Academic Advising Session for Undeclared Engineering Students

Welcome & Introductions
Overview of Engineering Disciplines
Student Panel
Discussion of Class Schedules and Registration
# Georgia Tech Engineering Majors

<table>
<thead>
<tr>
<th>Major</th>
<th>Fall 2017 Undergraduate Enrollment</th>
</tr>
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<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>902</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>1,148</td>
</tr>
<tr>
<td>Chemical and Biomolecular Engineering</td>
<td>895</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>440</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>626</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>792</td>
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<tr>
<td>Environmental Engineering</td>
<td>211</td>
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<tr>
<td>Industrial Engineering</td>
<td>1,212</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>341</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>2,011</td>
</tr>
<tr>
<td>Nuclear and Radiological Engineering</td>
<td>110</td>
</tr>
<tr>
<td>Undecided Engineering</td>
<td>201</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,891</strong></td>
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ENGINEERING CURRICULUM OVERVIEW

- Mathematics
- Science
- Humanities & Social Sciences
- Computer Science
- Required Major Courses
- Technical and Free Electives
- Capstone Design Project
# Common Course Requirements in Engineering Curricula

<table>
<thead>
<tr>
<th>Subject</th>
<th>Course Name</th>
<th>Course Number</th>
<th>HRS</th>
</tr>
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<tbody>
<tr>
<td>Mathematics</td>
<td>Intro to Differential Calculus</td>
<td>Math 1550 (Summer Freshmen)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Differential Calculus</td>
<td>Math 1551 (Fall Freshmen)</td>
<td>2</td>
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<tr>
<td></td>
<td>Integral Calculus</td>
<td>Math 1552</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Intro to Linear Algebra</td>
<td>Math 1553</td>
<td>2</td>
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<tr>
<td></td>
<td>Multivariable Calculus</td>
<td>Math 2551</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Differential Equations</td>
<td>Math 2552*</td>
<td>4</td>
</tr>
<tr>
<td>Science</td>
<td>Introductory Physics I</td>
<td>Phys 2211</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Introductory Physics II</td>
<td>Phys 2212</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td>Chem 1310 or 1211K**</td>
<td>4</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Computing for Engineers</td>
<td>CS 1371***</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>English Composition I</td>
<td>Engl 1101</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>English Composition II</td>
<td>Engl 1102</td>
<td>3</td>
</tr>
<tr>
<td>Humanities Electives</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>U.S. History/Gov. Requirement</td>
<td>One of the following:</td>
<td>Hist 2111, 2112, Pol 1101, PubP 3000, or IntA 1200</td>
<td>3</td>
</tr>
<tr>
<td>Economics Requirement</td>
<td>One of the following:</td>
<td>Econ 2100, 2101, 2105, or 2106</td>
<td>3</td>
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<tr>
<td>Social Science Electives</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Wellness</td>
<td>Health or Fitness Concepts</td>
<td>APPH 1040 or 1050</td>
<td>2</td>
</tr>
</tbody>
</table>

* IE majors take Math 2602, Linear and Discrete Math  
** Depends on major  
*** IE and CMPE/EE majors take CS 1301
AEROSPACE ENGINEERS

• Analyze, design, and build aircraft, rotocraft, spacecraft, satellites, missiles, and rockets;
• Improve the performance of vehicles moving through gases or liquids;
• Are typically specialists in fields such as aerodynamics, structures, propulsion, navigation, design, and flight testing.

Representative Employers: Boeing, Lockheed Martin, NASA, Pratt & Whitney, GE, Sikorsky, Bell, Rolls Royce, Siemens, airlines.
BIOMEDICAL ENGINEERS

• Integrate the engineering sciences with the biomedical sciences and clinical practice;
• Apply advanced technologies to the complex problems associated with the prevention, diagnosis and treatment of disease;
• Work in a variety of companies including medical devices, biotechnology, pharmaceutical, consulting, and government agencies.

Representative Employers: Medtronic, St. Jude Medical, Johnson & Johnson
CHEMICAL AND BIOMOLECULAR ENGINEERS

• Discover and manufacture better plastics, fuels, and drugs;
• Protect the environment by inventing cleaner technologies;
• Work to create substitutes for the earth’s shrinking natural resources.

