
<td>Textiles &amp; Nonwovens Development Center (TANDEC)</td>
<td>See individual directory listings</td>
</tr>
<tr>
<td>John D. Tickle Engineering Building</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>UT Conference Center</td>
<td></td>
</tr>
<tr>
<td>Center for Transportation Research</td>
<td>309</td>
</tr>
<tr>
<td>Under Construction or Design</td>
<td></td>
</tr>
<tr>
<td>Joint Institute for Advanced Materials (JIAM)</td>
<td></td>
</tr>
<tr>
<td>Not Shown</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>