UT Dallas 2014 Undergraduate Catalog

Erik Jonsson School of Engineering and Computer Science

Named in honor of one of the three founders of Texas Instruments, Inc. and of The University of Texas at Dallas, the Erik Jonsson School of Engineering and Computer Science provides undergraduate degree preparation for professional practice as an engineer or computer scientist. Particular emphasis is placed on developing strong analytical and problem solving abilities as a foundation for graduate study in these fields.

The school's curricula emphasize electronic information processing devices and technologies that are involved with the acquisition, interpretation, transmission, and utilization of information. The school offers seven degree programs: Biomedical Engineering, Computer Engineering, Computer Science, Electrical Engineering, Mechanical Engineering, Software Engineering and Telecommunications Engineering; a minor in Nanoscience and Nanotechnology is offered by the Department of Materials Science and Engineering. The Biomedical Engineering program offers students the opportunity to combine engineering with biology and physiology. The Computer Science program emphasizes the design and analysis of efficient parallel and sequential algorithms with applications in VLSI layout and routing, distributed networks and operating systems, image processing, computational geometry, automation and robotics. The Software Engineering program concentrates on all aspects of software development including requirements engineering, software architecture and design, program testing, validation, and quality assurance. The Electrical Engineering program offers students an opportunity to acquire a solid foundation in the broad areas of electrical engineering and emphasizes advanced study in digital systems, telecommunications, and microelectronics. The Mechanical Engineering program focuses on the analysis, design, manufacturing of mechanical and thermal systems with particular emphasis on energy conversion, harvesting, and utilization, micro- and nano-technology devices and processes, and robotics. The Computer Engineering and Telecommunications Engineering programs are interdisciplinary, as they require a blend of knowledge from the areas of Electrical Engineering and Computer Science.

All programs are based on a solid foundation of science and mathematics coursework. Students in these programs are given an opportunity to learn to extend their abilities to analyze and solve complex problems and to design new uses of technology to serve today's society. The Engineering programs provide an integrated educational experience directed toward the development of the ability to apply pertinent knowledge to the identification and solution of practical problems in engineering. These programs ensure that the design experience is developed and integrated throughout the curriculum in a sequential development leading to advanced work and includes both analytical and experimental studies. Established cooperative education programs with area industry serve to further supplement design experiences.

The University of Texas at Dallas is located at the heart of a high concentration of companies that specialize in the areas of microelectronics, telecommunications, signal processing, and optics. The Erik Jonsson School of Engineering and Computer Science maintains close relationships with these companies and has established cooperative programs through which students can obtain industrial
experience to complement their classroom instruction. Details of specific cooperative programs between Computer Science and Engineering students and local companies are available in the respective program offices.

**Industrial Practice Programs**

The Industrial Practice Programs (IP Programs or IPP) of the Erik Jonsson School of Engineering and Computer Science include the school’s Cooperative Education, Internship, and Curricular Practical Training Programs. These programs combine classroom learning with paid work experience. Qualified students are referred to participating employers seeking candidates for career-related, pre-professional work assignments. The programs enhance a student's education and career preparation by integrating classroom theory with on-the-job performance, providing an understanding of work environments and professional requirements, testing career and professional goals, developing confidence, maturity and skills in human relations, and establishing contacts and interests.

Students are expected to register with and follow the rules of the IP Programs when working in any position titled by the employer as an Internship or a Cooperative Education assignment. Also, the Jonsson School offers one semester credit hour ECSC courses (may be used towards free elective requirements), and a three-semester credit hour course (may be used towards advanced free elective requirements) that provide students the opportunity to evaluate their work experience.

For more information about the IP programs, call (972) 883-4363. The IP Programs Office is located in the Student Services suite (ECS South 2.502).

**Minors**

To minor in the Erik Jonsson School of Engineering and Computer Science, students must take a minimum of 18 semester credit hours for the minor, 12 of which must be upper-division hours. Students who take a minor will be expected to meet the normal prerequisites in courses making up the minor, and should maintain a minimum GPA of 2.000 on a 4.00 scale (C average). Core courses offered by the school may count as lower-division hours toward the minor. Students may choose to minor in any of the following fields of study:

**Department of Computer Science**

- [Computer Science](http://catalog.utdallas.edu/2014/undergraduate/programs/ecs)
- [Information Assurance](http://catalog.utdallas.edu/2014/undergraduate/programs/ecs)
- [Software Engineering](http://catalog.utdallas.edu/2014/undergraduate/programs/ecs)

**Department of Materials Science and Engineering**

- [Nanoscience and Technology](http://catalog.utdallas.edu/2014/undergraduate/programs/ecs)