Representative Employers: ExxonMobil, Coca-Cola, Johnson & Johnson, Kimberly-Clark
CIVIL ENGINEERS

- Design and construct functional, cost effective, and sustainable structures and complex systems;
- Improve quality of life through the design, construction, and management of critical infrastructure systems;
- Design and construct infrastructure systems that can resist earthquakes, tsunamis, hurricanes, and floods.

Representative Employers: MARTA, Winter Construction, Uzun & Case, Kimley Horn & Associates, Norfolk Southern
ENVIRONMENTAL ENGINEERS

• Construct climate and watershed models to predict and prevent natural disasters;

• Engineer solutions to reduce global warming and improve human health conditions;

• Make sustainable environmental decisions based on the cause and effect between the interfaces of the natural and built world.

Representative Employers: CH2M HILL, Parsons Brinkerhoff, Environmental Protection Agency, Georgia Power
COMPUTER ENGINEERS

• Develop high speed computing platforms for use in computer-generated imagery, gaming, and oil/gas exploration;

• Design embedded systems for applications including security, entertainment, medicine, and hybrid vehicles;

• Build robots that assist disabled people or navigate harsh terrains.

Representative Employers: Intel, NVIDIA, Cisco Systems, Hewlett Packard
ELECTRICAL ENGINEERS

• Develop environmentally friendly technologies such as solar power and solid state (LED) lighting;
• Design sensors that measure glucose in the bloodstream or detect pollutants in our water supply and atmosphere;
• Make electronic gadgets like iPods and cell phones smaller, faster, and less expensive.

Representative Employers: Texas Instruments, Georgia Power, General Electric, Lockheed Martin
INDUSTRIAL ENGINEERS

• Integrate systems that include people, materials, information, equipment, and energy;
• Design, develop, implement, control, and improve the performance of complex systems;
• Work in areas such as supply chain, economic decision analysis, statistical analysis, operations research, and health systems.

Representative Employers: Coca-Cola, General Motors, UPS
MATERIALS SCIENCE ENGINEERS

- Produce engineering materials of all types;
- Develop materials for product areas such as nanotechnology, energy production, biotechnology, aviation, and microelectronics;
- Specify and test materials for all engineering applications.

Representative Employers: AT&T, Hewlett-Packard, Ford, Under Armour,
MECHANICAL ENGINEERS

• Work across disciplines to create new products for the betterment of humanity;

• Innovate, create, and design mechanical, energy, and biomedical devices and systems;

• Are involved in manufacturing the products they design and also work in finance, law, and medicine.

Representative Employers: BMW, General Dynamics, United Technologies, General Motors
NUCLEAR AND RADIOLOGICAL ENGINEERS

• Design nuclear plants that generate electricity with no carbon footprint;
• Manage the disposal of nuclear waste;
• Use radiation to diagnose and treat diseases such as cancer.

Representative Employers: NASA, Nuclear Regulatory Commission, Siemens, Westinghouse, Duke Energy
SELECTING A MAJOR

- COE 1000
- Academic Advisors
- Websites
- Faculty

College of Engineering
- coe.gatech.edu
- ae.gatech.edu
- bme.gatech.edu
- chbe.gatech.edu

- cee.gatech.edu
- ece.gatech.edu
- isye.gatech.edu
- mse.gatech.edu
- me.gatech.edu

- careercornerstone.org
- discoverengineering.org
- nae.edu
SELECTING A MAJOR – CHANGE IN POLICY

- Beginning in Summer 2018 - Admitted freshmen will not be allowed to submit a request for a change of major until after the deadline for withdrawal from classes with a W grade in the first term of their enrollment. The change would be effective for the second term of enrollment. This includes a change of major within the student's current College. For freshmen admitted for Summer, the restriction is lifted after the withdraw deadline of their second semester of enrollment. All other restrictions also apply.

