Computer engineering (CE) combines some of the thought-provoking aspects of computer science and electrical engineering. Computer engineers are particularly important today because embedded systems, which integrate hardware and software, are increasingly common in robotics, cellphones, computer-controlled platforms and elsewhere. Computer engineers are knowledgeable about both hardware and software, so, in particular, they’re in high demand wherever embedded systems are used.

**Computer Engineering at UT Dallas**

The CE curriculum is centered on system-level design, computer architecture and computer programming applications. This includes circuits and devices, computer systems and engineering software systems. The CE program also encourages students and faculty to develop synergies with disciplines outside of engineering such as the life sciences. CE faculty members are actively involved in advanced research and teaching in all major areas of computer engineering, and the school has a large infrastructure of computing and laboratory resources.

Engineering education requires strong high school preparation. Students interested in a computer engineering path should have at least one semester of trigonometry and at least one year each of elementary algebra, intermediate and advanced algebra, plane geometry, chemistry and physics, to develop their competencies to the highest possible levels to prepare them to move into demanding college courses in calculus, calculus-based physics and chemistry for science majors. It’s also essential that students have the competence to read and comprehend rapidly, and to write clearly and correctly.

The Jonsson School operates one of the largest internship and cooperative education programs of its kind, averaging more than 1,200 undergraduate and graduate student placements a year at Dallas-area high-tech companies, including Texas Instruments, Intel, Raytheon, Amazon, Apple, Alcatel-Lucent, Google and IBM.

**Careers in Computer Engineering**

CE concerns the design, construction, implementation and maintenance of software and hardware components of modern computing systems and computer-controlled equipment. Computer engineers work with systems in a wide range of products, including vehicular control systems, wearable devices, biomedical systems and a wide range of household devices. Computer engineers design computer systems and components, develop and test prototypes and help take them to market. Having evolved over the past three decades as a separate discipline, CE is solidly grounded in theories and principles of computing, mathematics, algorithms, science and engineering, and it applies these theories and principles to solve technical problems through the design of computer hardware, software, networks and processes.

** Marketable Skills**

Upon successful completion of the BS in Computer Engineering, graduates will be able to enter the workforce with the following skills:

- Comprehend the performance versus complexity tradeoffs involved in solving a computing problem
- Design a computing system, process, component or program to meet desired needs
- Work productively in teams and communicate effectively with a range of audiences
- Understand principles of ethics to address ethical and security issues faced by computer engineers
- Able to use modern computer engineering tools effectively
- Design, conduct, and interpret engineering experiments
- Ability to combine computing, math, and engineering tools to solve current computer engineering challenges
- Ability to engage in lifelong learning
The Jonsson School is strategically located in the Telecom Corridor, home of the second-largest high-tech economy in the U.S. The School recently completed a major public-private initiative that greatly expanded its capabilities, including construction of a new state-of-the-art 220,000-square-foot interdisciplinary research building, and recently opened a 200,000-square-foot engineering building. With more than 165 tenured/tenure-track faculty members, 7,400 students, and $53 million in research funding, the Jonsson School has six academic departments:

<table>
<thead>
<tr>
<th>Bioengineering</th>
<th>Computer Engineering</th>
<th>Computer Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials Science and Engineering</td>
<td>Mechanical Engineering</td>
<td>Systems Engineering</td>
</tr>
</tbody>
</table>

The school also offers a minor in nanoscience and technology.

**Degrees Offered**

**Bachelor of Science:** Biomedical engineering, computer engineering, computer science, electrical engineering, mechanical engineering, software engineering

**Master of Science:** Biomedical engineering, computer engineering, computer science, electrical engineering, materials science and engineering, mechanical engineering, software engineering, systems engineering and management*, telecommunications engineering

**Doctor of Philosophy:** Biomedical engineering, computer engineering, computer science, electrical engineering, materials science and engineering, mechanical engineering, software engineering, telecommunications engineering, systems engineering and management

* Joint program between Jindal School of Management and Erik Jonsson School of Engineering and Computer Science.

**Research**

Research efforts underway at the school involve such cutting-edge technology as:

<table>
<thead>
<tr>
<th>Medical imaging</th>
<th>Speech Recognition</th>
<th>Materials characterization</th>
<th>Cochlear implant technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cybersecurity</td>
<td>Organic electronics</td>
<td>Physical, chemical and biosensors</td>
<td>Wireless networking</td>
</tr>
<tr>
<td>Carbon nanotubes</td>
<td>Micro-electromechanical systems</td>
<td>Semiconductor design</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Facts**

The Jonsson School’s recent growth surge has helped propel its undergraduate programs into *U.S. News & World Report*’s annual rankings of the nation’s top schools of engineering.

The school’s graduate program has continued its rise through the national *U.S. News* rankings, now placing among the top 25 public university graduate programs and ranking third in Texas.

The Jonsson School has significantly increased the size of its faculty in recent years, hiring top recent graduates of Stanford University, Cornell University, Purdue University, Georgia Tech and UCLA, as well as seasoned professionals from Rutgers University, University of Southern California, University of California, Davis, Sandia National Laboratories, Freescale Semiconductor and Texas Instruments.

The Jonsson School features a variety of student organizations that are actively involved in both academic and social activities. Completely student-run, these include the Association for Computing Machinery, the Game Development Group, the National Society of Black Engineers, a chapter of the scientific research society Sigma Xi, the Society of Hispanic Professional Engineers and the Society of Women Engineers.

The Fast-Track Program enables exceptionally gifted undergraduate students to include up to 15 hours of master’s level courses in their undergraduate degree plans. When Fast-Track students graduate with a bachelor’s degree, they are automatically admitted to graduate school at UT Dallas. The hours required to complete the master’s degree are reduced by up to 15 hours by the number of Fast-Track graduate hours completed.