- For Fall 2018 - Withdrawal Deadline is October 27 – so after this date you can submit a change of major form
Academic Advisor for Undecided Engineering Students are in the School of Mechanical Engineering

- Lenna Applebee - Last names A – D 
  lenna.applebee@me.gatech.edu

- Laura Dawson - Last names E – K 
  laura.dawson@me.gatech.edu

- Kristi Mehaffey - Last names L – Re 
  kristi.mehaffey@me.gatech.edu

- Kendra Denmark - Last names Rf – Z 
  kendra.Denmark@me.gatech.edu

http://www.me.gatech.edu/undergraduate/academic_advisors

Use GradesFirst to schedule an appointment with your UEC advisor

All advisors are in MRDC room 3112 (building 135 on the campus map)
IMPORTANT CONTACTS

Center for Academic Success
http://www.successprograms.gatech.edu

Policies, Procedures, and Degree Requirements
http://www.registrar.gatech.edu

Advisors in Other Departments
http://www.advising.gatech.edu
COE 1000 – FRESHMAN ENGINEERING SEMINAR

- Overview of GT Engineering Majors
- Meets once a week
- One hour credit
- Pass/Fail
PROGRAM ENRICHMENT OPPORTUNITIES

- Co-op/Internships
- Study Abroad/International Plan
- Undergraduate Research/Research Option
- Certificates, Minors, 5-Year B.S./M.S. Program
CO-OP/INTERNSHIPS

• Professional experience and increased marketability
• Connect academic work to real world
• Explore career goals and options
• Earn as you learn!
UNDERGRADUATE RESEARCH/RESEARCH OPTION

• Learn skills that cannot be taught in the classroom
• Establish a professional relationship with a faculty member
• Gain experience
• Feel the thrill of discovery
STUDY ABROAD/INTERNATIONAL PLAN

- Learn to function successfully in cross-cultural settings
- Acquire or improve foreign language skills
- Enjoy the adventure of discovering new places
CERTIFICATES, MINORS, FIVE-YEAR B.S./M.S. PROGRAM

• Certificates
  • Minimum of 12 hours coursework in area of specialization

• Minors
  • Minimum of 15 hours coursework in area of specialization

• 5-Year B.S./M.S. Program
  • Earn a Bachelor’s and a Master’s Degree in the same field in just one year beyond the BS degree
Faculty-led, student-focused initiative to instill entrepreneurial confidence in Georgia Tech’s students.
CREATE-X PROGRAMS

**LEARN**

Startup Lab
Learn Entrepreneurship
Freshmen/Sophomores
3-credit class

**MAKE**

Idea to Prototype
Build Product
Sophomores/Juniors
3-6 research credits

**LAUNCH**

Startup Summer
Launch Startup
Juniors/Seniors
$20K funding
# Global Engineering Leadership Track in Leadership Studies Minor - Courses

<table>
<thead>
<tr>
<th>COURSE AREAS</th>
<th>COURSES</th>
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<tbody>
<tr>
<td>1 Foundations Course</td>
<td>Foundations of Leadership (PubP 4140)</td>
</tr>
<tr>
<td>2 Breadth Course</td>
<td>Global Engineering Leadership and Management (CEE 4803)</td>
</tr>
<tr>
<td>3 Global Engineering Grand Challenge Courses</td>
<td>Environmental Technology in Devel. Countries (CEE 4803)</td>
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<td></td>
<td>Megaprojects &amp; Construction Mgmt. (CEE 4803)</td>
</tr>
<tr>
<td></td>
<td>Int’l Disaster Reconnaissance Studies (CEE 4803)</td>
</tr>
<tr>
<td></td>
<td>Sustainable Transportation Abroad (CEE 4803)</td>
</tr>
<tr>
<td></td>
<td>Sustainable Cities (CEE 4803)</td>
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<tr>
<td></td>
<td><em>(Select 3 grand challenge courses)</em></td>
</tr>
<tr>
<td>4 Capstone Experience</td>
<td>Global Engineering Internship (INTN 3011)</td>
</tr>
<tr>
<td>5 Seminar</td>
<td>Hyatt Distinguished Speaker Series</td>
</tr>
</tbody>
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* Total of 15 hours of semester credits + internship

* Up to 6 academic course credits used in minor may be used to fulfill free electives or technical electives
ENGINEERING OFFERS...

✓ A wide diversity of career paths
✓ Highest starting salaries of any discipline with a bachelor’s degree
✓ The chance to work with a variety of people
✓ An environment of lifelong learning and discovery
✓ The opportunity to help shape the future